University of Southampton

Faculty of Medicine

School of Primary Care, Population Sciences and Medical Education

Navigating success: A mixed-methods case study exploring the progression experiences of medical students on a Gateway programme

by

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Abstract

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When compared to their peers, medical students from widening participation (WP) backgrounds are less likely to apply for a medical degree or be offered a place, and those who are selected are less likely to complete their studies. Gateway programmes specifically recruit students from WP backgrounds but there is little known about the experiences of these students. This thesis adds to an evidence base improving understanding of the factors that affect the progression and success of students from WP backgrounds in medicine.

This thesis presents a mixed methods case study, situated within a pragmatic philosophical worldview, of Gateway programme students (GPSs) at one UK medical school. It explores the experiences of these students as it answers the question *'How do medical students on a well-established Gateway programme progress through medical school?'*. Retrospective cohort level data was used to assess cohort demographics and compare progression rates and assessment performance of 148 Gateway programme and 757 standard entry students. Phenomenographic and thematic analyses of semi-structured interviews with twenty-two GPSs and recent graduates explored student conceptions of success, and how participants navigated their medical school journey.

On average, GPSs were older, more ethnically diverse, and from more deprived areas than standard entry students. GPSs progressed at lower rates through points of transition, but no one type of assessment was responsible. Seven percent fewer GPSs graduated into the medical workforce compared to standard entry students.

GPS conceptions of success at medical school changed as they progressed through medical school into independent practice. Passing exams developed into being a good doctor, with many more expressing a unique personal achievement as their personal measure of success. These varying conceptions are at odds with the constructions most often used by educational institutions.

The overarching experience of GPSs was one of paradox. Benefits of belonging to a 'family' of GPSs contrasted with a variable sense of belonging to the medical school as a whole. Recognition of the benefits of extra-curricular involvement contrasted with a choice limited by perceived risk to progression from competing priorities, medical school culture, and financial pressures. Peaks and troughs of confidence, identity formation, and self-efficacy beliefs broadly mirrored points of transition and were affected by the attitude of significant adults and peers, and assessment results and feedback.

Medical schools should be applauded for their commitment to WP initiatives. However, further maximising the success of students entering via Gateway programmes will require institutions to examine their environments carefully and critically. Social, cultural, and financial barriers to success must be identified, and steps taken to remove or reduce them to enable further progress in providing an equitable experience for all students.

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Research Thesis: Declaration of Authorship

Print name: Rebecca Rosa Bartlett

Title of thesis: Navigating success: A mixed-methods case study exploring the progression experiences of medical students on a Gateway programme

I declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;
2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
3. Where I have consulted the published work of others, this is always clearly attributed;
4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
5. I have acknowledged all main sources of help;
6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
7. None of this work has been published before submission

Signature: R Bartlett [electronically signed]

Date: 27th March 2024

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Abbreviations and Definitions

ACC .... Assessment of Clinical Competence. A short structured clinical assessment used in the clinical years of the medical degree programmes at Southampton. Students are assessed on several occasions in each attachment by different clinicians on different clinical cases.

ASME .... The Association for the Study of Medical Education. A UK based organisation for doctors, healthcare workers, and medical educators engaged in medical education research.

BM4 .... The four-year graduate entry medical degree programme at Southampton University.

BM5 .... An undergraduate five-year medical degree programme at Southampton University. It has the largest cohort of all five programmes and is the 'tradition entry' programme.

BM6 .... The six-year 'widening participation' medical degree programme at the University of Southampton. The students on this programme are the subject of the case study in this thesis.

BMA .... British Medical Association. The trade union and professional body for doctors and medical students in the UK.

BM(EU) .... A five-year medical degree programme at Southampton University in which bilingual students study for two years in Southampton before completing their clinical training in Germany.

BM(IT) .... A five-year medical degree programme at Southampton University in which students complete their first two years at universities in Malaysia or Brunei before transferring to Southampton for their clinical training.

DoH .... Department of Health in the UK Government. Now the Department of Health and Social Care.

FSM .... Free School Meals; a marker of having a widening participation background. Children at UK schools may be eligible for free school

meals if their parents or guardians are in receipt of a means tested benefit.

Gateway programme...........A medical degree programme with an extra year, or a single year programme to be completed before entry to a traditional medical degree programme, specifically designed to support students from under-represented backgrounds. Distinct from 'preliminary year' programmes which are designed to allow entry to medical degrees for students who studied non science courses at A-Level.

GMC ....General Medical Council. The organisation which oversees medical education and training in the UK to protect patient safety and support doctors and other stakeholders. They also maintain the register of doctors licensed to practice medicine in the UK.

GPSs ....Gateway Programme Students. Students studying on a 6-year Gateway Medical Degree Programme.

HE..Higher Education. Education at universities and similar institutions.

HEFCE..................................Higher Education Funding Council for England. The government body which distributed public money for teaching and research. It was closed on the 1st of April 2018 and replaced with 'UK Research and Innovation' and the 'Office for Students'.

IMD ....Index of multiple deprivation. A measure of relative deprivation for small geographical areas expressed in deciles. It is based on 37 individual indicators covering a range of aspects such as income, employment, education, and crime.

MCQ.....................................Multiple Choice Questions.

MMI ....Multiple mini-interview. An interview format used by several medical schools. It is a series of short stations each focussed on a different question or scenario.

MSC......................................Medical Schools Council. The representative body of medical schools in the UK made up of the heads of those medical schools. Sub-groups meet to provide expertise on specific aspects of medical school education.

NMC ....Numerically marked component. Part of an exam or assessment where results can be expressed as a percentage, where other aspects may be marked as pass/fail or an alternative.

OfFA ....The Office for Fair Access. Government department responsible for promoting fair access to higher education. Replaced by the Office for Students in 2018.

OSCE....................................Objective structure clinical examination. A competency-based examination which assess performance in a simulated setting with a series of stations each assessing the student's performance against a standardised scoring sheet.

POLAR3................................A postcode-based measure of young people's participation rates in higher education. Expressed in quintiles.

RCP ....Royal College of Physicians. The oldest medical college in England, its mission is to '*drive improvements in health and healthcare through advocacy, education, and research'*[1].

SCT.......................................Social Cognitive Theory. A learning theory developed by Albert Bandura in the 1980s. Used in Chapter 6.

SEEG ....Selecting for excellence executive group. A broad alliance of stakeholders including the Medical Schools Council, British Medical Association, medical royal colleges, General Medical Council, and government departments established to investigate and make recommendations to improve fair access to the medical profession.

SES.......................................Socioeconomic status. An economic and sociological measure of an individual or group relative to the population. In the UK this classification is produced by the Office for National Statistics based on profession.

SJT ....Situational Judgement Test. A test taken as part of the selection process for the Foundation Programme. Taken by medical students during their final year.

TA ....Thematic analysis. A group of qualitative analysis methods, used in Chapter 6.

Abbreviations and Definitions

TEF .... Teaching Excellence Framework. A scheme run by the Office for Students which assesses and rates universities and colleges on their experience and outcomes for undergraduate students.

UCAS .... The universities and colleges admissions service.

UKCAT (UCAT) .... Universities clinical aptitude test, previously United Kingdom clinical aptitude test. A standardised computer-based admissions test used by some universities in the UK for medical and dental programmes.

UKMED .... The UK Medical Education Database. A database which collates data on the performance and careers of medical students and doctors, set up in 2015.

WA .... Widening Access. '*WA emphasises more the equality or fairness of the selection processes that act as a gateway to HE. This may refer to specific selection policies that increase the matriculation of certain unrepresented groups*'[2] (p.321).

WP .... Widening participation. '*WP refers to the policy that people such as those coming from disadvantaged backgrounds, mature students, students from ethnic and cultural groups and disabled students should be encouraged to take part, and be represented proportionately, within higher education*'[2] (p.321).

Chapter 1   Introduction

1.1   Background

The issue of diversity in the medical workforce and the need to achieve parity of access to medical school regardless of gender, ethnicity or social background have been discussed for decades. In their statement of principles in 1998, the Council of Heads of Medical Schools (the predecessor to the Medical Schools Council, henceforth MSC) stated that in order to best meet the needs of society, the social, cultural and ethnic backgrounds of medical graduates should broadly reflect the diversity of the patients they treat[3], a position restated by the British Medical Association (BMA) in 2009[4]. Some progress has been made with regards to gender and ethnicity. The General Medical Council's (GMC) 2011 report 'The state of medical education and practice in the UK'[5] stated that medical workforce was then more broadly ethnically diverse than the UK population as a whole, and this has increased further in the past decade, partly due to the growing numbers of international medical graduates immigrating to the UK to work[6]. Whilst there is still significant variation in different specialties and geographic areas, overall, the workforce is becoming more balanced in terms of gender; in 2021 50% of new joiners were female[6]. However, research continues to show a significant under-representation of lower socio-economic groups in medicine[7-9], and this is the major focus of current widening participation (WP) policy and research in medicine in the UK[10-15].

All things being equal, all students should have the same chance of successfully completing a medical degree and progressing to the next stage of their career. But all things are not equal. There is evidence to suggest that, when compared to their peers, students from WP backgrounds are less likely to apply for a medical degree programme[8,16,17]; those who do are less likely to be offered a place[8,16]; and those who are selected are less likely to successfully complete their studies[18,19]. This thesis contributes new knowledge to the final, and least researched, area: exploring the experiences of students from WP backgrounds to understand why they might be less likely to complete their degree than those from non-WP backgrounds.

This disparity in participation is not unique to medical education. The sociodemographic profile of students at UK universities does not currently reflect society as a whole, and the participation rate amongst different groups varies. Eligibility for Free School Meals (FSM) is a commonly used measure of social disadvantage, available to students whose parents receive a variety of means tested benefits[20]. Whilst the percentage of students receiving FSM who enter Higher Education (HE) has been increasing, up from 13 percent in 2005/6 to 28.1 percent in 2020/2021, the

percentage of non-FSM eligible students entering university has also increased, from 33 percent to 46.8 percent[21,22]. However, the gap between progression rates for FSM and non-FSM eligible students fell slightly for the first time in 2020/21[22]. Using parental occupation as a different measure of socioeconomic status (SES), the Panel on Fair Access to the Professions found that young people with parents in professional or managerial occupations were almost three times as likely to attend university as young people whose parents have routine occupations[23, p88].

The sociodemographic inequity in HE participation is even more defined within undergraduate medical programmes than in the HE student population as a whole. When compared with the overall medical application profile in the UK, there are fewer applicants from low SES groups, and when they apply, they are less likely to gain a place[7].This pattern remains when using a postcode based measure, the index of multiple deprivation (IMD)[8]. A retrospective analysis of applicants to UK medical schools between 2009 and 2012 found that there were approximately four times as many applicants from the most affluent decile of postcodes as from the most deprived decile, and that this difference widened to a nine fold variation between the numbers of accepted offers held by these groups[8]. It is perhaps not a surprise then that this disparity continues through to professional practice and that medicine is described as one of the most elite professions[23]. A large scale GMC survey in 2013 that found that 34% doctors in foundation or specialist training attended private school compared with seven percent of the general UK population[24].

The MSC has a 'Selecting for Excellence' group[11] to guide medical schools as they seek to widen participation in medicine to those from under-represented groups. Medical schools are using multiple approaches to widen access: increasing early outreach into schools to raise aspirations and support students[25]; using WP markers at application to offer contextual invitations to interview; and giving contextual, lower offers based on students' background and schooling[26]. Additionally, a swiftly growing number of 'Gateway' programmes, specifically targeting students from under-represented backgrounds, provide an initial foundation year prior to entry onto the undergraduate medical programme[26]. There were five institutions offering a Gateway programme for 2016 entry when I started this PhD. This number increased to nine for entry in 2018[27], and now stands at 19 for entry to the forthcoming 2023 cohort[28]. These diverse approaches recognise the complex interplay between schooling and personal factors which mean that students from widening participation (WP) backgrounds may not have been able to achieve the highest grades necessary to gain a place at medical school, nor had support in preparing a competitive application. Gateway programmes take these factors into account and aim to support students to transition into university and a medical degree programme by offering additional support and an additional year of study[29]. As the MSC is eager to point out, widening participation is about

inclusion, about '*diversifying and enriching the medical profession and not about 'letting people in*''[15].

The literature review in the next chapter demonstrates that there is little known about the progress of WP students through undergraduate medical programmes and beyond, and therefore of the success of WP initiatives in in diversifying the medical workforce. This PhD project looks in detail at the progression of students on one of the first Gateway programmes, the BM6 programme, which has been running at the University of Southampton since 2002[30]. During a preliminary 'year 0', approximately 30 students from WP backgrounds are taught a mixture of science based and professional practice modules by a team of dedicated staff who provide extensive tutorial and pastoral support to help students manage the transition to HE[31]. Successful completion of this year leads to automatic progression to year 1, studying alongside standard entry (BM5) medical students for the remainder of the undergraduate programme, historically with no further additional support. A more detailed description of the case study context can be found in section 1.5.

1.2   Aims of this thesis

With an increasing quantity of resources being allocated nationally to supporting students from WP backgrounds into a medical career, there is a need for a robust evidence base to show how interventions such as Gateway programmes are contributing. The aim of this study is therefore to improve understanding of how students from WP backgrounds entering medicine through a Gateway programme navigate medical school, through a case study exploring their progression experiences.

The overarching research question guiding this thesis is *'How do medical students on a well-established Gateway programme experience progression through medical school?'.* This was achieved through addressing the following subsidiary research questions:

1. To what extent do Gateway programme students differ from standard entry students with regards to student performance in assessments and progression rates?
2. In what qualitatively different ways do Gateway programme medical students conceive of success at medical school?
3. How do the thoughts, behaviours, and experiences of Gateway programme medical students influence progression through medical school?

1.3 Contributions of this thesis

The contributions of this study have been to:

1. Add to the evidence base showing how Gateway programmes widen participation in medicine by demonstrating that this programme attracts students from more diverse backgrounds than standard entry programmes, and that most of them are successful. This is achieved through quantitative analysis of previous admissions, assessment, and progression data, presented in Chapter 4.

2. Identify transition points as particular areas of risk for students from WP backgrounds. This finding from the results of Chapter 4 contributed to the design of support sessions for new clinical students, which have been trialled in the medical faculty and undergone evaluation. We have published this in the Journal of Widening Participation and Lifelong Learning, the abstract of which can be found in Appendix A. There have been discussions whether there is scope to further develop these sessions for use in a wider university context to help prepare students for the transition to the workplace. The development and evaluation of these support sessions was completed as part of team and is not presented for examination as part of this thesis.

3. Share the rationale and approach of the PhD as a short case study for the GMC to show other medical schools how this research approach can be used to better understand student experience and inform practice (Appendix B).

4. Contribute to an evidence base increasing understanding of the factors that affect students from WP backgrounds in medicine, what this means for their perceptions of success at medical school and how this impacts their progression and success in achieving qualification. These results have been shared through oral presentations at Annual Scientific Meetings of the Association of the Study of Medical Education (ASME) in 2017 and 2019. Abstracts for three presentations are in Appendix C (2017) and D (2019). Two papers are underway to share findings from Chapters 5 and 6 with the wider research community.

1.4 Research approach and thesis structure

1.4.1 Brief overview of study design and rationale

The overall research design used is a modified convergent mixed methods core design, nested within an embedded single-case study[32-34]. This is visually represented in figure 1-1. I have situated my work within a pragmatic philosophical worldview. The rationale and justification for this are explored further in Chapter 3.

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CONTEXT:
University of Southampton Faculty of Medicine

Key instrumental case:
Students on the BM6 programme starting between 2007 and 2018

Unit of analysis 1:
Quantitative strand

Cohort level data

Unit of analysis 2:
Qualitative strand

Individual level data

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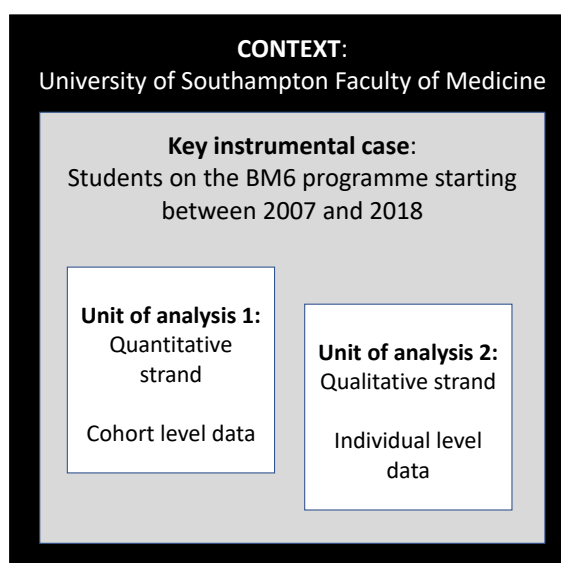
Figure 1-1 Visual representation of this embedded single-case study design

Researchers have proposed case study research as a powerful means by which to understand the socially constructed nature of higher education institutions[35], relevant to the topic at hand. The overarching aim of this thesis is to increase understanding of the experiences of students from WP backgrounds as they progress through medical school. A case study design allowed me to investigate this within a *'bounded'* system[33,35] that illuminates an exemplar *'key case'*[36] of students on a well-established Gateway programme. Yin suggests that a case study approach is preferred when *"'how' or 'why' questions are being asked about a contemporary set of events over which a researcher has no or little control"* [33 (p. 13)]. In this case, I asked a 'how' question about an issue of contemporary significance, evidenced by the current political mission to diversify the medical profession through widening access to medicine initiatives. It was a naturalistic enquiry observing, describing and interpreting the experiences and actions of the participants[37], and therefore the variables of interest were outside of my control. The context within which the participants operate is vital to understand their experiences, and a case study approach takes this into account[33,36]. The context of this case is explored in section 1.5.

Chapter 1

The subject of the case study presented in this thesis are the students on the BM6 programme at the University of Southampton. Table 1-1 identifies what is and isn't under study within this case study. For detail on the case study methodology, please see section 3.3.

The case	Students on the BM6 programme at Southampton University (not the BM6 programme itself).
Boundaries of the case	Students who started the BM6 programme between 2007 and 2019
Analytical focus	Students' experiences and progression through medical school
Excluded from analysis	Experiences and progression beyond graduation, experiences and progression of students on other BM programmes, or the structure of the programme itself.

Table 1-1 The focus and boundaries of this case study

Increasingly, mixed methods approaches to case study research are being employed to yield a more complete understanding of the phenomenon under investigation[32-34,38]. A mixed-methods approach is most suitable in this study as progression can be measured both quantitatively, in percentage progression rates and academic achievement, and qualitatively, in exploring student experiences, thoughts and behaviours as they move through the programme. The overall outcome of combining these elements contributes towards identifying and exploring the factors which may influence students' progression through the programme and leads to a broader understanding of the problem than using either alone. Table 1-2 on the following page shows the data type that is used to answer each research question and in which chapter these can be found.

Research Questions	Data type	Data collection methods	Chapter
RQ1: To what extent do Gateway programme students differ from standard entry students with regard to student performance in assessments and progression rates?	Quantitative	Routinely collected admissions data, sociodemographic indicators, progression, and assessment data	4
RQ2: In what qualitatively different ways do Gateway programme medical students conceive of 'success' at medical school?	Qualitative	Semi-structured interviews	5
RQ3: How do the thoughts, behaviours and experiences of Gateway programme medical students influence progression through medical school?	Qualitative	Semi-structured interviews	6

Table 1-2 Data types used to answer each research question

1.4.2 Thesis structure

The remainder of this thesis comprises:

- Chapter 2: A narrative review of widening participation in medicine literature
- Chapter 3: The main methodology chapter exploring the methodological choices I have made during this PhD project.
- Chapter 4: A quantitative data chapter addressing research question one, including the quantitative methods used. Unit of analysis one in the case study design.
- Chapter 5: A phenomenographical exploration of student conceptions of success, addressing research question two, using unit of analysis two data in the case study design. This chapter includes the detail of the qualitative methods used to collect the data used in unit of analysis two, the results of which are presented in chapters 5 and 6.
- Chapter 6: Navigating medical school as a Gateway programme student. A thematic analysis of data addressing research question three, again using unit of analysis two data in the case study design.
- Chapter 7: Discussion of all results to explore the implications of this research.

1.5   The Case Study context – BM6 students at Southampton University

This study took place at the University of Southampton, which runs four small medical degree programmes alongside its larger standard entry undergraduate programme (BM5). These are the German partnership programme (BMEU), and Malaysian international transfer programme (BMIT), the BM4 graduate entry programme, and the BM6 widening participation programme, a Gateway course started in 2002 with the aim of recruiting students from lower socioeconomic backgrounds[39]. All five BM programmes share the same overall aims and learning outcomes, and all students take the same final exams, ensuring equivalence of degrees awarded. This case study focuses on the BM6 programme students, using standard entry BM5 students as a comparison group in the quantitative data analysis to contextualise the findings.

The admission process is different for the two courses (BM5 and BM6). Students are admitted on to the BM6 programme with lower A-level achievement, BBB, providing they fulfil at least three of the following socioeconomic eligibility criteria:

1.   First generation applicant to HE
2.   In receipt of FSM in years 10-13
3.   In receipt of a 16-19 bursary
4.   Young people looked after by a local authority, or student living independently
5.   Parents, guardian, or self in receipt of a means tested benefit
6.   Living in an area with a postcode that falls into the lowest 20 percent of IMD, or a member of a travelling family.

Eligible students are offered interview places based on their personal statements and answers to additional questions, assessed by the programme tutors. The interviews follow the format used in assessing students for all medicine programmes at Southampton: A panel interview and group task. For BM6 applicants, UCAT scores are used only to differentiate between two similarly scoring candidates after interview.

Selection criteria have changed over the duration of the programme, due in part to the programme becoming more competitive as well as grade inflation and institutional policy. Initially, the academic entry criteria were A-level (or equivalent) grades CCC to include Biology and Chemistry, which rose to BCC in 2005, BBC in 2013 and further to BBB for the 2018 cohort. This latest rise has brought the programme in line with university policy, which sets BBB as the minimum requirement for entry on to any degree programme at the University of Southampton. This compares with a standard A-level offer of AAA for the BM5 programme.

Eligibility criteria have also changed to reflect changes in the financial support available to 16 – 19-year-old students from lower income backgrounds. Previously, being in receipt of the educational maintenance allowance (EMA) was an eligibility criterion. After its demise for students in England in 2011[40], this was replaced with being in receipt of free school meals, or having a means tested bursary from their school or college. From the start of the programme in 2002 students had to fulfil two criteria, which was changed to three in 2015. As the programme has become more popular, this pragmatic decision was taken to decrease the number of students in the pool for selection. This focuses selection on those students extremely disadvantaged by their background, while the downside is that some students who would find it difficult to access a standard entry course may be being excluded.

On entry, each cohort of 30 students is taught a bespoke programme by dedicated tutors during their Gateway year, known as 'year 0'. During this year they are taught on only 3 days a week to ease the transition to university, and cover modules in both science (through 'Human Structure and Function' modules) and professional practice (which includes observational clinical placements). They are considered full members of the medical school from the beginning of year 0 and have full access to university and faculty societies including the student medical society MedSoc. Most students live in university accommodation alongside other first year university students during their Gateway year. Some then repeat this the following year when they are in year 1 of the programme, while others move into private rented accommodation with their friends. Successful completion of year 0 allows automatic progression to year 1 with no further selection process. They are then taught alongside BM5 students, completing the same curriculum and assessments. At the time of beginning this PhD project they had no further bespoke support.

1.6   My PhD journey

1.6.1   Reflexively positioning myself alongside this work

Until embarking on this PhD, I have inhabited professional worlds in medicine and science teaching that predominantly, though mostly unconsciously, operate within a post-positivist paradigm – that one true reality exists, but is imperfectly comprehended[41]. Reading and learning about the other approaches has been fascinating, but was initially overwhelming, and attempting to articulate a philosophical stance in relation to the mixed-methods design of this project has taken time.

I became interested in phenomenography as an effective qualitative method which could be used to bring new insight to this topic. Most phenomenographers adopt an interpretivist paradigm, as an underlying assumption of the approach is that reality is co-constructed by the participant and interviewer during the interview[42]. This makes sense to me, as I believe the experience of being a Gateway programme medical student is socially constructed, and the individual's experience can only be understood so far as the participant expresses it and I interpret it. However, quantitative research, as in Chapter 4, is usually based within a realist paradigm, where knowledge exists and can be uncovered by the scientific method[41]. Creswell suggests pragmatism as a paradigm for mixed-methods research[43], where there is a high concern for 'what works' and problem-solving, allowing researchers to choose methods and procedures that best meet the research needs. This is the process that led to me situating the work within a pragmatic paradigm – after a lot of reading, thinking and discussion, it seemed to offer the best option for answering the research problem at hand, that of understanding the ways students experience progression through medical school using both qualitative and quantitative methods, and therefore lead to useful interpretations as an end outcome. Pragmatists argue that the social, human world is different to the physical, natural world and therefore must be known differently, using different methods[41]; they are not tied to one system of philosophy[43] and this allows the mixing of qualitative and quantitative methods.

During the course of data collection and analysis, I kept a reflective journal (see appendix E for example) to help consider how the meaning I am constructing in the research process is being affected by my personal stance and possible biases[41 (p.76)]. I completed a medical degree at Southampton, graduating in 2011, but did not continue to professional practice and instead undertook a secondary science PGCE and taught in secondary schools and a sixth form college until returning to the university in 2016. My background has been very helpful in getting to grips with this research project, as I have a good understanding of the secondary education system, the

application and selection process for medicine, and of being a Southampton medical student. I have a unique perspective in understanding issues of widening participation as an educationalist, and in being able to develop an empathetic relationship with participants through the shared experience of being a medical student at Southampton, albeit a BM5, although my background is wholly traditional. Both parents and all four grandparents were teachers, with one working as a medically trained university academic. For me, it would have been considered more of a radical choice not to attend university.

Since July 2019, and after data collection ended, I have been employed by the faculty as a senior teaching fellow with responsibility for personal and professional development teaching within the curriculum, as well as several other module lead roles. This has given me an alternative insight into the world of BM6 students 'from the other side', particularly in hearing colleagues talk about their progress and integration.

Whilst carrying out this PhD, I have become increasingly aware of the potential bias my background could bring to this research project. During my teaching career I worked closely with students who had no family experience of HE, helping to raise aspirations and supporting them in application to HE and in a few cases, medicine. I believe strongly that background should not be a determinant of accessing or succeeding in HE, and therefore am aware that I have a potential bias in wanting to see initiatives like Gateway programmes succeed. My experiences in teaching have led to expectations of what a successful learner looks like, and frustrations in supporting students unwilling or unable to exhibit these qualities. Additionally, as a past medical student myself, I remember the highs and lows of training, the friends who didn't pass, the choices I made about extracurricular involvement and paid work, and the feelings I had about accessing support in the medical school during a period of difficulty. This meant I approached this research with preconceptions about what I was going to find out about potential facilitators of and barriers to success for Gateway programme students. As I was interviewing students and reflecting on the interviews afterward, different aspects of my medical student experience were brought back to me, and I had to consciously make choices about how much I allowed this to influence my responses to participants and follow up questions. The concept of 'bracketing out' the researcher's preconceptions based on their experience is not consistently applied in phenomenography[44] and is controversial within thematic analysis depending upon one's philosophical and methodological commitments[45]. I don't believe that experiences which are integral to my sense of self can be completely removed from the subjectivity of good qualitative research. Instead, in this narrative and throughout the project, I have sought to be reflexive, making myself '*visible as part of the research process*'[46(p.37)].

1.6.2   My personal journey during the PhD project

This section outlines my personal circumstances during the PhD project and explains the journey I have been on to get to a point of completion.

I started my PhD as a full-time postgraduate student in September 2016 after four years teaching part-time whilst recovering from a period of ill-health and learning to manage several chronic health conditions: Ehlers-Danlos syndrome hypermobility type, severe eczema and associated atopy, and seasonal affective disorder. I had several flare ups over the first three years of candidature, though none severe enough for me to need to suspend my studies.

In July 2019 I had the opportunity to take on a temporary role as senior teaching fellow and PPD (personal and professional development) lead within the medical education development unit and switched my PhD candidature to part time in order to do this. In March 2020 my role became permanent during the nominal writing up phase and my line manager agreed that I could use my 0.1 FTE research allocation plus any additional time I could find to continue writing up. I also created space outside of employment for writing up by stepping down from voluntary roles to create more space for writing at evenings and weekends. I knew this would be an intense time, but my health was good, and I had a schedule which seemed realistic.

Three weeks later the first COVID lockdown hit, and my university workload increased considerably. It has never consistently reduced again from this level. Additionally, I was recovering from an unconfirmed bout of COVID (it was just before lockdown when only contacts of known cases were tested). Then over the second half of 2020 and through into 2022 I have been hit by several one-off health concerns as well as deterioration or flares of all chronic conditions identified above which have required numerous hospital visits, treatment regimens and medication changes. In addition, I have had dental abscesses, a broken ankle, and a significant recurrence of COVID. All of this alongside fulltime employment has been hugely fatiguing and challenging.

Dealing with all of this alongside my full-time job meant progress on my PhD was slow to none. I was granted a temporary suspension and an extension to candidature. I also negotiated a 10-week writing sabbatical with my line manager for January – March 2022 to finally finish writing up. Unfortunately, two weeks into this period, my eyesight deteriorated suddenly and after investigation I underwent surgery on both eyes in March 2022. Since my recovery from this my eyesight has been stable, though I have still had to manage screentime carefully. I also had another bout of COVID in July 2022. Regrettably, I was unable to rearrange the lost sabbatical due to workload in the department and have had to continue writing around my job.

In happier news I also got married in June 2022, which was wonderful, but not meant to coincide with the final writeup of my PhD! Getting to the end of this write up process has been a mammoth effort, and although there is much more I had wished to do with this project, I am extremely proud to be handing it in.

1.6.3   Adjustment to accommodate for COVID-19

I started this PhD in October 2016 and completed data collection in February 2019, before moving to part-time study in June 2019 with the aim of completing in mid-2021. Initial data collection was not affected by the COVID-19 pandemic, however analysis and writing up were impacted and I was unable to collect further data regarding the use of audio-diaries. Due to personal circumstances detailed above and in large part caused or exacerbated by COVID-19, I was granted a one-year extension and a further two-month suspension before submission.

Chapter 2 Widening participation in medicine – where have we got to so far?

This chapter aims to provide context for the research study by drawing on literature to provide a history of the widening participation in medicine agenda and the development of WP gateway programmes. I explore why we should be widening participation in medicine from both social justice and social accountability points of view and discuss the complexities of selecting widening participation medical students and predicting who will succeed. I then consider the literature exploring the experiences of WP medical students and the challenges in creating a culture in which they feel that they belong.

2.1 A brief history of widening participation in medicine

The widening participation in medicine agenda has developed over the past twenty-five years, since the publication of the Dearing report in 1997. This identified that certain groups were under-represented in HE, particularly in the pre-1992 institutions that house the majority of medical schools, and recommended that priority in allocation of government funds should be given to institutions which could *'demonstrate a commitment to widening participation, and have in place a widening participation strategy* [and] *a mechanism for monitoring progress'*[47.(p.107)]. Alongside this, McManus' influential study in 1998 analysing UCAS data to identify factors affecting the likelihood of applicants being offered a place at medical school in the mid-1990s found that those from ethnic minority groups, male applicants and those from some post-16 educational institution types were disadvantaged[48]. The main discussion in this paper was about ethnicity, and though the data showed a small but significant effect of social class on likelihood of gaining a place, this was not developed in the discussion. As a result of these reports, the Council of Heads of Medical Schools, which preceded the MSC asked all schools to look at their selection procedures and monitor them to minimise bias[30].

The Bristol Royal Infirmary Inquiry in 2001 highlighted the importance of the social diversification of medicine to train doctors who are open minded and free of preconceived views[49 (p.334-5)], and developed by the GMC's updated 'Tomorrow's Doctors' in 2002 who emphasised the need for doctors to show more cultural concordance with their patients[50]. Between 1999 and 2005, the number of medical student places was increased by more than 2000 to meet rising demands in the health service. With a growing understanding of the importance of widening access to under-

represented groups in medicine, bids for these places by universities were assessed in part by the extent to which plans for expansion addressed this issue[51]. In addition, the Department of Health (DoH) and Higher Education Funding Council for England (HEFCE) funded pilot schemes at three universities to run extended medical degree programmes with a specific focus on WP, including the programme at the heart of this case study, the BM6 programme[51].

However, despite these initiatives, the 2009 final report of the *'Panel on fair access to the professions'* stated that medicine remained one of the most exclusive professions, and found no increase in the proportion of students recruited from state schools since the late 1980s[23]. A 2012 progress report was damning of WP in medicine, stating that *'medicine has made far too little progress and shown far too little interest in the issue of fair access. It needs a step change in approach'*[12(p. 43)]. It highlighted the need for more evaluation of WP approaches, along with joined up approach to work experience and admission criteria. In contrast to this, the State of the Nation 2013 report the following year by the same author[52] praised the response to the previous report and the transparency with which medicine was tackling the issue, including initiating the GMC survey mentioned previously[24], and setting up the Selecting for Excellence Executive Group (SEEG) by the MSC to bring together key players in the field of WP[52]. The SEEG group published its final report in 2014 which made 17 recommendations for medical schools regarding data use, WP approaches, and selection methods, in order to drive forward progress in WP[11]. These included implementing the guidance on student success which was published simultaneously, and included evaluating the outcomes of students and nurturing a sense of belonging at medical school[53], of particular relevance to this project. A 2016 progress report explored the various ways that medical schools and the MSC were making progress, focussing on improving information available for prospective applicants, and again, the importance of research in providing an evidence base from which to work[54].

One of the most important outcomes of the SEEG report was the establishment of the MSC Selection Alliance, a group of selection experts, who lead nationally on all aspects to do with medical school selection and admissions[55]. The importance of this work is shown by the engagement and involvement of a huge diversity of stakeholders on the oversight group, including the Departments for Education and Health, GMC, British Medical Association (BMA) Medical Students Committee and the Social Mobility Foundation[55]. It appears to be the most influential body for both dissemination of information and research, and in setting the culture within the landscape of UK medical education selection. The first report of the Selection Alliance, published in 2017[27], laid out changes to policy drivers in the area of WP: namely qualification reform in schools, the new medical school places discussed below, shortage specialties, the introduction of the Teaching Excellence Framework (TEF), and a review by the GMC of health and

disability in medical education and training. A limitation of the report for use in research is its focus as primarily a guide for medical education practitioners and medical schools, the focus is on clarity and brevity in the report, with little reference to research published in peer reviewed journals; most of the data presented is either analysis using data from the UK Medical Education Database (UKMED), or from reports from UCAS and similar bodies.

The UK government further demonstrated its commitment to widening participation in medicine in the allocation of 1500 new medical student places available over the three years from 2018, and there is an expectation of more to come. These have been allocated to universities who have shown commitment to widening participation and seen the creation of five new medical schools to support geographic areas that have difficulty in recruiting doctors[56]. Nationwide, and in line with action points from the MSC[27], medical schools are diversifying the methods they are using to widen participation, including the initiation of new Gateway programmes. Each Gateway programme has a unique curriculum; some are completely bespoke, including the BM6 programme at Southampton[19], some consist entirely of existing university first year modules[57], and some create a distinct programme using a combination of the two[58]. With such variety and no published evaluation of the strengths and weaknesses of such designs, it is envisaged that research such as this PhD will be valuable to programme leads and institutions considering introducing similar programmes.

2.2 Widening participation in medicine – social justice or social accountability?

As discussed earlier in the chapter, it is now widely accepted by medical and government bodies that pursuing fair access to a medical career regardless of background is important to create a workforce that broadly reflects the society it serves[4,11,49]. An argument often put forward for its importance is one of social justice for individuals in order to increase social mobility and break the transmission of disadvantage from one generation to the next[2,12]. Indeed, using widening access to HE and therefore professional careers as a vehicle for improving social mobility is one of three priorities for HE highlighted in the 2016 report from the Department for Business, Innovation and Skills[59]. However, concern has been raised by research analysing the widening participation 'Access Agreements' submitted to the Office for Fair Access (OfFA) that despite government rhetoric, oversubscribed and selective universities and programmes are often simply paying 'lip-service' to widening participation requirements in order to soften their image, and that the pressures of operating in a pressured global market are hampering the social justice mission[60,61].

Within the medical context, Cleland et al's qualitative study exploring WP policy enactment in UK medical schools found a diverse interpretation of WP policy influenced by the culture, ethos and aspirations of the medical school, with the attitude of the admissions lead to WP seen as key in driving the agenda forward[62]. There was also an additional concern that the WP policy agenda is at odds with main goal of medical schools, that of producing excellent doctors[62], which may be associated with a perceived fear of lowering academic admissions standards[63].

The social justice argument for widening participation is usually associated with a meritocratic discourse of inclusion, in which the brightest students from disadvantaged groups are encouraged and supported through application by university outreach schemes and taster experiences[64]. It is recognised that gaining admittance to medical school requires more than academic ability, and that applicants from a WP background may lack the cultural capital and 'insider knowledge' necessary to make a competitive application, for example in arranging work experience or in help writing personal statements[2]. Powis et al[7] suggest that it is likely that a combination of lower aspirations, a lack of encouragement from teachers and family, and financial difficulties in addition to lower academic achievement may explain the relative lack of medical applicants from lower socioeconomic status groups. This perhaps explains the findings of Alexander et al in their 2017 examination of widening access discourses on UK medical school websites[65]. They observed that most medical schools justify WP initiatives using individual social mobility arguments and neglect a social accountability argument of the benefits that non-traditional applicants bring. Only two universities explicitly communicate the benefits of a diverse medical workforce to society, and Alexander et al argue that by not reassuring WP students of the advantages of their unique attributes, universities may be reducing the number of applications from the very students WP initiatives are aiming to attract[65]. Results of a study of focus groups with high achieving school pupils who have engaged with WP activities[66] describes participants' perceptions that sociocultural differences would not discourage them from pursuing a medical career, even articulating the benefit their 'different background' might generate. In contrast, a smaller, single site study interviewing younger students, aged 14 and 15, from a school in an area with high levels of deprivation and poor HE progression, who had not had exposure to WP outreach activities, reported enduring stereotyped views of medical professionals, and unawareness of the breadth of options available for securing a place at medical school[67].

Whilst these studies are evidence towards the effectiveness of outreach WP activities by medical schools in changing student perceptions and career aspirations, it may not follow through to the experience of students once they begin medical school. A qualitative exploration of the medical school experience of first generation HE students in Australia found that students reported feeling like a 'fish out of water' and were lacking in the social and cultural capital to thrive in that

environment, and suggested that medical schools need to do more to counter the forms of disadvantage experienced by these students[68]. Mathers and Parry's study interviewing 12 mature students from WP backgrounds at UK medical schools found a clash between perceptions of medicine as a career and the students' own self-image[69]. However, these students also reported that they found the course to be less difficult and the student body more diverse than they were expecting[69]. This could support the assertion by Alexander et al[65] that universities should focus more on the social accountability arguments for widening participation in medicine to increase feelings of belonging in WP students by giving them a sense of purpose. Nevertheless, these studies looking at lived experiences are limited to students from particular types of WP background, especially those from lower socio-economic backgrounds. There is, therefore, scope for a more detailed exploration of the experiences of a broader variety of WP students.

The social accountability argument exploring the benefits a more diverse medical workforce brings is less dominant in medical WP literature than a social justice argument, and much of the research focuses on the international context. Studies in the US have found that contact with diverse peers in medical school enhanced the education experience and improved attitudes to diverse patients, though research is currently predominantly focussed on ethnicity and racial dimensions[70-72]. Studies from Australia, where there are difficulties recruiting doctors to work rurally, have found that students from rural locations, those from lower SES backgrounds, those with lower academic entry scores, and those from state run schools are more likely to express a desire to practice in rural locations[73,74]. A study of Scottish GP backgrounds found concordant results, with low parental SES and more remote childhood residence being positively associated with subsequent practice in more deprived and more remote locations[75]. These studies suggest that doctors are more likely to practice in areas similar to those in which they grew up and therefore that widening access to students with lower SES backgrounds and those from underserved communities is a possible way forward in workforce planning. This appears to be reflected in the latest allocation of medical school places favouring currently underserved parts of the country[56]. However, is an even unspoken expectation that students from widening participation backgrounds will go on to treat people from similar backgrounds fair? Is the discourse of social accountability serving to entrench existing systems of privilege by choosing students based on where they are likely or able to practice? A 2018 scoping review of 137 articles looked at the rationales and approaches of US undergraduate medical educational establishments for increasing representation of under-represented minorities in the medical workforce[76]. They warned that whilst there is a recognised need in underserved communities, expecting this to be met by specifically recruiting people from similar backgrounds and failing to address the systemic

barriers to alternative choices naively ignores the professional limitations this imposes on these doctors[76].

It seems that reconciling the social justice and social accountability arguments for WP in medicine is important to move the field forward, both in attracting students from under-represented backgrounds, supporting them through medical school, and in providing society with care from a more representative medical population. As more medical school places are allocated and new medical schools opened, policy makers would be wise to look at the research detailing experiences of US doctors from under-represented minorities when discerning the way ahead.

2.3 What makes a WP background?

One key feature of current WP activities is that no two WP medical programmes or outreach activities at different universities appear to use the same criteria for defining WP eligibility. Some use individual level data such as being in receipt of free school meals, being a first generation HE applicant or being in receipt of a means-tested benefit, some use school level measures such as the attended school's average performance, some use area level measures such as POLAR data (a measure of the HE participation in an area), and most use a combination of all three[77]. The MSC Selection Alliance has recognised that more research is needed to provide a firm evidence base, but has released a 2018 report entitled 'Indicators of good practice in contextual admissions' based on what is currently known[15]. They conclude that there is no single indicator that absolutely identifies an applicant as having a WP background but recommend that a basket of measures should be used to build a picture that more accurately determines socioeconomic background. A Supporting Professionalism in Admissions briefing classifies individual level data as the 'gold standard' for measuring the WP status of an individual, but acknowledges that this data may not be available at admission to a programme[78]. While school and area level data may not accurately describe the WP status of an individual, triangulation of these measures aims to mitigate this risk by reducing the occurrence of false positives[15,78]. Medical schools are advised to ensure that the measures they use are robust and externally validated[15], as triangulating weak markers does not necessarily improve reliability and accuracy of identifying WP backgrounds[79].

An advantage to potential applicants of the variety in WP eligibility criteria is that there is no defined cut off between WP and non-WP; applicants with some disadvantage who do not fulfil the criteria at one institution may find themselves eligible at another. With the annual publication of the MSC 'Entry Requirements' document[77], this information is now easier to access for students who may not have much support with applications. However, a disadvantage for developing the

evidence base in this field is that conclusions drawn from research programmes at one institution may not be directly transferable to another due to the difference in the backgrounds of students admitted, as is the situation with this case study.

2.4 Selecting medical students and predicting who will succeed

With high competition for places, achieving fair selection of medical students who will be successful is a challenge that has been well recognised in the literature[7,79,80]. To achieve a place at medical school, high academic achievement is strongly weighted, both in secondary assessments and aptitude tests such as the UKCAT[7]. When it comes to the current evidence of predicting who will succeed at medical school, it seems that the '*best predictor of future behaviour is past behaviour*'[81]. McManus et al refer to this as the 'academic backbone' and, in a large correlation analysis of five longitudinal cohort studies, found that at almost every stage of attainment through pre-clinical, clinical and postgraduate examinations in each study there are significant correlations with prior attainment at both secondary school and medical school[81]. This is a large study looking at robust cohort studies and provides significant evidence for the importance of prior achievement in predicting success at medical school and beyond. It is suggested that this is the product of the interplay between intelligence, motivation, and personality, though there is little consideration of the other factors that may affect an individual's ability to achieve good exam results. The study identifies differences in achievement between gender and ethnic background in their analysis, but the focus is not on widening participation, and does not consider any measures of SES. As it is an analysis of retrospective cohort studies, it also has the disadvantage that the data in four out of the five studies is more than 25 years old; both society and assessment structures and practices at school and university level have changed significantly in that time. Despite this, the study identified commonalities across the five studies in the way school achievement correlates with medical school and postgraduate exam achievement. Although a consistent predictor, prior academic achievement does not explain everything: a systematic review carried out by Ferguson et al[80] found that only 9 to 23 percent of variance in overall performance at medical school could be accounted for by past academic performance, the strength of the association being described as moderate, reducing to small in postgraduate exams. Other factors examined included personality and learning styles, though few studies were identified addressing these and no statistically consistent evidence was found. Small but consistent evidence indicated that women tend to outperform men at medical school, and some evidence revealed that students from minority ethnic groups are more likely to fail medical exams

than their white counterparts, but again, no sociodemographic markers associated with WP were mentioned in the review[80].

Lumb and Vail's[63] 2004 single site retrospective cohort study compared the relative importance of admission factors to performance in year three OSCEs (observation of skills of clinical examination practical assessments) and was consistent with Ferguson's[80] findings in regard to sex and ethnicity, finding that being male or from a minority ethnic background is associated with a poorer performance. However, they extended their analysis to include other personal characteristics considered by admissions tutors and found that socioeconomic group and school type did not affect performance. They concluded that widening access to those from less affluent backgrounds should not affect standards, assuming academic requirements are kept consistent[63]. The problem with selecting medical students based on prior academic performance in the widening participation context is that it has been shown that demographic and SES factors influence the average UCAS tariff score achieved by school leavers applying to medicine, with those from a WP background being more likely to have achieved lower grades[82]. The high academic requirement may therefore preclude potential students from WP backgrounds from applying.

A 2016 retrospective cohort study of students at one medical school is the only study thus far to have used postcode-based measures of disadvantage, IMD and POLAR3 data (which measures HE participation), to investigate participation rates and attainment of medical students[9]. It found that, again, grades on entry were positively associated with finals attainment, but that neither postcode-based measure predicted significant differences in success. It must be recognised that there are limitations in the use of postcode level data in WP as the individual student may not be sociodemographically representative of the area within which they live[83]. Additionally, the small sample size and single site study design mean that care must be taken in generalising results to the medical student population as a whole. Nevertheless, this study represents an important step forward in the research into success of WP students in medical education.

Medical schools in the UK use a wide variety of selection techniques in addition to previous academic achievement, ranging from assessment of personal statement and academic reference, to traditional interviews, multiple mini interviews (MMIs) and situational judgement tests (SJT) [79]. There is a growing evidence base for the predictive validity and fairness of using these in medical selection, as shown by the 2012 systematic review of 194 studies carried out by Cleland et al on behalf of the GMC[79] with results published in the Journal of Medical Education in 2016[84], but not enough evidence to create a common framework for selection, partly due to a '*picture of quantity over quality*'[84 (p47)] in the design and number of studies. They found that there is no one selection

approach that has both good reliability and predictive validity, is not susceptible to coaching, and also does not disadvantage WP students, but that the evidence for MMIs, aptitude testing and SJTs is more consistent than for traditional interviews, personal statements, and academic references[79,84]. Whilst this review agrees with McManus[81] and Ferguson[80] that prior academic achievement is important in predicting success, a paper detailing the results of the review concludes that during selection *'care must be taken to ensure that it is included in a way that guarantees it does not represent a barrier to candidates from disadvantaged groups'*[84 (p52)]. One of the recommendations for further longitudinal work is the need to evaluate WP programmes using robust methodologies, an area of research which is currently lacking[79].

2.5   Progression and success of students on WP medical programmes

Despite the focus on WP in medicine policy and practice over the past decade, there is currently less published research on the progress of WP programme students once they enter medical school, and therefore limited empirical evidence of the effectiveness of WP initiatives, including Gateway programmes, in diversifying the medical workforce. The Bradford-Leeds partnership published a paper describing a foundation clinical sciences programme, completion of which allows students to apply for entry to Leeds University Medical School[85]. The paper reports that feedback indicates that students *'have been assimilated readily into the student cohort in Year 1 at Leeds'*[85 (p.160)], this appears to be based on informal comments, and there is no quantitative analysis of retention and success rates.

Garlick and Brown[18] were the first to examine outcomes for a specific extended medical degree Gateway programme. As discussed previously[63], they agree that prior academic achievement as a predictor of medical school success can only be valid if the student's full academic potential has been realised at secondary school, and that this is often not the case for students applying to widening participation programmes. The 2008 study included descriptive analysis of the Extended Medical Degree Programme at King's College London, in which students receive additional support over the first three years and concluded that medical students can succeed with A level results as low as CCC, if they were achieved at a low achieving school and as long as additional support is provided through medical school. Additionally, staff reported that these students were 'fun to teach' and brought enthusiasm and an ability to think outside the box to the medical school. Despite these positive findings, analysis also showed a 7% lower retention rate in EMDP students when compared with traditional entry students[18]. This was not explored further, and there is no indication of postgraduate outcomes. This lower level of retention is mirrored in

findings from the BM6 course at Southampton, where 85% of those who entered year 1 between 2003 and 2007 graduated with a medical degree, compared with 95% of students entering the traditional entry programme in 2002 and 2003[19]. These findings were published in one of two papers written about the BM6 programme at Southampton, aiming to add to the existing literature by describing effective WP methods[19,29]. Subsequently, a master's thesis evaluating WP students' sense of belonging has found that the majority of students in the study expressed a reduced sense of belonging, were operating on the periphery of the medical school community and experienced stereotyping by the wider medical student body[86]. It is currently unclear, however, how and if this is associated with the lower levels of retention and success found by Curtis et al[19]; a further exploration of student success is presented in Chapter 5.

Assessing what works within Gateway programmes is increasingly important with the increasing number in operation nationally. In contrast with previous work which has identified challenges for WP students, Gibson Smith et al undertook a realist evaluation of a newer Gateway to Medicine programme at the University of Aberdeen to identify what works[87]. This evaluation produced a refined programme theory which linked predicted context with predicted mechanisms which in turn led to predicted outcomes and identified that this Gateway programme is successful because it enables students to develop confidence, financial security (through work as a Healthcare Support Worker), establish supportive relationships with staff and peers, and establish a sense of belonging[87].

2.6   WP medical student experience and belonging

"[Belonging is] students' sense of being accepted, valued, included, and encouraged by others (teacher and peers) in the academic classroom setting and of feeling oneself to be an important part of the life and activity of the class. More than simple perceived liking or warmth, it also involves support and respect for personal autonomy and for the student as an individual" [88 (p.25)]

This often quoted definition of student belonging originally referred to students in early adolescence, but has been applied to those in a variety of HE settings[89,90]. It concisely sums up the psychological desire to feel connected and valued, which research has shown is needed as a prerequisite for successful learning[91].

Research into WP medical student experience and belonging in the UK has, rightly, burgeoned over the past few years with the recognition that historically it has been largely overlooked in favour of studies exploring how to encourage and support aspiration and application to the profession. The 'What Works? Student retention and success programme' partially funded by

HEFCE created a much cited body of work exploring how to build belonging in HE with research at 22 institutions[92]. Their conclusion states that students are most likely to feel that they belong to their programme (rather than department or institution) and that therefore *'the academic sphere is the most important site for nurturing participation of the type which engenders a sense of belonging'*[92(p.6)]. In evaluating seven interventions over 22 institutions, the What Works? team highlighted the importance of fostering this sense of belonging amongst students as vital to improve retention and success, achieving it through '*supportive peer relations, meaningful interaction between staff and students, developing knowledge, confidence, and identity as successful HE learners, and an HE experience relevant to students' interests and future goals'*[92 (p.7)]. Whilst the focus of the report is on identifying best practice in Higher Education in general, a commitment to WP is clear in the stated aims of the Paul Hamlyn Foundation[93] who provided funding, and in commissioning Liz Thomas to oversee the project, whose main research interests are in WP and student retention and success[94].

The conclusion that belonging should be fostered within the academic sphere supports an increased focus on understanding the WP student experience within medicine, rather than expecting that institution level initiatives will address the issue. In the undergraduate medical field, research has thus far been on a smaller scale, with most studies carried out at single institutions with relatively small sample sizes. Conway-Hicks and de Groot[95] interviewed 12 Canadian medical students and doctors from one university who self-identified as '*not from an advantaged background*' and described the tension felt by many participants of living '*in two different worlds'*. Discussion included experiences of the participants within educational and clinical settings and the ways that socioeconomic discussions unintentionally fostered a sense of difference for the participants between themselves and the perceived majority of medical students. But additionally, while these experiences prevented a wholehearted feeling of belonging at medical school, new experiences at medical school created a feeling of separation from 'home' communities and families, leaving some participants with no solid sense of belonging to either group[95]. This feeling of being a 'fish out of water' aligns with Brosnan et al's[68] findings in their Bourdieusian analysis of the experiences of first in family medical students at an Australian university, in particular because of their difference in family background and in access to finance.

The experience of being a WP student in undergraduate medical education in the UK has been summarised by Krstić et al[96] in a 2021 qualitative systematic review, which appraised 27 studies and found that most studies focussed on ethnic minority groups, with fewer addressing other aspects of WP status. The review aggregated the findings from included papers into 4 synthesised findings which run thematically through the papers: Social groups, identity conflict, relationship

with institution, and unique characteristics[96]. Figure 2-1 highlights the key practice points identified by Krstić et al from these synthesised findings.

Synthesised finding	Practice point
Social groups	*"WP medical students experience social isolation from their peers and tend to seek connections with those who have similar backgrounds to themselves."*
Identity conflict	*"Entry to medical school can cause inner conflict when the culture of medical school is mismatched with a student's background and worldview. Some students find themselves adopting this new culture at the detriment to their previous identity."*
Relationship with institution	*"WP students continue to face embedded barriers because of curriculum design, with an atmosphere of distrust between 'us and them'."*
Unique characteristics	*"WP students have a unique set of characteristics that can present as both disadvantages and advantages. Some students find strength in adversity and can offer particular skills which are an asset to the medical profession."*

Table 2-1 Key practice points from review of papers looking at the experience of widening participation students in undergraduate medicine in the UK.

Reproduced from Krstic et al[96]

Despite the challenges identified, the review finally concludes that students from WP backgrounds find their experiences are a useful tool in communicating with patients from a range of backgrounds, adding weight to the previously discussed desire for a diverse workforce showing a greater cultural concordance with its patients[50].

Many of the studies in the review have been published in parallel with the production of this PhD thesis and were not available when initially developing the aims of my studies and carrying out a literature review. I examine this systematic review in more detail in Chapter 8.2, comparing and contrasting my findings with those of the studies included here.

In light of the literature presented in this chapter and the lack of published evaluations of WP in medicine initiatives, my rationale in developing this body of research was to gain a deeper understanding of and insight into the experiences of students on a WP specific Gateway programme. This is of interest in and of itself to learn more about the consequences of the last decade of WP in medicine policy for individual students, but also to inform decisionmakers of the many newer Gateway programmes to help maximise positive student experience and successful programme outcomes. The next chapter explains how I have approached this to answer the

overarching research question '*How do medical students on a well-established Gateway programme experience progression through medical school?''*

Chapter 3   Methodology

3.1   Introduction

This chapter outlines and justifies the methodological choices I have made and explains the research design used in this study, in light of the literature review presented in the previous chapter. This involves mapping what was done, how it was done, and why it was done. The methods used and choices made when undertaking social science research are abundant and diverse, each approach with its own strengths and weaknesses. Different research methodologists and different fields of study place different emphases on the relative importance of each element that needs to be considered[32,41,43,97]. It is therefore helpful to use a framework to guide the process of decision making, rendering the implicit, explicit, and ensuring the research project is a reasoned and coherent whole. Creswell and Plano Clark[32] identify four major elements to be addressed in developing a research study, adapted from Crotty[97]: *Paradigm worldview, theoretical lens, methodological approach, and methods of data collection*[(p. 35)]. Using principles from Savin-Badin and Howell Major[41], I have added a fifth level – *methods of data analysis* – and depicted the whole model in figure 3.1. Each level informs the decisions taken at the next and are presented sequentially in this chapter, after a brief overview and justification of the research design as a whole.

Nicolson and Cleland[2] contend that one reason that such a large amount of investment in WP activities over the past two decades has yielded little change is the simplistic and weakly conceived research that has accompanied them. They urge researchers in WP to *'increase the sophistication of both qualitative and quantitative research on this topic by considering and integrating an appropriate theoretical perspective in their research philosophy, design and process'*[2 (p. 240)]. I have addressed this by the use of well-established theoretical and research approaches accompanied by thorough explication of the choices made throughout the process.
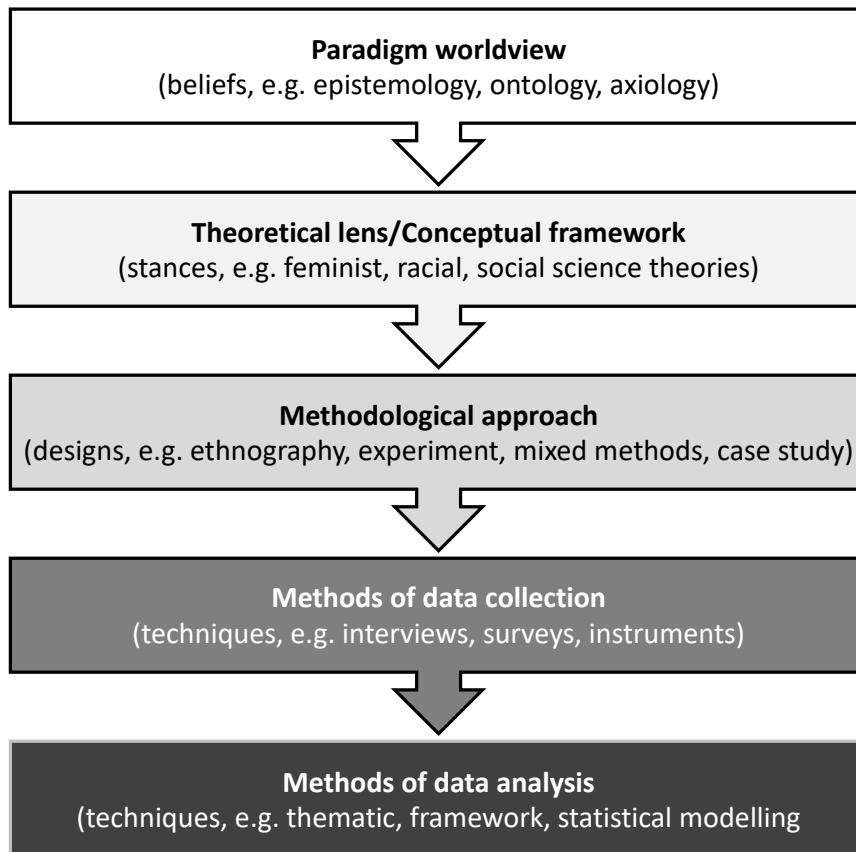
Figure 3-1 Five levels for developing a research study

(adapted from Creswell and Plano Clark[32] (p. 35) with additions from Savin-Baden and Howell

Major[41(p. 44)])

3.1.1   Study aims and research questions

The overarching research question guiding this thesis is *'How do medical students on a well-established Gateway programme progress through medical school?'.* This was achieved through addressing the following subsidiary research questions:

1. To what extent do Gateway programme students differ from standard entry students with regards to student performance in assessments and progression rates?

2. In what qualitatively different ways do Gateway programme medical students conceive of 'success' at medical school?

3. How do the thoughts, behaviours and experiences of Gateway programme medical students influence progression through medical school?

3.2   Paradigm worldview

Whether explicit or implicit, all research approaches are underpinned by a collection of philosophical assumptions[32]. The primary purpose of research is to increase knowledge about a subject, but the nature and validity of the knowledge claims that can be made from a particular body of research depends on the philosophical assumptions made[97]. In this section I first define the key concepts needed to describe paradigm worldviews, followed by a discussion of some common research paradigms adopted in social science research. I conclude with an explanation of the philosophical stance taken in this thesis.

There are multiple conceptualisations of what comprises a philosophical paradigm[98], and a lack of transparency in definitions[99]. Whilst a challenge as a novice researcher, both Guba[99], and Greene and Hall[98], assert the importance of this ambiguity to allow for reshaping of definitions in the light of increasing understanding by the research community. For clarity, I have used the approach described by Creswell and Plano Clark[32] who use the term '*worldview*' to refer to the framework of beliefs about the nature of knowledge through which the researcher interprets their study. Although '*worldview*' is often used synonymously with '*paradigm*', a paradigm usually refers to a consensual understanding of beliefs within a community of scholars, whilst a worldview may or may not be associated with a specific discipline[32,100]. Following Creswell and Plano Clark's use of the term [32], I use '*paradigm worldview*' to acknowledge the unique interpretation individual researchers will bring to the shared understanding of common sets of philosophical assumptions.

Within each paradigm worldview there is a particular way of understanding '*what is the nature of reality?*', called ontology, '*what does it mean to know?*', called epistemology, and '*what is the role of values in social inquiry?*,* called axiology[97,98]. Added to this can be methodology, that is '*what is the process of research?*', which should then follow as a logical consequence of the previous philosophical beliefs[32]. Four commonly adopted paradigm worldviews in social science inquiry are shown in *table 3-1 on the following page.*

	Post-positivism	Constructivism	Transformative	Pragmatism
Related paradigms	Positivism Scientific method	Constructionism Interpretivism	Critical social theory	Pluralism
Research purpose	Theory verification	Theory generation	Change, emancipatory orientated	Real-world practice oriented
Ontology	Critical realist Singular reality that can never be fully apprehended	Relativist Multiple realities, dependent in form and content on the persons who hold them	Multifaceted and based on different social and cultural positions	Singular and multiple realities Reality is that which is practical
Epistemology	Modified objectivist Distance and impartiality	Subjectivist Findings are created by interaction between researcher and researched	Subjectivist Researchers actively involve participants as collaborators, and honour participant views	Practicality Knowledge is derived from observation of individuals and/or artefacts in their environment
Axiology	Unbiased Research use checks to eliminate bias	Biased Researchers actively use personal biases and interpretations	Researchers begin with and advocate for human rights and social justice	Multiple stances Researchers include both biased and unbiased perspectives
Methodology	Experimental or manipulative Deductive analysis to test a priori theory	Hermeneutic and dialectic Inductive analysis to build interpretations	Participatory Participants involved in all stages of research	Combining Observation of subject in practice Testing theories in practice

Table 3-1 Overview of paradigm worldviews employed in mixed-methods research.

(Adapted from Creswell and Plano Clark[32] with additions from Aikin[101], Guba[99], and Savin-Baden and Howell Major[41])

3.2.1 Post-positivism

Post-positivism is most often associated with quantitative research[43]; researchers believe that objectively 'true' knowledge exists, but that it is imperfectly knowable[41]. My professional worlds of medicine and teaching mostly unconsciously normally operate within a post-positivist paradigm. It is clear to me that though the quantitative strand of this study could, in isolation, take a post-positivist stance, that would not encompass my beliefs about social reality for the

medical students under study. Academic achievement and progression rates are an objective singular reality but contextualising them and understanding students' experience adds more depth to their interpretation and requires consideration of alternative understandings of ontology and epistemology.

3.2.2   Constructivism

Constructivism is most often associated with qualitative research[43]. It is considered to be 'anti-positivist' as knowledge is not believed to be discovered, but constructed by the researcher in interpretation[41] often to generate theory[99]. As discussed further in Chapter 5, I have used a phenomenographic data analysis approach to address research question two. Most phenomenographers adopt an interpretivist paradigm, which is closely related to constructivism, as an underlying assumption of the approach is that reality is co-constructed by the participant and interviewer during the interview[42]. This makes sense to me, as I believe the experience of being a Gateway programme medical student is socially constructed, and the individual's experience can only be understood so far as the participant expresses it and I interpret it. However, as previously discussed, quantitative research is usually based within a positivist or post-positivist worldview paradigm, where knowledge exists and can be uncovered by the scientific method[41]. This is incompatible with a pure constructivist or interprevist paradigm, which therefore is not an appropriate paradigm worldview as it fails to encompass the whole of my approach to this study.

3.2.3   Transformative

Research within a transformative worldview advocates for human rights and social justice for all[43] and presents a paradigm within which my research appears to sit well. I strongly believe that widening participation in medicine to people regardless of background is important and acknowledge my bias in that regard. However, a key premise of a transformative paradigm worldview is that participants are involved in all stages of the research process, collaborate in meaning making, and engage in reviews of results[43]. Though I can see the benefit in this, it is not the approach I have taken in this study. Additionally, research within the transformative paradigm is primarily emancipatory and change orientated, whilst the purpose of my research is primarily to increase understanding of the research problem.

3.2.4   Pragmatism

This is the paradigm world view I have adopted in this study. Pragmatism has become the dominant paradigm worldview supported by many mixed-methods researchers in the social sciences[32,102]. Pragmatists argue that the social, human world is different to the physical, natural world and therefore must be known differently, using different methods[41]; they are not tied to one system of philosophy[43] and this allows the mixing of qualitative and quantitative methods. The focus is on the real-world practice implications of research, and therefore the research problem takes centre stage[32]. In a pragmatic paradigm there is a high concern for 'what works' and problem-solving, allowing researchers to choose methods and procedures that best meet the research needs[43]. This is the choice I have made for the paradigm worldview to underpin this study. It fits with the real-world, practice based nature of the study and the pragmatic way I have combined methods to best suit the research question at hand[41,43]. As discussed in section 1.4, case study research is not firmly wedded to a fixed ontological or epistemological position. It has been described as '*a bridge across paradigms*'[103] (p.103) and there is therefore the freedom to situate it within various paradigm world views[104].

3.3   Methodological approach and study design

I have implemented a mixed methods case study research design for this study. Individually, both mixed methods and case study research are popular and growing fields, particularly within education and healthcare research[32]. There is an increasing acknowledgement of the power of combining these two approaches to provide a more nuanced and complete understanding of complex, real-life phenomena than using either alone[32,33,38] and a corresponding rise in the quantity of published research using this designation[34]. However, within published studies the two approaches have been combined in a wide variety of ways, and there is still relatively limited guidance on designing and conducting research at their intersection[32,34,38]. It is therefore important to be explicit in both how each individually is designed and how the two methodologies are situated in the hybrid study design[38]. The next few sections explain the options I considered and choices I made in developing a coherent study design which combines mixed-methods and case study research approaches.

3.3.1   Case study research

Case study research is considered a particularly effective methodology to investigate complex issues in a naturalistic setting, where the unit of analysis under examination cannot be completely separated from its context[33,104]. It is particularistic, holistic and bounded[41], concerned with completeness and presenting a rich picture to generate unique analytical insights[36]. Case studies have been employed in many fields, but particularly within educational research as a method to evaluate innovation and curriculum design[104,105]. Stake[106,107] and Merriam[105,108] are noteworthy contributors to the development of case study research which determines the impact of social and educational change, providing evidence for policy and practice[104], relevant to the topic under investigation in this thesis.

Case study research has increased in popularity and diversity over the past few decades, with a corresponding imprecision in definition of what a case study is, and how to go about conducting one[41]. Table 3-2 shows the variety of definitions from key authors in this field, highlighting the different aspects of case study research prioritised by each.

Author	Definition
Stake[106]	"A case study is both the process of learning about the case and the product of our learning" [(p.237)]
Yin[33,109]	"The all-encompassing feature of a case study is its intense focus on a single phenomenon within its real-life context…[Case studies are] research situations where the number of variables of interest far outstrips the number of data points" [109 (p. 1211)] "A case study is an empirical inquiry that: • Investigates a contemporary phenomenon in depth and within its real-life context, • Especially when the boundaries between phenomenon and context may not be clearly evident[33 (p. 15)]
Merriam[105]	"... an in-depth description and analysis of a bounded system" [(p. 40)]
Miles and Huberman[110]	"…a phenomenon of some sort occurring in a bounded context" [(p. 25)]

Table 3-2 Definitions of a case study

(adapted from Crowe et al[111] with additions from Merriam[105])

The most commonly cited criticism of case study research is in its limited ability to generalise its findings[33,36]. I am not able to make generalisations about the progression experiences of all Gateway programmes at all universities from my findings in this case. However, proponents of case study maintain that generalisation is overvalued as a source of scientific development[41]. Case study research is concerned with the particular and concrete in completeness[36,41], creating a rich picture of a particular phenomenon in a particular context. Through defining and describing the boundaries and context of the case in addition to the data of the case itself, unique analytical insights and interpretations are created[36].

Savin-Baden and Howell Major identify three general ways researchers frame case studies: *as the way a case is defined, as an approach to research, or as the final narrative of a qualitative study*[41] [(p152)]. They contend that case study is none of these in isolation, but a combination of all three: the case, the research approach and the research report[41]. I have adopted this approach in structuring a case study of Gateway programme students' progression and experiences.

3.3.2 The case

Selection of cases depends on the purpose of research and the questions to be answered[34]. The purpose of this thesis is to contribute to the limited body of research exploring the experiences of students from widening participation backgrounds whilst they are at medical school. There has been a proliferation of Gateway programmes as a method of widening access to medical school, of which the BM6 programme at the University of Southampton is one of the three longest-running[29]. This case study can therefore be considered a '*key case*'[36 (p. 77)] of the students on a

Gateway programme, the analysis of which will have implications for other widening participation in medicine approaches and programmes. It should be approached as a case study, because the experiences and progression of these particular widening participation medical students cannot be separated from the context within which they occurred, as to do so would reduce the depth of understanding[33].

In describing the case under study, it is necessary to both define the case and decide its boundaries[33]. A case can be many things: an individual, a group, a programme, an organisation, a relationship, or a process[33,36]. Identifying the case is not as simple as is it initially seems and depends on the research question to be answered[36,41]. Thomas suggests that to be an *'interesting'* case, the subject chosen must have a focus which lies at the heart of the study[36 (p. 14)]. This then provides '*an analytical frame within which the study is conducted and which the case illuminates and explicates'*[36 (p. 23)]. The subject of my case study are the students on the BM6 programme at the University of Southampton. Not the BM6 programme, as I am not asking questions about the programme itself, but the students on the programme. The analytical focus of my study is their experiences and progression through medical school. Using Thomas' structure[36 (p. 15)], the case study can be described as: *'A case study analysis exploring how medical students on a well-established Gateway programme experience progression through medical school'.*

Bounding the case identifies what is and what isn't under study[36,41]. The parameters determine who or what is included and become the immediate focus of the study, as well as who or what are outside of it and become the immediate context for the case study[33]. Boundaries can be drawn by place and time[112], time and activity, or definition and context[41]. In this case the boundaries are students on the BM6 programme at the University of Southampton who started after 2007, and their experiences and progression through the programme while they are undergraduates. I am not exploring their experiences and progression beyond graduation, and neither am I interested in the experiences of students on other BM programmes, or the structure of the programme itself, they become part of the context. Detail of the case context can be found in section 1.5.

3.3.3 Approaches in case study research

The research approach used in case study depends in part on the philosophical orientation of the researcher[104]. The diversity in approaches to, and definitions of, case study can be attributed to the variety of disciplines and ontological and epistemological views of the key contributors to the development of case study research[38,104]. Yin[33], Merriam[105,108] and Stake[106] are considered three of the most influential researchers in this regard. Brown[35] envisioned their three approaches sitting on a continuum between quantitative and qualitative research, based on their underlying

philosophical assumptions. This idea was developed further by Harrison et al[104], and I have visually represented their discussion in figure 3-2.

Quantitative	Mixed methods	Qualitative
Realist/Post-positivist	Pragmatic constructionist approach	Relativist/Interpretivist

Yin – A methodologist

Form of empirical inquiry. Comprehensive and systematic approach.
Desire to build and maintain rigour and quality.
Quality tests: Construct validity, internal validity, external validity, reliability.
Types of case study: single or multiple, holistic or embedded.

Increasingly acknowledges value of alternative paradigms

Merriam – An educator

Meanings and understandings developed socially and experientially.
Use methods most suitable to answer question.
Systematic approach to help interpret and sort information is important.
Provide rich, holistic description.
Theoretical frameworks useful.
Cases described as descriptive, interpretive or evaluative.

Stake – An interpreter

Emphasises researcher's role in interpreting meaning.
Views reality as multiple and subjective.
Interviews and observations preferred data collection method.
Uses vignettes to illustrate case.
Cases described as intrinsic, instrumental or collective.

Figure 3-2 A spectrum of case study research

(Constructed from Brown's review of the literature on case study research[35], with additions from Thomas[36] and Harrison[104])

Sitting towards the quantitative end of the spectrum, Yin's approach to case study research is methodical and primarily concerned with the validity of interpretation[33,104]. He has a realist epistemological orientation to research, though increasingly recognises the value of embracing different philosophical stances within a case study approach depending on the research question being addressed[33], which brings him closer to a pragmatic philosophical orientation. In contrast, Merriam's work employs a constructivist approach, but from a pragmatic 'what works' perspective, positioning her work closer to the middle of the continuum[104,108]. She advocates for the use of theoretical frameworks or research questions developed from the literature to guide case study design and analysis, and has a more procedural approach than Stake[106,108]. Furthest to the qualitative end of the continuum, Stake emphasises the researcher's role in interpreting and shaping knowledge, and therefore sees a case study approach as an effective way of ensuring that context is not divorced from interpretation[104,106]. I appreciate Brown's summary of the three approaches, saying that *"case study research is supported by the pragmatic approach of Merriam, informed by the rigour of Yin and enriched by the creative interpretation described by Stake"*[35 (p.9)], and in keeping with my pragmatic approach to research have sought to integrate the three.

There are a number of design choices to make in case study research, especially to ensure a systematic and rigorous approach. These are simplified and summarised by Guetterman and Fetters[34], shown in table 3-3 (overleaf).

Design feature	Description of option
Case study purpose	
Instrumental case study	Case represents a phenomenon of interest.
Intrinsic case study	Case represents a unique or important situation, making the case itself of primary interest.
Collective case study**[106]**	Cases provide general understanding using several instrumental case studies
Number of cases	
Single case study	Select relevant critical case, unusual case, common case, revelatory case, or longitudinal case.
Multiple case study	Select cases to compare and contrast.
Units of analysis	
Holistic	Global-level unit of analysis (e.g., a programme, a school, a clinic). Used when subunits cannot be identified or are not relevant to research question. More abstract analysis.
Embedded	Units of analysis come from multiple levels. Allows detailed understanding of phenomenon. Used when understanding needed from multiple levels.

Table 3-3 Design choices in case study research

(Reproduced from Guetterman and Fetters[34], addition from Stake[106])

Stake originated the three case study purposes in the table above (table 3-3) [106], and Yin identified four types of design based on the number of cases and units of analysis, depicted in figure 3-3[33] (p. 48). My study is an *instrumental case study*[106], chosen to provide a general understanding of the experiences and progression of medical students from widening participation backgrounds using a particular example in context. It uses a single *key case*[33], chosen as a well-established example of a growing phenomenon which aims to provide insight into the experiences involved in Gateway programme students' progression. Congruent with Stake's purpose for an *instrumental case study*[106], the insights gained from this case may be valuable to inform how widening participation students' experiences may be considered in other contexts[98] (p.134). The units of analysis sit at two levels in this case study: the quantitative strand analyses data at a cohort level, while the qualitative strand analyses data at an individual level, situating this study as an *embedded case study*[33].
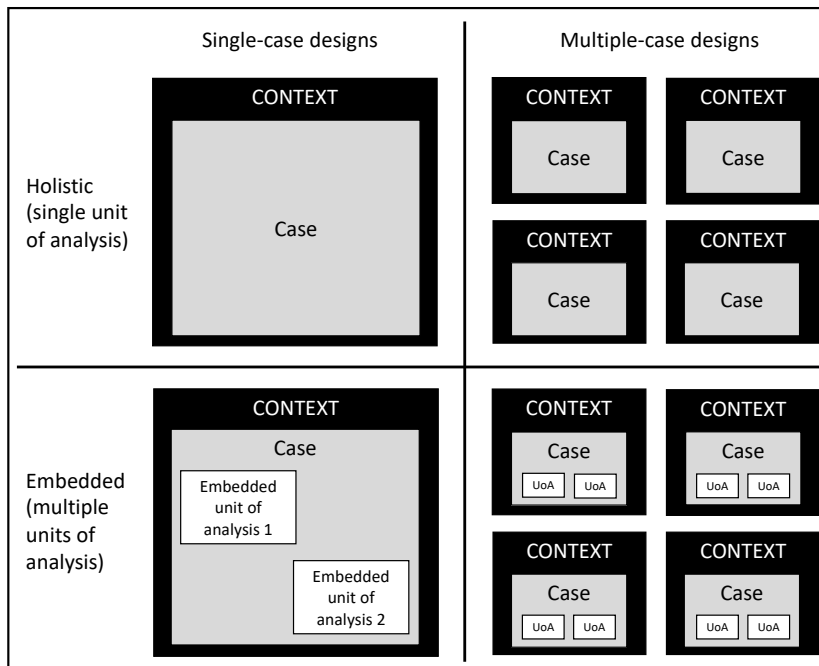
Figure 3-3 Basic types of designs for case studies as described by Yin[33] (p. 48

Summarising the design choices outlined above, this case study can be described as a key instrumental case study with an embedded single case design exploring how medical students on a well-established Gateway programme experience progression through medical school. This is represented visually in figure 3-4 overleaf.
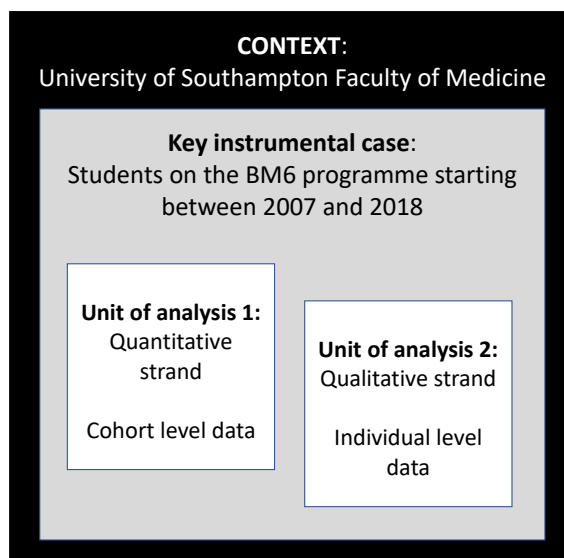
Figure 3-4 Visual representation of my embedded single-case study design

3.3.4   Presenting a case in a research report

There is no widely accepted format for reporting the findings of a case study[113]. It is important to include enough contextual information that the processes followed are clear, and logical conclusions reached[111]. Savin-Baden and Howell Major identify the following as essential components of a case study report: *the nature of the case itself; the historical background of the case; the physical setting in which the case is bounded; other important contexts such as economic, political and legal ones that influence the cases; other cases through which the case may be recognised; and the informants through whom the case may be known"* [41 (p. 153)]. The first three and last of these are found in the description of the case and context in Chapter 1. The socioeconomic and political contexts that influence the case were explored in Chapter 2, along with an examination of other Gateway programmes and alternative approaches to widening participation in medicine.

Each research question is addressed in a separate chapter, with a brief recap of methods, detailed results, and discussion. To pull the case together and contextualise the individual chapter discussions, chapter 8 presents a discussion which addresses the overarching research question, relates findings to the literature described in the literature review, and considers the implications of this research.

But why use both qualitative and quantitative methods within this case study? The next section explores the options.

3.3.5   When to choose mixed-methods research

Mixed-methods research involves using a variety of methods and working with a number of types of data, usually including both qualitative and quantitative data, to address an overarching research question or series of related research questions[114]. It began to emerge as a distinct research approach in the 1980s, though its early development was plagued by the *'paradigm wars'* during which qualitative and quantitative research purists argued that mixing the two was methodologically and philosophically incompatible[32,115]. Despite continuing debates about combining methods from different epistemological and ontological positions[116,117], it is now widely recognised as a legitimate third methodological paradigm in its own right, with its own set of philosophical assumptions and research designs[43,118].

The field of mixed-methods research has increased both in size and diversity of approach in recent years[114,119]. So-called *'methodological eclecticism'* allows researchers to choose and integrate what they consider to be the best tools to answer their questions, which goes beyond

simply offsetting the weaknesses of each individual method[32,119]. This can bring breadth and depth to research by combining methods with different strengths, such as the depth of interviews with the breadth of a large set of extensive questionnaires, to bring a more thorough and complete understanding of a phenomenon[32,119]. As a result, mixed methods research has the potential to address a wide range of research questions and provide stronger evidence for an assertion through corroboration of findings[32,115]. It is a practical approach to problem solving which often combines inductive (drawing a tentative general conclusion from the observation of the specific), and deductive (drawing specific conclusions from general rules which are always true) reasoning through abductive thinking, in which the researcher seeks the best available explanation out of many alternatives to explain surprising observations or problems[32,120]. This allows researchers to draw tentative conclusions and develop theory which can then be tested by moving between deductive and inductive reasoning[121].

Mixed methods research encourages researchers to develop a broad range of skills[32]. This can both be an advantage and disadvantage of undertaking mixed methods research, as there could be a danger of becoming a *'jack of all trades and master of none'*[122]. The risk is that if each part of the analysis is not undertaken with adequate rigour and thoroughness, analysis will remain superficial, and not add to understanding of the phenomenon under study[115,122]. Other weaknesses of mixed methods research include time and financial resources it requires; during data collection for this study, I had to make several pragmatic sampling decisions (see Sections 4.2.4 and 5.3.2) based on the time and resources I had available. A further challenge of employing mixed methods research is in assessing quality, due in part to issues around language, different audience expectations, different philosophical views, the wide variety of mixed methods designs, and the standards of quality being different for the qualitative and quantitative elements[32,123,124].

3.3.6 Alternatives to mixed methods research

3.3.6.1 Quantitative research

Quantitative research is predominantly based within a positivist or post-positivist philosophical paradigm in which knowledge is obtained by testing hypotheses to determine cause and effect relationships[41]. In medical education it is often used to describe and measure phenomena in a way that is both objective and generalisable, collecting data on attitudes and behaviours through standardized measures[112,125]. Quantitative researchers should remain unbiased, unemotional and detached from their study objects[115]. Quantitative data is numerical, and deductively analysed using controllable variables and statistics to describe patterns or determine cause and effect relationships between variables[125].

3.3.6.2   Qualitative research

Like much mixed-methods research, qualitative research is a form of inquiry which aims to understand how the social world is produced, experienced and interpreted[41,125]. Qualitative researchers reject the positivist understanding of reality and instead argue for subjectivity[115,125]. They hold that reality cannot be directly measured and only exists as it is perceived and understood, acknowledging multiple realities[41,115,125]. Qualitative research is usually naturalistic, examining the experiences of research participants and interpreting them in context[41]. The research question determines the design, which is usually developed iteratively throughout the research cycle [125]. Data comes from non-numerical sources, and in the final manuscript, qualitative researchers consider the data to be central to understanding meaning, it cannot be separated from findings[41,125]. As such, explanations tend to be drawn from the data inductively; the process of qualitative data analysis has been described as: extracting the essence, organising for meaning, and drawing conclusions, with a focus on maintaining a logical line of reasoning throughout that is congruent with wider literature and theory[125].

3.3.6.3   Comparing the three approaches

The differences between qualitative, quantitative, and mixed methods research approaches are summarized in table 3-4 on the following page, which shows the general features of research within each of the three traditions. It is worth noting that, in contrast to the qualitative and quantitative purists who perpetuated the *'paradigm wars'* and focused on the differences between the two approaches, mixed-methods experts reject a dichotomy between the two[112,115]. They suggest conceptualising research as a continuum with qualitative and quantitative research on either end and mixed methods sitting somewhere in the middle depending upon the design[112,115,117].

Tend to or typically…	Qualitative Approaches	Quantitative Approaches	Mixed Method Approaches
…use these philosophical assumptions	Constructivist, interpretivism, advocacy, participatory knowledge claims. Reality is socially constructed.	Post-positivist knowledge claims. Social phenomena and events have an objective reality. Can establish causality.	Pragmatic or dialectic pluralism knowledge claims
…have these purposes	Contextualisation, interpretation, understanding	Generalisability, prediction, explanation	Provide a more complete understanding of a phenomenon Transferability
…employ these strategies of enquiry	Phenomenology, grounded theory, ethnography, case study, and narrative	Surveys and experiments	Sequential, concurrent, and transformative
…employ these methods	Open-ended questions, emerging approaches, text, or image data	Closed-ended questions, predetermined approaches, numeric data	Both open and closed-ended questions, both emerging and predetermined approaches, and both qualitative and quantitative data and analysis.
…use these practices of research as the researcher	Positions themselves Collects participant meanings Focusses on a single concept or phenomenon Acknowledges personal values in the study Studies the context or setting of participants Validates the accuracy of findings Makes interpretations of the data using inductive reasoning Creates an agenda for change or reform Collaborates with the participants	The researcher is objective and 'outside' the research. Tests or verifies theories, explanations, or hypotheses Identifies variables to study Uses standards of validity and reliability Observes and measures information numerically Employs statistical procedures Draws conclusions using deductive reasoning	Collects both quantitative and qualitative data Develops a rationale for mixing Integrates the data at different stages of inquiry Presents visual pictures of the procedures in the study Uses abductive reasoning to draw conclusions Employs the practices of both qualitative and quantitative research
…use these standards to assess quality	Credibility Transferability Dependability Confirmability	Internal validity External validity Reliability Objectivity	Transparency Transferability Inference quality

Table 3-4 Comparison of qualitative, quantitative, and mixed-methods

(Adapted from Creswell 2009[112] with additions from Cleland 2015[125], Wheeldon 2010[121], and O'Cathain 2010[123])

3.3.7   Mixed-methods research design

As mixed-methods research has increased in popularity, so too have the number of texts articulating conceptual frameworks or methodological choices to guide the practice of mixed-methods inquiry[43,126-128]. Mason warns that mixing methods *'for the sake of it can produce disjointed and unfocussed research'*[126]*,* so therefore identifying the purpose of using this methodological approach is important. In 1989, Greene et al reviewed 57 mixed-methods studies and identified five 'categories of purpose' for conducting mixed methods inquiry[127], which are still considered to be important principles today[118]. The reasons they found for conducting mixed methods research are for the purpose of *triangulation*, looking for convergence of results; *complementarity,* seeking elaboration and enhancement of results; *development,* using the results of one method to develop or inform the sampling, implementation or measurement decisions of the other method; *initiation,* identifying paradoxes and contradictions by analyzing results from different perspectives; and *expansion,* extending the breadth of inquiry by using different methods for different inquiry components[127]. These are not discrete purposes, and a single study may have more than one purpose[127]. In this study, the primary reason for using a mixed methods approach was *expansion*, using both quantitative and qualitative methods to explore different aspects of the progression of Gateway programme medical students. A secondary purpose was *development,* as the process of carrying out the quantitative phase informed the development of some of the qualitative phase sampling and interview focus decisions. Expansion studies were the most prevalent in the review but showed the most variation in design options and were of most varying quality[127], and therefore to consider further design decisions for this study and ensure a robust design, I looked for other conceptual frameworks and models to guide the design process.

The complexity of making such decisions is illuminated by Schifferdecker's article guiding the design of mixed methods research in medical education, who found a vast range of mixed method design models in current textbooks which described between four and 20 typologies[128]. One well known mixed methods researcher, Creswell, initially identified six regularly used research designs[43], and has more recently refined this down to three core designs: *convergent, explanatory sequential, and exploratory sequential*[32]. In *convergent designs* qualitative and quantitative elements are collected and analysed in parallel with the results brought together and compared or combined; in *explanatory sequential designs* quantitative data is collected first and analysed, the results of which inform the collection and analysis of qualitative data which is in turn used to explain or expand the quantitative findings; and in *exploratory sequential designs* initial exploratory qualitative data collection and analysis informs the design of a secondary quantitative measure[32]. These core designs can be added to in order to create more complex mixed methods designs[32], which I have done in combining mixed methods with a case study approach. Within

each of the three core designs, Creswell identified four aspects to consider when planning a mixed methods design: *timing, weighting, mixing/integration* and *theorising*[43,112]. I used these to guide the development of my research design.

3.3.7.1   Timing

The timing of data collection in my study was sequential, with the quantitative data primarily collected prior to the qualitative. However, the justification of using a sequential approach to data collection was mostly practical: The first, quantitative, phase used routinely collected data which could be collated, cleaned, and analysed while the qualitative study design was considered, and participants recruited. A secondary benefit of the sequential timing enabled the outcomes of the quantitative analysis to guide the direction of the qualitative design, including its focus on transition points. Additionally, my thinking developed during the quantitative data collection and analysis as I considered the focus the medical faculty places on academic achievement in exams to measure the 'success' of students and programmes. I wondered whether medical students conceptualised success in the same way, and developed research question two to investigate this. Other research questions addressed by qualitative data analysis were developed at the outset to address the overall aim. Despite the timing of data collection, the way I have analysed and used the data is more consistent with a modified *convergent* design than the *explanatory sequential* design, especially as data was collected and analysed separately to answer research questions one to three, before being discussed in their entirety to address the overall thesis aim. Furthermore, the qualitative data was not collected purely to explain the results of the quantitative analysis as is expected in sequential designs, but to illuminate different aspects of the progression experiences of Gateway programme students.

3.3.7.2   Weighting

More of the research questions developed to address the overall aim necessitated a qualitative approach than quantitative, and additionally, the quantitative sample size available within the case study limited the scope of quantitative analysis (see section 4.5). Therefore, the qualitative data analysis was given slightly more weight than the quantitative data analysis within the study design. A notation system, first used by Morse[129] has been refined and is now almost ubiquitous in the mixed methods literature[32]. The system uses 'qual' to refer to the qualitative methods of a study, and 'quan' to refer to the quantitative elements. Relative weighting is denoted by letter case, a plus (+) signifies that methods occurred concurrently, and an equals (=) that methods occurred in a sequence[32]. Therefore, the timing and weighting of this study can be represented as 'quan + QUAL'.

3.3.7.3   Mixing or integration

As Creswell notes, mixing of the data in a mixed methods study is *'difficult at best'*[112]; it may happen during data collection, be integrated during analysis, or used in interpretation to bring together themes and strengthen conclusions[43,114,118,126]. In this study, as is consistent with a *convergent* design, qualitative and quantitative data were collected and initially analysed separately[32]. These separate results and analyses are presented in chapters four to seven of the thesis. The outcomes of these analyses were then integrated during interpretation and discussion to address the overarching research question *'How do medical students on a well-established Gateway programme progress through medical school?',* presented in chapter eight.

3.3.7.4   Theorising

Though all inquiry is informed by the theories and instincts of the researcher, theory in mixed-methods research is only sometimes made explicit[112]. In this thesis a lens of student experience guided the data collection and analysis, while the agentic aspect of Bandura's Social Cognitive Theory is used to interpret results in Chapter 6.

3.3.8   Joining the two and using a 'Case Study-Mixed Methods' design

The previous sections covered case study and mixed methods research designs in detail. However, while there is an increasing interest in and corresponding body of research at their intersection, there is limited guidance for designing and conducting mixed methods case studies[33,34,43]. Guetterman and Fetters'[34] review of 81 recently published mixed methods case study research identified two key mixed methods case study typologies, shown in figure 3-5 on the following page.

In a mixed methods-case study design, a 'parent' mixed methods design incorporates a qualitative case study, while in a case study-mixed methods design, the case study sits at a higher level, and mixed methods are used to collect, analyse and interpret data within it[34]. My research design is the latter, as were 67 of the 81 articles in the review. The modified convergent design was also the most prevalent, though this was only made explicit in a minority of papers[34]. The review identified a relative paucity of detail in the mixed methods decisions taken within papers, which I have addressed by attending to both the case study and mixed methods literature.
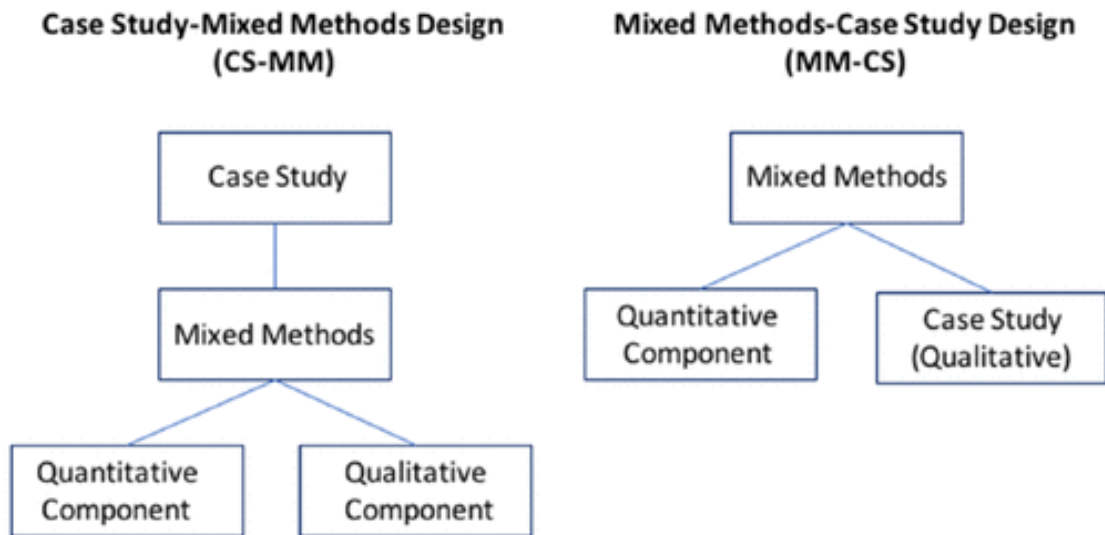
Figure 3-5 Design choices when integrating mixed methods and case study designs

(Reproduced from Guetterman and Fetters[34])

Additionally, they note that researchers often mix units of analysis and sources of data in convergent designs, as I have, challenging the conventional approach of using the same data set for both strands[34]. They suggest that this is a reasonable adjustment in case study-mixed methods designs, as '*embedded case studies by definition have multiple levels of analysis to give a more complete understanding of the case at particularistic and global levels*'[34].

When integrating the results of the qualitative and quantitative strands, it must be noted that students from the retrospective quantitative study entered the programme under different eligibility and selection criteria than the students participating in the qualitative study. This is a reality of studying participants in a real setting where not all variables are under the control of the researcher, and therefore conclusions drawn may need to be more tentative.

3.4 Methods of data collection and analysis

The specific methods, ethical considerations, and assessments of quality for the different strands of this case study-mixed methods project can be found in the following sections of this thesis:

- Unit of analysis 1, quantitative data: Chapter 4
- Unit of analysis 2, qualitative data: Chapter 3

Chapter 4   Comparison of Gateway programme and standard entry students' demographics and academic progression

4.1   Introduction

In investigating the effectiveness of Gateway programmes in widening access to the medical profession to those from underrepresented backgrounds, the first thing that must be established is to what extent the students on these programmes originate from backgrounds that meet diversification goals. Once this has been evaluated, then we should look at what proportion of students on these programmes are graduating into the medical workforce. Previous analysis of BM6 cohort data has established that they have a slightly lower graduation rates when compared to standard entry students[19], congruent with other limited research into outcomes for widening participation students on Gateway programmes[18], but that the difference between the two groups is smaller on exit than entry to the programme[130]. This provides some evidence to suggest that Gateway programmes, and specifically the BM6 programme, facilitate students with educational and social disadvantage to access their academic potential whilst at medical school. However, what is not presented in these studies is granular data looking at Gateway students' achievement in different types and timings of assessments, or reasons for non-progression. Exploring this would identify key points of challenge for Gateway programme students and begin a journey to better understanding their experiences at medical school and therefore supporting them to maximise successful graduation rates.

This chapter presents a scoping study to establish a local evidence base for the Gateway programme at the centre of this case study, the BM6 programme. Results and discussion are presented in an integrated, narrative form to describe a rich picture of progression and academic achievement of students as they move through the programme.

4.2 Methods

This quantitative strand of data collection and analysis primarily addresses research question one of the whole thesis: To what extent do Gateway programme students differ from standard entry students with regards to student performance in assessments and progression rates?

In addition, the following research sub-questions were investigated:

- Using markers of widening participation status, to what extent does the BM6 programme diversify the medical student population and widen participation?
- Can predictive factors for progression and success be identified from BM6 student admission data?

4.2.1 Situation of quantitative chapter within overall study design

This chapter presents the investigation and analysis of the cohort level data which constitutes unit of analysis 1 within the case study.
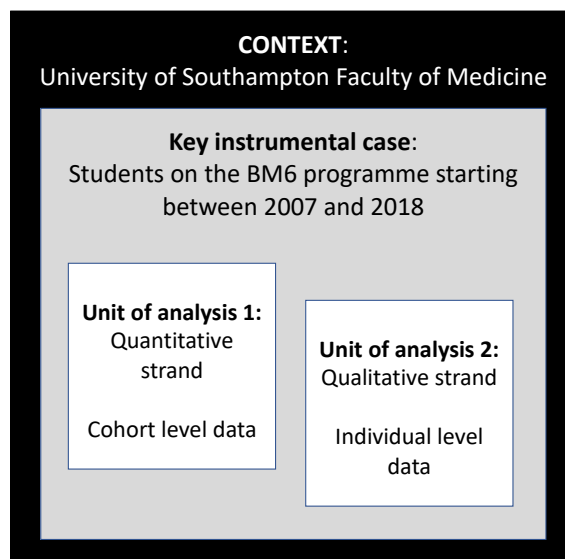
Figure 4-1 Overall case study design

4.2.2 Overview of quantitative design

The quantitative strand of the study employed a retrospective descriptive and predictive cohort design, utilising routinely collected admissions data, sociodemographic indicators, progression, and assessment data from medical students to investigate the progression, academic achievement, and graduation rates of Gateway programme students, using traditional entry cohorts at the same institution (BM5) as a contextual comparison. Additionally, these data were

used to create a detailed description of the demographics of Gateway programme students and identify any predictive factors for graduation or progression on entry. An observational design was chosen as many variables of interest were naturally occurring personal attributes, and therefore could not be experimentally manipulated by the researcher[131]. The length of time between application to university and graduation made a retrospective approach the most practical and the use of routinely collected data minimised the possibility of researcher bias and allowed the testing of multiple outcome variables within one study [132].

4.2.3 Participants

The participants were the cohorts of medical students enrolled at the University of Southampton on the BM6 programme, starting Year 0 between 2006 and 2010 and progressing to Year 1 the following year, and those on the BM5 programme starting Year 1 between the corresponding years, 2007 to 2011. These cohorts were chosen to maximise the sample size and therefore the power of the study to identify predictive factors, and to increase the likelihood that any differences found between the groups are not unique to a particular cohort but generalisable to the programme over time.

The sample was limited to these cohorts due to the availability and consistency of data. Between 2007 and 2011 the assessment structure of the programme remained predominantly consistent, allowing assessment data for each cohort to be standardised and combined. Availability of data for earlier cohorts was variable, as some archived electronic data was irretrievable, and the corresponding hard copies destroyed in a flood. Additionally, over time the BM6 entry criteria have changed (see section 1.5) and competition for places has intensified, so including the earliest cohorts may have led to findings less representative of the current picture. An important outcome variable in this study is the ultimate success of students in gaining a medical degree. In addition to a change in programme structure and assessment, at the time of analysis not all students in cohorts starting later than 2011 had completed their degrees and therefore these cohorts were not included in the sample.

It is worth noting that these data are now somewhat out of date. As described in section 1.6, this PhD project has taken 6 years to finish, and this was the first study to be completed, in 2018. However, students starting later than 2011 studied on a restructured programme, and it was not possible to rerun the analysis to include any newer cohorts.

4.2.4 Sample

Group 1 consists of the BM6 students in the 2006-2010 Year 0 cohorts who progressed to Year 1 in 2007-2011. Those students who failed to progress to Year 1 were excluded from the comparative statistical analysis with Group 2. All members of Group 1 are UK resident, non-graduates, as these are eligibility criteria for admittance to the BM6 programme.

The comparison group, Group 2, consists of the BM5 students in the 2007-2011 cohorts. To ensure this group was as comparable to Group 1 as possible, international students and UK resident graduates were excluded. Additionally, repeat year students and those who withdrew before the start of teaching were also excluded.

4.2.5 Sources of data

Possible variables of interest to answer the research questions were initially identified based on existing literature and expert knowledge of teaching staff on the BM programmes. Different university and faculty level teams were approached to discover what data was available for the selected cohorts. The choice of variables to include in the study design was largely pragmatic, based on what was available and in discussion with a medical statistician.

Table 4-1 lists the data collected from different sources. The central university data monitoring team provided a comprehensive list of all students enrolled on the BM5 and BM6 medicine programmes for the cohorts of interest. As this was extracted from the database used for statutory data returns to the Higher Education Statistics Agency (HESA), it was considered the most reliable and accurate of all sources. It included students' unique university ID number, which was then used to combine data from other sources into an Excel spreadsheet.

Central university data monitoring team	BM6 programme leader	Faculty of medicine assessment team	Faculty of medicine student team
Student ID number Programme studied (BM5 or BM6) Cohort year Age on entry to university Gender Ethnicity Fee status (UK resident or International) Previous institution type Self-declared parental HE qualification (Yes or no) POLAR3 quintile IMD decile A-level or other grades on entry UCAS points	Year 0 module results BM6 progression data Fulfilment of BM6 eligibility criteria for BM6 students: In receipt of educational maintenance allowance In receipt of a means tested benefit First generation HE applicant Student is living independently Lives in bottom 20% of IMD postcodes GCSE English language grade First language	Module and end of year raw and scaled assessment results for each cohort and each year of study Supplementary exam results Distinctions awarded	Intercalating students Help with tracing data on students leaving the programme Reasons for failure to complete and timing of withdrawals

Table 4-1 Source of each piece of data for quantitative analysis

4.2.6 Assessment data

Assessment data was provided in master spreadsheets for each year of exam results between 2007 and 2016. Assessments of interest were chosen in conversation with faculty staff, so that a range of assessments would be included in the analysis across the preclinical and clinical years of the programme, including both practical and written assessments. This allowed for assessment of differences in performance in particular types of exams and at different stages of the programme. No assessments from year 4 were included. This was the year in which students undertook a significant research project for the award of a BMedSci, and available data was limited. Whether or not students were awarded the BMedSci was recorded. Table 4-2 lists the assessments included in the analysis.

Assessment	Year	Content
Semester 1 numerically marked component (NMC)	1	Anatomy spotter (20%), one best answer/extended matching questions (40%), key features/problem solving (40%).
Semester 2 NMC	1	Anatomy spotter (20%), one best answer/extended matching questions (40%), key features/problem solving (40%).
Semester 3 NMC	2	Anatomy spotter (20%), one best answer/extended matching questions (40%), structured answer paper (40%).
Semester 4 NMC	2	Anatomy spotter (20%), one best answer/extended matching questions (40%), key features/problem solving (40%).
OSCE	3	10 stations, marked A-F, students must achieve an average of grade D, with no more than 2 stations failed.
Written papers	3	2 papers, one multiple choice (50%), one problem solving paper (50%). Aggregate score must be greater than standard set pass mark.
Assessment of clinical competence (ACC)	Final	17 assessments undertaken during final year clinical attachments, assessed by clinicians, marked A-F
OSCE	Final	16 stations, no more than 3 stations failed to pass.
Written papers	Final	2 papers, one multiple choice, one consisting of 3 essays (Law and ethics, a clinical summary and critical appraisal)

Table 4-2 Make up and timing of assessments included in analysis

For each of these assessments, scores were standardised by calculating a Z score relative to the pass mark. This is a measure of how many standard deviations above or below the pass mark an individual score was[133 (p.131)]. It standardises for differences in the spread of results and the different pass marks (range 44.4% to 52.5%) in different cohorts and different assessments, enabling all five cohorts of assessment results to be combined into one data set.

Relative Z scores were calculated for the whole cohort who took the assessment before exclusion of international and graduate students. Some students had more than one result for each assessment due to undertaking supplementary exams or repeat years, so the first attempt at each assessment was recorded. If their passing mark was used instead this would have created an artificially small standard deviation. One limitation in using Z scores, even relative to pass mark, is that it did not always correctly identify failing students. Some students with an aggregate score well above the pass mark for a particular assessment had in fact failed due to varying rules in assessments for minimum achievement in individual elements (a qualifying mark). This was not considered a problem in the statistical analysis comparing the relative percentage performance of

the two groups to explore overall academic achievement. However, to ensure that progression data was recorded correctly, pass and fail lists published by the board of examiners were consulted to identify students who had taken supplementary exams or failed to progress.

4.2.7 Data protection

Data was collated in Excel as it was obtained and anonymised to student ID numbers as soon as possible after collection. Once the data set was complete, it was then further encoded to randomly generated study codes, with a key to these codes kept in a separate password protected document. All data was fully anonymised to study codes before importing to SPSS v24 for analysis. All data is stored in a password-protected sub-folder of the researcher's university network file storage and will be kept for the length of time required by the university ethics committee, currently 15 years.

4.2.8 Statistical treatment

SPSS v24 was used to produce descriptive statistics of demographics, achievement, and progression and to carry out appropriate statistical tests to analyse the data sets looking for predictive factors indicative of success.

The details of the analysis undertaken were informed by initial exploration of the descriptive statistics. The following discussion explains the statistical analyses undertaken to answer research question one and each of the subsidiary questions.

Research question 1: To what extent do Gateway programme students differ from standard entry students with regards to student performance in assessments and progression rates?

Differences between BM5 and BM6 student performance in assessments was measured by comparing relative Z-scores achieved in the assessments listed in table 4-2 on previous page. An assessment of normality was made by visually inspecting histograms of each measure for each group, which showed the data to be normally distributed. Levene's test was carried out to check for homogeneity of variance, checking that the spread of data in each group was equal. There was no violation of underlying assumptions[134 (p. 334)], and therefore independent samples T-tests were used to assess the significance of any differences observed.

Independent sample T-tests can be used to test whether two group means are significantly different from one another when each group has different participants and experimental conditions, as in the case of our BM5 and BM6 groups[134 (p. 324)].

For assessments that showed a significant difference in achievement between BM5 and BM6 groups, effect size was calculated using the difference between means. This allowed comparison of the differences between the groups to identify assessments where the difference is particularly great or small, and to look for trends as students progress through the programme. Data had already been standardised into Z scores, and therefore could be compared from one measure to another with no need for further standardisation.

Difference in progression was assessed by looking for differences between the groups in rates of ultimate progression for each year of the programme. Data was dichotomised into success or failure for each year. Success was defined as the ultimate success of a student in passing the year and progressing on to the following year, regardless of suspensions, supplementary exams or repeat years undertaken. Failure included all students who ultimately withdrew or had their programmes terminated during that year of study, therefore not progressing on to the next year, regardless of suspensions, supplementary exams or repeat years undertaken. Simplifying progression into this dichotomy loses some of the nuance of individual student journeys but was necessary due to the relatively small sample sizes involved. Each year of study was analysed independently, and those who failed in previous years were excluded from analysis. This would usually be analysed using Pearson's chi-squared test, which allows us to compare the expected outcome with actual outcome for the 2 groups[134 (p.688)]. However, due to small sample sizes an alternative test, Fisher's exact test was used instead to account for the sampling distribution potentially deviating from that assumed when using Pearson's chi-squared test[134 (p.690)]. This is suggested when, as was the case here, the expected value in one or more cells in each case is fewer than five[134 (p. 690)].

The following procedures were used to answer the subsidiary research questions:

- *Using markers of widening participation status, to what extent does the BM6 programme diversify the medical student population and widen participation?*

This question is addressed using descriptive statistics comparing the demographic makeup of the BM6 programme with that of the BM5 programme and medicine as a whole and relates the outcome to national statistics.

- *Can predictive factors for progression and success be identified from BM6 student admission data?*

Regression analysis is used to predict future outcomes based on the analysis of previous data[134 (p.197)]. Two separate analyses were undertaken, firstly to identify predictive factors for success, and secondly to identify predictive factors for progression. In the first model, success was

dichotomised as ultimately graduating with a medical degree regardless of grades, supplementary exams, repeat years, or suspensions, or failing to graduate with a medical degree. In the second model, progression was dichotomised as undertaking no repeat years or undertaking at least one repeat year. This was deemed to be of interest due to the additional financial burden repeat years place on both the individual student and the medical school. Logistic regression rather than linear regression was carried out in both cases, as the outcome variables were both categorical[134 (p.265)]. Univariate regression uses a single predictor variable and assesses whether it has had a significant effect on the outcome under investigation while multivariate regression analyses extend this by adding in multiple predictor variables[134 (p.210)].

The variables included in initial univariate analyses were the same in both cases and are shown in table 4-3.

Variables included in univariate analysis		
Gender Age Ethnicity POLAR3 Previous institution First language English	Achieved A-level Biology B+ Achieved A-level Chemistry B+ Achieved A-level BBC+ Achieved GCSE English Language A+ Achieved GCSE English Language B+	BM6 1st generation HE BM6 benefits BM6 lives independently BM6 16-19 bursary BM6 postcode

Table 4-3 Variables included in univariate analysis

Following this, I hoped to combine variables shown to be significant in a multivariable logistic regression analysis. However, the small sample size (n=148) and unequal outcome group size means that this analysis was limited. Discussion with a medical statistician concluded that there was little to be learned from comparisons involving such unequal outcome group sizes. Further predictive modelling was therefore declared unfeasible. Using other outcome measures of success to create more equal outcome group sizes was discussed, but these would not be useful in helping me answer my overall research question.

4.2.9 Ethical considerations

The major ethical consideration in this quantitative strand is the large amounts of data about each individual combined from various sources so individuals may be identifiable even though records are anonymised. The secure storage of the data set is therefore of utmost importance. An application for ethical approval for this study was made to the University of Southampton Ethics

Committee in October 2016, and approval granted on 17th October 2016. Please see Appendix F for documents relating to this submission, ERGO number 24020.

4.3 Who are the participants?

A total of 905 students were included in this study, divided into those from the BM6 programme under investigation, and those from the standard undergraduate entry medicine programme, the BM5 programme, used as a comparative group.

	Number in selected cohorts	Number excluded from analysis	Number included in analysis
BM6 (Group 1)	157	9	148
BM5 (Group 2)	903	146	757

Table 4-4 Total number of participants in each group

Group 1 consisted of the 157 BM6 students in the 2006-2010 Year 0 cohorts, who progressed to Year 1 in 2007-2011. Of these 157, nine students failed to progress from Year 0 to Year 1 and were excluded from the comparative statistical analyses with Group 2. This left 148 students in Group 1. All members of Group 1 were UK resident, non-graduates, as these are eligibility criteria for admittance to the BM6 programme.

Group 2 consisted of the 903 BM5 students in the 2007-2011 cohorts. To ensure this group was as comparable to Group 1 as possible, 118 international students and 23 UK resident graduates were excluded. Additionally, three students were excluded because they were identified as repeating Year 1 in 2007 and therefore belonging to a prior cohort, and two students identified as withdrawing before the start of Year 1 were excluded, as they had no data associated with their ID numbers. This left 757 students in Group 2, as summarised in table 4-4.

4.3.1 Students on the BM6 programme are more socially diverse than those on the BM5 programme.

Table 4-5 shows summary demographic statistics for the two study groups, along with a total for all medical students in the two groups. The BM6 programme does not aim to select for any of these attributes directly, but the differences between the 2 groups are an interesting unintentional side effect. It illustrates the complexity of intersectionality within different sociodemographic attributes.

Aligned with broader trends in undergraduate medical education[135], both the BM5 and BM6 programmes have a slightly higher proportion of women than men. This difference is marginally accentuated in the BM6 programme, but not by a noteworthy amount. As an aside, the

information provided by the central university monitoring team did not include any other gender options, and I am not clear whether this is because no student selected an alternative or whether no alternative was provided to them. Although not a focus of this thesis, in a piece about widening participation this seems important to note.

	Total n (%)	BM6 n (%)	BM5 n (%)
Gender			
Men	404 (44.6)	62 (41.9)	342 (45.2)
Women	501 (55.4)	86 (58.1)	415 (54.8)
Age Category			
School leaver (18-20)	816 (90.2)	118 (79.7)	698 (92.2)
Mature (21+)	89 (9.8)	30 (20.3)	59 (7.8)
Ethnicity			
White	661 (73.0)	52 (35.1)	609 (80.4)
Asian	132 (14.6)	52 (35.1)	80 (10.6)
Black	40 (4.4)	29 (19.6)	11 (1.5)
Chinese	10 (1.1)	1 (0.7)	9 (1.2)
Mixed	33 (3.6)	4 (2.7)	29 (3.8)
Other	18 (2.0)	9 (6.1)	9 (1.2)
Information refused	11 (1.2)	1 (0.7)	10 (1.3)

Table 4-5 Summary demographic statistics for BM5 and BM6 students in the 2007-2011 cohorts

Mature age is not specifically selected for by the BM6 programme, but one of the basket of eligibility criteria used (see section 1.5) is 'student living independently'. This may account for the higher proportion of students aged 21+ on entry in BM6 compared to BM5. The number of mature non-graduates entering university has decreased since the mid-1990s[136], possibly because of the decrease in funding available[137]. However, research from Bristol University[138] and the Office for Students[139] has established that mature non-graduates are significantly more likely than the general student population to be from groups disadvantaged in higher education and to have other markers of social or educational disadvantage. Therefore, the higher proportion of mature non-graduates on the BM6 programme (20.3% compared to 7.8% BM5) is a positive marker that the programme is successfully widening participation to an under-represented and disadvantaged group.

The ethnicity profile of the BM6 programme is also significantly different to that of BM5. Again, this is not a stated aim of the programme but likely a consequence of the intersection between ethnicity and other markers of WP background. Over 80% of BM5 students are white, compared to only 35.1% of BM6 students. Larger Asian (35% BM6 vs 11% BM5) and Black (20% BM6 vs 2% BM5) numbers make up a high proportion of the differences between the two programmes. When compared to national cohorts of medical students over the same time period, the BM5

programme has a higher proportion of white students, while the BM6 programme is significantly more ethnically mixed. For example, data from the MSC shows white medical students made up 70-74%[27] of the national cohort during the years 2007-2011, falling to 59% by 2017[140]. Over the same period the number of black entrants to medical school rose from around 2% to about 5%[27,140].

One of the stated aims of widening participation in medicine is help move to an environment where doctors are broadly representative of the populations they serve (see section 2.2). Table 4-6 presents population data from the 2011 census (note that it is England and Wales, not UK).

Ethnicity	Percentage of the total population of England and Wales
White	85.9
Asian	6.8
Black	3.4
Chinese	0.7
Mixed	2.2
Other	1.0

Table 4-6 Summary ethnicity data of the population of England and Wales from the 2011 census[141]

By this measure, medical degree programmes in the UK already broadly reflect the UK population, and in the BM6 programme black and Asian ethnicities are vastly over-represented. However, these categories for ethnicity are extremely broad and homogenise complex groups with varying social, financial, and educational disadvantage and therefore may hide specific challenges[142-144]. Universities currently collect data in broad categories, and it remains a challenge to collect sufficiently granular data to fully assess their progress towards access targets with regards to ethnicity in widening participation. There remains a question, therefore, about whether there are particular white and minority ethnic backgrounds under-represented in these cohorts.

4.3.2 The challenges of collecting data that effectively assesses widening participation status

There are many different markers that suggest a student might come from a widening participation background, discussed in section 2.3. The BM6 programme specifically recruits students from widening participation backgrounds; however, probability and experience suggest

that there will also be students from widening participation backgrounds on the BM5 programme. I have used the BM5 programme as a control group with which to compare progression and achievement to the BM6 cohorts, with the assumption that overall, the BM5 cohort come from more socially and educationally advantaged backgrounds. We need to assess to what extent this is true. It is also important to know how effective the BM6 selection criteria are at widening participation given that the BM6 programme is more costly to run, mostly due to small cohort size and staffing ratios. If there is no difference in demographics between cohorts then there is evidence for an argument that negates the value of the BM6 programme. The demographic measures included in this analysis was limited by what had been collected by the university.

The BM6 programme requires students to meet at least 3 of the following 6 eligibility criteria to apply to the programme:

1. First generation applicant to HE
2. In receipt of FSM in years 10-13
3. In receipt of a 16-19 bursary
4. Young people looked after by a local authority, or student living independently
5. Parents, guardian, or self in receipt of a means tested benefit
6. Living in an area with a postcode that falls into the lowest 20 percent of IMD, or a member of a travelling family.

It follows then that these markers are likely to be found in greater numbers in the BM6 group than the BM5 group. However, most of these data points are not routinely collected for all applicants to HE and we have only two available to us in this study: Living in an area with a postcode that falls into the lowest 20 percent IMD and a self-declared measure of being a first-generation applicant to HE.

4.3.2.1   Parental HE status

The data available in this study uses 'Self-declared parental HE qualification' which is collected by UCAS as a comparable data point to 'first generation applicant to HE'.

Parental HE Qualification	Total n (%)	BM6 n (%)	BM5 n (%)
Yes	585 (66.6)	21 (17.2)	564 (74.3)
No	230 (26.2)	92 (75.4)	138 (18.2)
Do not know	18 (2.0)	5 (4.1)	13 (1.7)
Information refused	46 (5.2)	4 (3.3)	42 (5.5)
Missing data	*26*	*26*	*0*

Table 4-7 Proportion of students in study self-declaring on UCAS form that their parent has an HE qualification

The difference in proportion of students without a parental HE qualification is stark, as the percentages are almost reversed. Only 17.2 % of BM6 students have a parent with an HE qualification while nearly three-quarters of BM5 students do. The number of missing data or students who do not know is small enough to make no difference to the reliability of interpreting the result.

4.3.2.2 Postcode-based measures

Universities rely heavily on postcode-based measures of socio-economic status; they don't require the administrative cost and burden of collecting and verifying additional information. Whilst there is less opportunity for deliberate or accidental provision of inaccurate data by students, research has shown significant validity concerns with postcode-based measures because the average characteristics of an area may bear little relation to the characteristics of the individual[83,145]. Despite this limitation, a pragmatic interpretation suggests that although postcode-based measures may have little validity on an individual level, they reasonably add some evidence to a cohort level comparison of different programmes.

Table 4-8 presents two different postcode-based measures available for BM5 and BM6 cohorts, also represented graphically in figure 4-2 (POLAR3) and 4-3 (IMD). POLAR3 (replaced by POLAR4 in September 2020[146]) data assigns postcodes to a quintile based on HE participation rates, with quintile 1 having the lowest rate of participation[147]. IMD (Index of Multiple Deprivation) gives small areas of England with a population of about 1500 a rank of relative deprivation based on seven indices including measures of income, health outcomes and education[148]. Areas are ranked into deciles with the bottom 10% considered the most deprived. These are assessed from postcode data.

	Total n (%)	BM6 n (%)	BM5 n (%)
POLAR3			
Quintile 1	56 (6.2)	20 (13.5)	36 (4.8)
Quintile 2	91 (10.1)	28 (18.9)	63 (8.4)
Quintile 3	114 (12.7)	30 (20.3)	84 (11.2)
Quintile 4	225 (25.0)	28 (18.9)	197 (26.2)
Quintile 5	414 (46.0)	42 (28.4)	372 (49.5)
Missing data	*5*	*0*	*5*
IMD decile			
Bottom 10%	32 (4.0)	25 (18.4)	7 (1.0)
10-20%	37 (4.6)	22 (16.2)	15 (2.2)
20-30%	46 (5.7)	20 (14.7)	26 (3.9)
30-40%	41 (5.1)	10 (7.4)	31 (4.6)
40-50%	58 (7.2)	13 (9.6)	45 (6.7)
50-60%	71 (8.8)	10 (7.4)	61 (9.1)
60-70%	95 (11.8)	8 (5.9)	87 (13.0)
70-80%	98 (12.2)	9 (6.6)	89 (13.3)
80-90%	145 (18.0)	9 (6.6)	136 (20.3)
Top 10%	183 (22.7)	10 (7.4)	173 (25.8)
Missing data	*99*	*12*	*87*

Table 4-8 POLAR3 and IMD statistics for the study participants
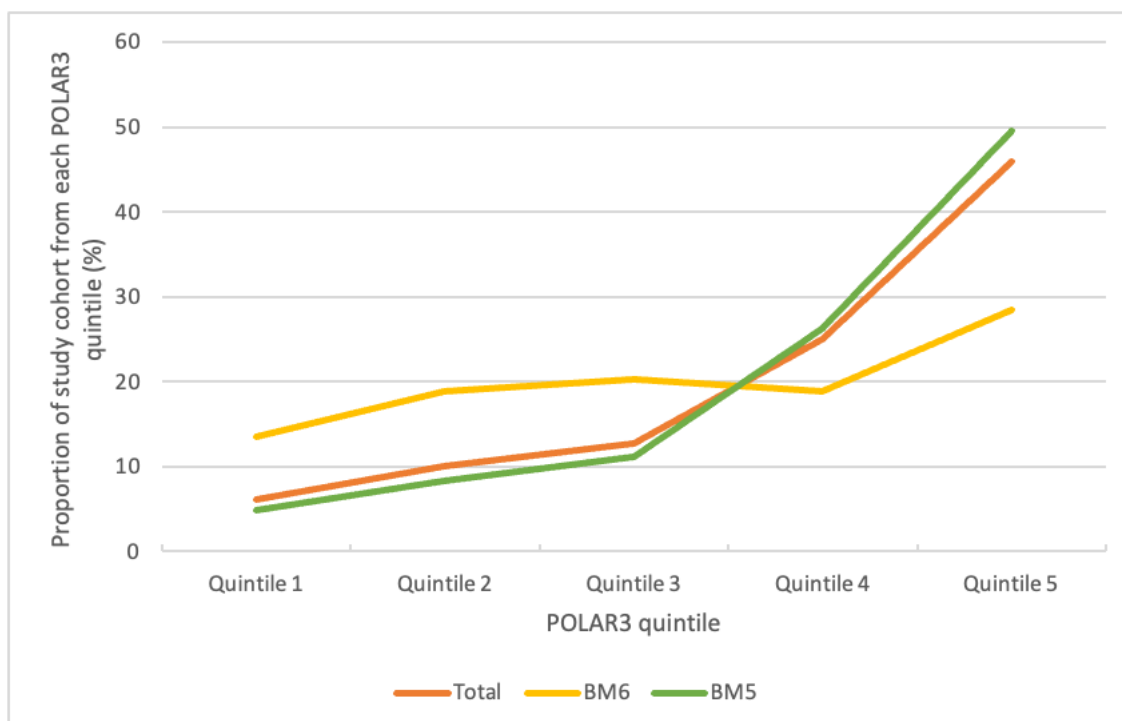
Figure 4-2 Proportion of BM5 and BM6 cohorts from different POLAR3 quintiles

Congruent with research highlighting the ecological fallacy that '*you are where you live*'[145], more than a quarter of BM6 students come from the areas with the highest HE participation (POLAR3

quintile 5, see figure 4-2). Despite this, these students must have met at least 3 other, mostly individual level, measures of WP background. The data shows that overall, the BM6 programme (32.4%) is recruiting more students from low HE participation neighbourhoods (POLAR3 quintiles 1 and 2) than BM5 (13.2%) suggesting it is widening participation when compared to the BM5 programme.
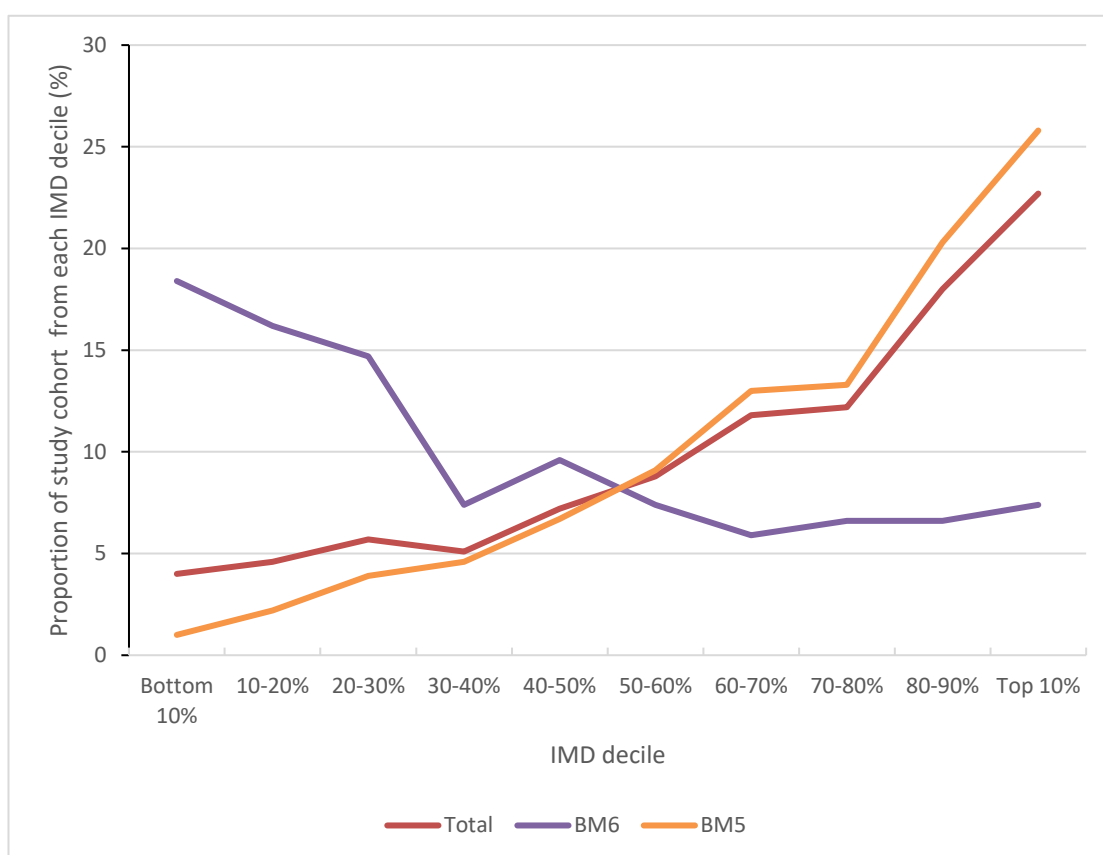
Figure 4-3 Line graph comparing proportion of BM5 and BM6 cohorts from different IMD deciles

An even clearer picture emerges when looking at IMD data (figure 4-3), which shows a clear trend in BM5 data with the fewest students having home postcodes in the most deprived areas (7% decile 1-3) and the largest number of students living in the most affluent postcodes (59% decile 8-10). In contrast to this, nearly half of BM6 students live in the 30% most deprived postcodes, while only 21% live in the 30% most affluent postcodes. Of course, living in the bottom 20% of postcodes is one of the eligibility criteria for admission to the BM6 programme, so we would reasonably expect to see more students in that bracket. However, the relative lack of students from the top deciles suggests an overall profile of students from more deprived neighbourhoods, adding to the picture that BM6 is successfully widening participation in comparison to BM5.

4.3.2.3   Previous institution type

The final comparative datapoint I could access was the type of educational institution previously attended by students, presented in table 4-9.

	Total n (%)	BM6 n (%)	BM5 n (%)
Previous institution type			
Non-selective state school	357 (39.5)	51 (34.7)	306 (40.4)
Grammar school	28 (3.1)	2 (1.4)	26 (3.4)
Post-16 institution	231 (25.6)	76 (51.7)	155 (20.5)
Independent school	252 (27.9)	8 (5.4)	244 (32.2)
Unknown/Overseas	36 (4.0)	10 (6.8)	26 (3.4)
Missing data	*1*	*1*	*0*

Table 4-9 Previous school type for BM5 and BM6 students in the 2007-2011 cohorts

As with parental HE qualification, this is collected through UCAS, but is more easily verified because most applications come directly from the educational institution. Attending a non-selective state school or post-16 institution is not of itself a measure of widening participation background; only about 5% of state maintained students are educated at grammar school[149] and only about 6% of all school age children attend independent schools[150]. However, research has shown that high achieving children are less likely to go to grammar school when they are from more deprived backgrounds[151], and, with the exception of a few available scholarships, a high family income is required to attend an independent school[152]. Additionally, one aspect of a widening participation background is experiencing educational disadvantage, which is most likely mitigated by attendance at a selective or fee-paying school. Consequently, attending a grammar or independent school moderately suggests that a student may not be from a widening participation background.

Table 4-9 shows that a much higher proportion of BM5 students (35.5%) attended an independent or grammar school than BM6 (6.8%), again adding to the evidence that on a cohort level the BM6 programme is widening access to students who have experienced social, financial, and educational disadvantage.

One of the sub-research questions to be explored in this chapter was: *Using markers of widening participation status, to what extent does the BM6 programme diversify the medical student population and widen participation?* Despite significant limitations to the types of widening participation indicators available for comparison, this section has provided evidence to indicate

that the sociodemographic profile of the BM6 programme cohorts is substantially different to that of the BM5 programme both in markers of WP background, and age and ethnicity. The BM6 is offering a route into medicine for students from a different background profile, and therefore is diversifying the medical student population.

4.4   The route to successful graduation

Now that we have shown that the BM6 programme is admitting a diverse student group, the next part of the study is concerned with identifying what happens to these students once they are at medical school. Do they progress through to successful graduation at the same rate as other students? Are there particular types of exams or points in the programme where they have a different achievement profile or progression trajectory?

From this point on, all analyses include only the 148 BM6 students who entered year 1 of the medical degree programme alongside their BM5 contemporaries. The 9 students who failed to pass and progress from year 0 are excluded from analysis.

4.4.1   Attrition or successful graduation

Table 4-10 shows the overall proportion of students who ultimately graduated with a medical degree, regardless of supplementary exams, repeat years or suspensions. Eighty-eight percent of BM6 students successfully completed their medical degree, seven percent fewer than BM5.

Programme	Percentage graduating with a BM medical degree	Chi-squared test
BM6	87.8 %	9.11 *(p = 0.003)*
BM5	94.8 %	

Table 4-10 Proportion of students who enter year 1 graduating with a BM degree in the 2007-2011 cohorts

The small cohort size of BM6 means that in absolute numbers there are only one or two additional students failing per year, but this is still a statistically significant difference from the BM5 cohort, and a significant outcome for each person behind the statistic. There is some improvement from the previous analysis from 2003-2007 in which 85% of the BM6 cohort successfully graduated, while the proportion of BM5 students has remained static[19]. It would be interesting to know if that gap has narrowed since the 2011 cohort graduated in 2016-2019 (graduation year dependent on intercalation, repeat years, or suspensions). Analysis of results from KCL also found a 7% lower graduation rate for their WP programme[18], and a recent paper

examining outcomes for students from Southampton, KCL and a third Gateway programme but including progression from year 0 is also similar[130].

Table 4-11 presents data to identify the points of the medical programme at which BM6 students are struggling to pass and progress. Overall progression rates (regardless of supplementary exams or repeat years taken) are compared between BM5 and BM6 for each year of the programme. The data shows that small, non-statistically significant but nevertheless lower progression rates for BM6 each year accumulate to produce the previously discussed statistically significant 7% lower graduation rate for BM6 students.

	Total	Success n (%)	Failure n (%)	p value
Year 1				
BM6	148	143 (95.9)	5 (4.1)	0.119
BM5	757	743 (98.2)	14 (1.8)	
Year 2				
BM6	143	140 (97.9)	3 (2.1)	0.452
BM5	741	731 (98.7)	10 (1.3)	
Year 3				
BM6	140	135 (96.4)	5 (3.6)	*0.031**
BM5	730	723 (99.0)	7 (1.0)	
Year 4				
BM6	135	134 (99.3)	1 (0.7)	0.406
BM5	714	712 (99.7)	2 (0.3)	
Final year				
BM6	117	115 (98.3)	2 (1.7)	0.115
BM5	641	639 (99.7)	2 (0.3)	

Table 4-11 Differences between BM5 and BM6 in progression rates in each year of the undergraduate programme, using Fisher's exact test.

The only year in which there is a statistically significantly lower progression rate for BM6 students is in year 3. There is also a higher rate of non-progression for BM6 students in Year 1 when compared to the other years, though as BM5 students have a similarly higher rate of non-progression there is not a statistically significant difference between the groups. Year 1 is also a year of transition; students move out of the relative security of BM6 Year 0, with its small cohort size and dedicated teachers, to a larger cohort with a greater variety of teachers. BM6 students are therefore less known and possibly find it harder to access support if they are having problems.

BM5 students are new to the programme and as we show later (see figure 4-5), maybe leaving more for personal reasons as they realise medicine isn't the degree for them.

For the cohorts included in this study, year 3 was their first year of clinical placements, following two years of mostly lecture and practical based work (with some early patient contact sessions). Literature has repeatedly shown that medical students find the transition to clinical placements stressful and difficult[153-156]. The unfamiliar environment and introduction of new ways of learning often leaves students with *'feelings of incompetence and unpreparedness'*[156]. What the results of my analysis suggest is that the effect of this on exam performance is exacerbated in BM6 students. We could hypothesise from experience that this may be for several reasons: perhaps inward belief in their ability is lower, perhaps the additional financial burden of longer terms means students are working more and studying less, and probably there are other factors at play. Further investigation of the experiences of BM6 programme students navigating medical school is presented in Chapter 6.

Partly in response to this data analysis identifying the pre-clinical/clinical transition as a progression challenge, the BM6 programme leader instituted a series of 5 'life skills workshops' for BM6 students at the beginning of their 3rd year (and open to BM6 students in later years) to aid transition to the clinical learning environment. The workshops were theoretically informed by Bandura's principles of self-efficacy, and included sessions on:

- inclusivity and cultural identity;
- communication and having difficult conversations;
- managing difficult personal circumstances/managing stress;
- preparation for working in the clinical environment;
- building confidence and professional identity.

We evaluated this intervention and published the results (paper abstract included in Appendix A for interest; these are not part of the findings presented in this thesis), which showed an increase in the participants' self-efficacy after the workshops[157].

4.4.2   Student performance in assessments throughout the programme

Whilst I found that ultimate progression rates were only statistically significant between the two groups in Year 3, this was regardless of supplementary attempts at assessments or repeat years. Anecdotal evidence from faculty suggested that BM6 student achievement in exams was lower, and I wanted to discover whether this was across the board or at specific points or types of assessment.

Figure 4-4 shows the mean difference in performance between the two groups at different assessment points. In Year 1 and 2 these results are from a mixed set of exams which include multiple choice questions (MCQs), short answer papers, and anatomy spotters. It wasn't possible to access the raw data for each paper taken to allow me to identify differences between groups in different types of assessment. The calculations were carried out using relative Z-scores (number of standard deviations away from the pass mark) for each assessment, and therefore the effect size is standardised by Z-score (details in section 4.2.6). In this case each student's first attempt at the exam is included in analysis.
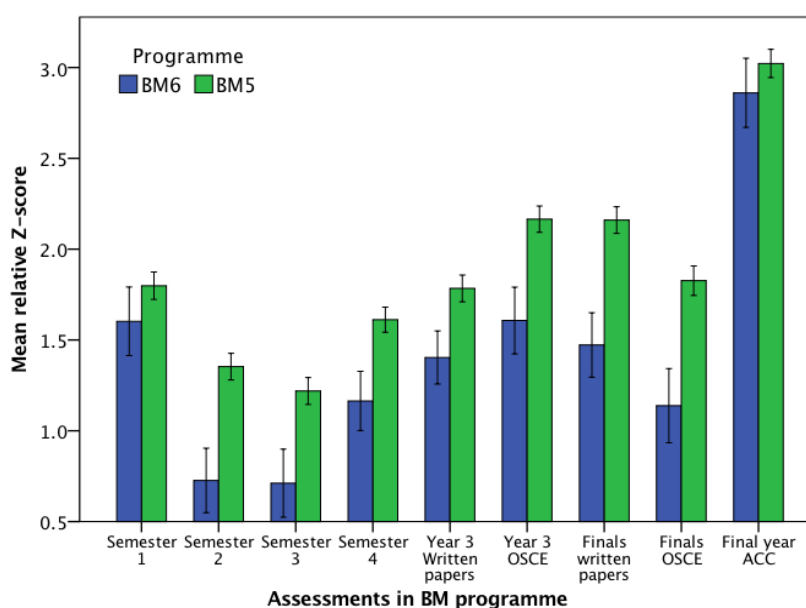
Figure 4-4 The differences between BM5 and BM6 students in average assessment performance at different points throughout the undergraduate programme

The results show that the BM5 cohort achieved higher first attempt marks on average than BM6 at each assessment point. In semester 1 this difference is only small, and may be because Year 1 BM5 students are new to university study while BM6 Year 1 students have already had a year to settle in. The difference is also smaller in the final year ACCs (assessment of clinical competence), an assessment made up of multiple assessments of the student by different clinicians in different specialities over the whole placement period.

Independent sample T-tests show that the lower BM6 achievement is statistically significant at each assessment point except for the final year ACC. This is shown in table 4-12 below. The missing data is a result of students leaving the programme before reaching this point, and in the case of the final year figures, because students hadn't completed that year by the time of analysis.

Effect size is an assessment of the size of the difference between the groups and therefore how noteworthy the results is. It is accepted that an effect size over 0.5 is a substantial effect[158] and so we can conclude that the difference in mean score between the two groups is meaningful for all assessment points except Semester 1 and Finals ACC.

Assessment	Programme	N	Missing	Ind. samples T-test	p value	95% CI lower limit	95% CI upper limit	Effect size
Semester 1	BM6	146	2 (1.4%)	2.71	0.007	0.46	0.734	0.27
	BM5	746	11 (1.5%)					
Semester 2	BM6	146	2 (1.4%)	7.24	0.000	0.48	0.84	0.66
	BM5	746	11 (1.5%)					
Semester 3	BM6	138	10 (6.8%)	5.82	0.000	0.36	0.73	0.55
	BM5	735	22 (2.9%)					
Semester 4	BM6	143	5 (3.4%)	5.67	0.000	0.33	0.68	0.51
	BM5	739	18 (2.4%)					
Y3 written	BM6	139	9 (6.1%)	5.73	0.000	0.33	0.67	0.50
	BM5	723	34 (4.5%)					
Y3 OSCE	BM6	139	9 (6.1%)	7.61	0.000	0.49	0.84	0.66
	BM5	722	35 (4.6%)					
Finals written	BM6	123	25 (16.9%)	7.16	0.000	0.48	0.85	0.67
	BM5	652	105 (13.9%)					
Finals OSCE	BM6	123	25 (16.9%)	6.47	0.000	0.47	0.88	0.67
	BM5	652	105 (13.9%)					
Finals ACC	BM6	123	25 (16.9%)	1.71	0.088	-0.25	0.37	0.17
	BM5	652	105 (13.9%)					
Finals overall	BM6	123	25 (16.9%)	8.35	0.000	0.58	0.94	0.76
	BM5	652	105 (13.9%)					

Table 4-12 Differences between BM5 and BM6 students in average assessment performance at different points throughout the undergraduate programme showing effect size for each.

But does the fact that BM5 students are performing better in exams than BM6 students matter? For parity we want to reduce the difference in overall success rate, but medicine is a pass/fail degree. Someone who passes finals with 51% is just as much of a doctor as someone who passes with 90%. Little is published to explore this idea, but we can infer some ideas. All medical students may have circumstances regarding family, caring commitments, health concerns, or financial ties which mean they need to complete their foundation years in a particular location. It is accepted that these circumstances are more likely to occur for students from a widening participation background, as reflected by the new pre-allocation special considerations process in the foundation programme application process. The foundation programme selection process ranks

students based on their application, which includes points awarded for their academic performance at medical school[159]. Lower academic performance therefore means students are less likely to be allocated their preferred foundation programme location and or job.

4.4.3 When and why do students leave the program

Previously, I have used students' first attempts at assessments in the analysis. When they don't achieve a passing mark, they are allowed a supplementary attempt. If they fail this, in most circumstances students can repeat that year of the programme and have a final attempt at the assessments. At this point if there are no extenuating circumstances and the student fails again then their programme is terminated. Students may also withdraw from the programme at any stage. Table 4-13 presents non-cumulative data for each year of the programme. It displays the percentage of students who progressed on their first attempt at the assessments within a year, needed a supplementary opportunity but then progressed, repeated the year and then progressed, had their programme terminated, or withdrew within that year. This analysis was undertaken in 2018, when some of the final cohort were still in the programme, having repeated a year, suspended, or intercalated. Repeating the analysis later was unfeasible due to time constraints.

		Progress		Supplementary		Repeat year		Terminated		Withdrawn		Current 2017/18	
		N	%	N	%	N	%	N	%	N	%	%	N
Yr1	BM6	95	64.2	38	25.7	9	6.1	6	4.1	0	0		
	BM5	631	83.4	91	12	21	2.8	2	0.3	12	1.6		
Yr2	BM6	86	60.1	40	28	14	9.8	2	1.4	1	0.7		
	BM5	570	75.7	139	18.5	22	2.9	5	0.7	5	0.7		
Yr3	BM6	110	78.6	23	16.4	2	1.4	4	2.9	1	0.7		
	BM5	682	94.1	33	4.6	7	1	0	0	3	0.4		
Yr4	BM6	103	76.3	23	17	*7	5.2	1	0.7	0	0	1	0.7
	BM5	674	94.4	33	4.6	*5	0.7	1	0.1	1	0.1	0	0
Final	BM6	^103	77.4			12	9	1	0.8	1	0.8	16	12
	BM5	^620	87.1			19	2.7	1	0.1	1	0.1	71	10

*Progress no BMedSci
^BM degree awarded

Table 4-13 Summary statistics for progression in the BM programme presented independently by year for BM5 and BM6 students

Table 4-13 shows that a higher percentage of BM6 than BM5 students undertake supplementary exams, complete a repeat year, or have their programme terminated in each year of study. This difference is particularly striking in the relative percentages of students who repeat fourth and final years (5.2% vs. 0.7% and 9% vs. 2.7% respectively). This tallies with conversations I have had with the previous BM6 programme lead who has noticed that in several cohorts, one in three fails at finals are from students who have never failed anything before[160]. More than a quarter of BM6

students take supplementary exams in either Year 1 or Year 2, but ultimately go on to progress. The numbers of students withdrawn or having their programme terminated are small, though there is a higher withdrawal rate for Year 1 BM5 students. It is reassuring to see that most students who have their programme terminated or withdraw do so within the first two years. Only seven students over both programmes and all cohorts left in Years 4 or 5. Medical education in the UK is expensive, both to the government and the individual student. For society, non-completion signifies economic loss and, if the dropout rate is large enough over time, potentially reduces the number of junior doctors in a stretched health service[161]. For students, large debts, loss of confidence, and social implications may follow[162]. This seems especially important for students from WP backgrounds who may have fought to break out of their circumstances to get to medical school and have fewer familial and social resources to fall back on if it doesn't work out. Repeat years add to the financial burden experienced. It seems to me that there is a balance for medical schools between allowing students time to mature and adjust by giving additional opportunities to pass and progress, with early identification of those unlikely to ultimately succeed to minimise the financial and emotional burden on the student.

All students who leave the programme due to termination or withdrawal should have an exit interview. Records of these interviews were hard to find and patchy in detail. The data available for reasons for withdrawal from the course was variable. Not all students had had an exit interview, and where there had been one, reasons for withdrawal were not always available. I discussed with my supervisory team whether we should follow up with those students who had effectively 'disappeared' with no follow-up. However, we decided that the timeframe involved, sensitivity of subject, and lack of contact details for many of these students made the idea both ethically and practically impossible. Figure 4-5 is a basic visual representation of the data I was able to access showing reasons for non-progression between the two groups.
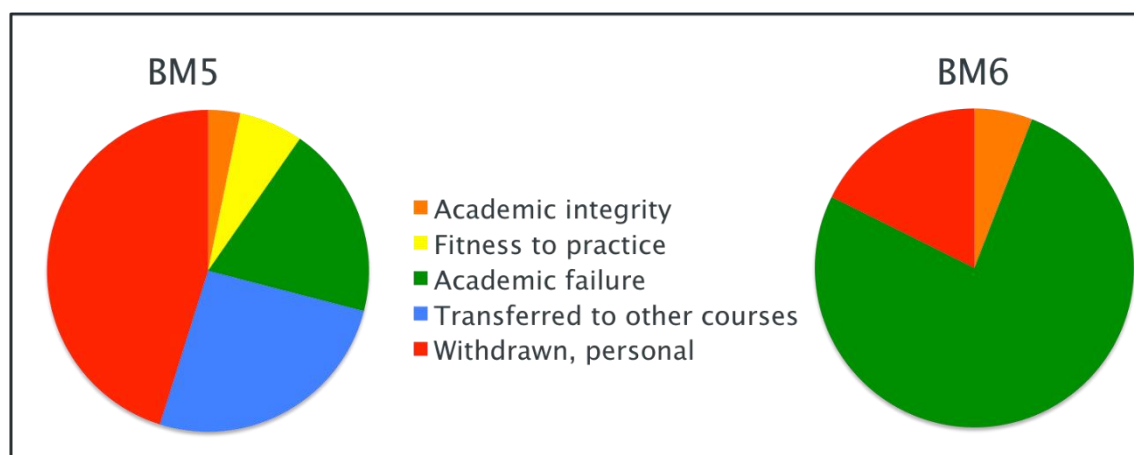
Figure 4-5 Reasons for non-progression in BM5 and BM6 students in the 2007-2011 cohorts

Slightly over three-quarters of ultimate non-progression for BM6 students was due to academic failure, while this is the reason given for less than a quarter of non-progression in BM5. A higher proportion of BM5 than BM6 students withdraw for personal reasons or transfer to another programme of study. A possible interpretation of this is that BM6 students who, against the odds, achieve a place at medical school are more motivated to complete it than BM5 students and therefore only stop when they are prevented from carrying on by their academic performance. During the study time frame, no BM6 students transferred to other courses or had their programmes terminate due to fitness to practice concerns.

4.5   Predicting BM6 student progression and success from admission data

Medical schools want to maximise the successful graduation of its students, both to enhance their institutional reputation and because they care about the students in their charge. One way to do this is to select the students who are most likely to succeed based on their characteristics on entry. Research has shown a modest association between previous academic achievement and academic performance at medical school[80,81], but has not identified any other factors.

As previously discussed in section 2.4, the problem with selecting medical students based on prior academic performance in the widening participation context is that it has been shown that demographic and SES factors influence the average UCAS tariff score achieved by school leavers applying to medicine, with those from a WP background being more likely to have achieved lower grades[82]. The BM6 programme and other similar Gateway programmes recognise this and admit students with a lower UCAS tariff.

I carried out logistic regression analyses to see if it were possible to identify any factors predictive of successful graduation for the BM6 cohort with their unique eligibility and entrance criteria. The analysis was limited by sample size and unequal sample size groups, and the results not particularly helpful. I spent time with a medical statistician looking at my data and trying to identify an approach that could yield new insights. However, due to the sample size and unequal outcome groups this was not possible. Below I present the limited analysis I was able to perform.

Table 4-14 shows the number of cases in the analysis, which included the 9 students who failed to progress from year 0 into the rest of the medical degree programme.

Outcome	N
Graduated with BM degree	115
Failed to graduate	25

Table 4-14 Number of cases included in first univariate analysis

	p value	Odds ratio	95% CI	
			Lower	Upper
Gender (F)	0.310	0.638	0.268	1.520
Age (21+)	*0.187*	0.509	0.187	1.386
Ethnicity (BME)	0.420	0.676	0.261	1.751
BM6 1st generation HE	0.789	0.853	0.265	2.745
BM6 benefits	0.578	0.752	0.276	2.048
BM6 lives independently	0.607	0.698	0.178	2.747
BM6 EMA	0.555	0.627	0.133	2.953
BM6 postcode	*0.111*	0.469	0.185	1.191
POLAR3 (Low participation)	0.941	1.044	0.338	3.222
Previous institution (selective)	0.582	1.873	0.200	17.508
First language English (Yes)	*0.162*	1.909	0.772	4.722
A-level Bio B+	0.376	1.531	0.596	3.937
A-level Chem B+	*0.163*	2.145	0.735	6.259
A-level BBC+	*0.004**	4.333	1.594	11.779
GCSE English A+	0.965	0.980	0.397	2.420
GCSE English B+	*0.052*	*2.667*	*0.991*	*7.172*

Table 4-15 Univariate logistic regression analysis of how sociodemographic variables at entry affect chance of BM6 students graduating with a BM degree.

* = Statistically significant result

Table 4-15 presents the results of a univariate logistic regression analysis of how sociodemographic variables at entry affect chance of BM6 students graduating with a BM degree. The factors were chosen based on availability, and to investigate whether any of the specific entry criteria are more predictive of success than others.

Achieving BBC or above at A-level was the only factor found to be statistically predictive of success. This is consistent with the literature showing that previous academic performance is predictive of future academic performance[81] but does not add anything to our understanding. Since the analysis was undertaken, the A-level requirement has increased to BBB+, bringing the programme in line with the rest of the university, and so all students entering the programme will exceed these criteria through A-levels or equivalent qualifications.

Unequal sample sizes reduce the power of this statistical test to identify predictors[134] which maybe contributing to the results of the analysis above. Repeat years are an additional financial burden on students and add to the logistical complexity of administrating a medical programme. Table 4-16 displays the outcome groups for an analysis looking for factors that predict that a BM6 student will undertake at least one repeat year at medical school.

Outcome	N
No repeat years	114
Completed at least 1 repeat year	43

Table 4-16 Number of cases included in second univariate analysis

The univariate analysis in table 4-17 shows that markers of previous academic achievement are statistically significantly predictive of undertaking no repeat years before graduation, including achieving at least a B at A-level Biology or Chemistry, and at least BBC overall. Again, this is consistent with previous research but doesn't add anything new to our understanding.

	p value	Odds ratio	95% CI	
			Lower	Upper
Gender (F)	0.461	1.316	0.635	2.727
Age (21+)	*0.057*	0.446	0.194	1.025
Ethnicity (BME)	*0.051*	0.447	0.199	1.004
BM6 1st generation HE	*0.040**	2.410	1.040	5.587
BM6 benefits	0.756	0.883	0.403	1.937
BM6 lives independently	0.581	0.696	0.193	2.513
BM6 EMA	0.433	1.541	0.523	4.541
BM6 postcode	*0.516*	0.765	0.341	1.716
POLAR3 (Low participation)	0.452	1.348	0.619	2.937
Previous institution (selective)	0.129	2.735	0.745	10.040
First language English (Yes)	*0.409*	1.374	0.647	2.918
A-level Bio B+	0.005*	3.057	1.397	6.688
A-level Chem B+	*0.030**	2.545	1.092	5.933
A-level BBC+	*0.025**	2.584	1.128	5.916
GCSE English A+	0.843	1.077	0.518	2.240
GCSE English B+	*0.755*	1.158	0.460	2.919

Table 4-17 Univariate logistic regression analysis of how sociodemographic variables at entry affect chance of BM6 students undertaking no repeat years.

Analysis includes 9 students who failed to progress from year 0.

A slightly more interesting and unexpected result is that being a first generation HE participant predicted that no repeat years would be needed. A large scale quantitative study of first

generation HE participants in the UK found that these students were less likely to graduate than their peers[163], and first in family research in the UK and Australia has highlighted the additional challenges students from these backgrounds face at medical school[68,164]. Finding that the BM6 first generation students were less likely to need to undertake a repeat year is therefore surprising.

Multivariate analysis allows the researcher to assess the relative importance of the different factors on the outcome[134]. Options for this were considered in consultation with a medical statistician. However, due to the small sample size and unequal outcome groups, it was advised that the power of such a test would be limited, and no further analysis was performed.

4.6   Discussion

In this chapter I have identified that BM6 students are markedly more diverse than BM5 students regarding age and ethnicity with students being older on average, having fewer white students and more Asian and black students. More BM6 students come from areas of high deprivation and low HE participation rates, and fewer students have attended a private or grammar school. A 2011 study by Mathers et al examining early data (2002-2006) from early Gateway programmes similarly found significantly more diverse cohorts than their corresponding traditional entry programmes[165]. They explained that as these programmes accounted for a tiny fraction of the medical student intake, it had unsurprisingly had little impact on the national make-up of medical students. However, as previously discussed, efforts to increase the proportion of students from WP backgrounds has accelerated, and there are a burgeoning number of Gateway programmes. Ensuring that they are admitting the students they aim to admit is therefore of increased importance.

A major limitation in retrospective cohort studies is around the availability of data. One can only look at the data that has been collected. In this study I encountered this problem when looking at ethnicity and trying to ask questions interrogating the make-up of BM5 and BM6 to identify how many participants come from specific under-represented groups such as white working class or black Afro-Caribbean. Additionally, individual markers of WP background are rarely collected by universities on all their students unless they are being used for contextual admissions. I would like to have compared the groups on more independently verified individual markers of social or educational disadvantage (such as eligibility for FSM) but these data were not available. Despite this, we can confidently answer research sub-question one and say that the BM6 programme is widening participation to medicine and that the profile of the students is distinctly different to those on the BM5 programme.

The second sub-question to be investigated was to see if predictive factors for progression and success could be identified from BM6 student admission data, to help maximise success of students. Unfortunately, the small sample size and unequal outcome groups meant this was impossible. The only significant results we obtained were that higher previous academic achievement was predictive of successfully graduating without requiring a repeat year, congruent with previous research. To raise the successful graduation rates of BM6 students and decrease the 7% gap between them and BM5, staff will need to help students further maximise their potential throughout the programme rather than by refining the selection of students further. This will be enhanced by better understanding the experiences of BM6 students, explored in Chapters 6 and 7.

Research question one of the whole thesis states: *to what extent do Gateway programme students differ from standard entry students with regards to student performance in assessments and progression rates*? I found that all the way through medical school BM6 students have slightly lower mean academic achievement than BM5 students. However, I couldn't identify types or points of assessment that were a particular challenge for BM6 students. I found that the difference in achievement between the two groups remains reasonably constant. Nonetheless, the statistically significant difference in progression rate in Year 3 (table 4-11) suggests that BM6 students find the transition from pre-clinical to clinical medicine challenging. This finding has already made an impact with the introduction of the life skills workshops described in section 4.4.1 and evaluated in the published paper (Appendix A). It would be interesting to repeat the analysis with the cohorts who have been able to attend the life skills workshops and see if the difficulty with transitioning to clinical medicine has been ameliorated, even though ascribing causality would be impossible.

The differential in average achievement between BM6 and BM5 students in most assessments makes me ask the question 'does it matter?'. Does it matter whether students pass every exam with high marks or struggle through taking supplementary examinations and repeat years before eventually passing with fifty something percent? I have already talked about why it might matter for Foundation Year jobs but to further answer this question I believe we need an understanding of what BM6 students conceive as 'success at medical school'. Is academic achievement beyond passing an exam an important measure of success to students? In this quantitative study I have used the term 'success' to mean ultimately passing and progressing to the next stage of training, regardless of retake years and supplementary exams, but would students recognise that conceptualisation? Chapter 5 explores this in detail, using a phenomenographic approach to explore the qualitatively different ways in which BM6 students conceive of 'success at medical school'.

Chapter 5   Gateway programme students' conceptions of 'success' at medical school

'Success is something that, as a concept, remains universal in its appeal and motivation for attainment, whilst seeming consistently to lack definition'[166 p.257]

5.1   Introduction

There is an enormous quantity of literature exploring student success in higher education. One paper describes finding over three million results in a Google Scholar search using the phrase 'student success in higher education'[167]. Yet it is an amorphous concept with a multiplicity of definitions within academic and grey literature. To quantitively assess the effectiveness of interventions aimed at improving student outcomes, researchers must turn this abstract concept into a measurable outcome. The construct of 'student success' has been variably operationalised as retention or persistence, academic achievement, student engagement and satisfaction, or employability, amongst others[167-172] and, very often, it is discussed with no specificity about exactly *what* is being considered. Research has also been focused on understanding the breadth of factors that may influence 'success', but thus far most has been approached from the perspective of the institutions and funding bodies.

In designing the quantitative study presented in Chapter 4, like many other studies in this field, I also had to decide what outcome measures would represent 'success' for Gateway programme students in order to answer the research question '*Can predictive factors for progression and success be identified from BM6 student admission data?*' (See section 4.5). This required outcomes measures that represented a dichotomy between successful and not successful outcomes which I chose to be ultimately graduating with a medical degree regardless of the route taken to get there or not. I followed this with a secondary analysis looking at whether students had been required to repeat a year during their degree or not, chosen due to the additional financial burden placed on students. Unfortunately, this analysis was curtailed due to a lack of statistical power. However, it made me think. I chose variables related to passing exams as a proxy for student success, but what would a Gateway programme student themselves choose? What aspects of the university experience would they talk about as representing success to them?

As our partners in the endeavour, I believe student perspectives should inform practice in higher education. However, for all the research into student success there are few papers which give their views primacy. A December 2021 article written by the leaders of the Higher Education Data

Sharing Consortium in the US noted that *'as [they] have reviewed articles and programs on student success, attended student success conference presentations and workshops, and worked on institutional student success projects, [they] have noted an absence of student voices on the matter'*[173]. The paper details the beginning of a large multi-institution project that focusses on students' vision of success for the future, and how their higher education experience is helping or hindering them in moving towards that vision. The authors suggest that academic faculty may have been too 'college-centric' in their attitudes to the role of higher education institutions, while students say they want college to help them move towards their goals of *'meaningful work, loving relationships, balanced lives, and the chance to make the world a better place'*[173]. In the UK, the 'What Works?' project discussed in section 2.6 identified one method of fostering student belonging to improve retention and 'success' (undefined) as providing '*an HE experience relevant to students' interests and future goals'*[92 p.7]. In order to do that, institutions need to understand what students' interests and future goals actually are.

This thesis is particularly concerned with medical students on a Gateway programme from widening participation backgrounds. No study has looked at their perspectives about success and therefore very little is known about what they think, and how it might affect the way they think about their progression through medical school. In this chapter I present a phenomenographic analysis of qualitative interview data to offer a new way to explore student conceptions of success, in this case specifically for Gateway programme students, addressing the research question: *In what qualitatively different ways do Gateway programme medical students conceive of 'success' at medical school?*

Prior to presenting this data I explain the qualitative methods which underpin the data presented both in this chapter and in Chapter 6, and the research approach of phenomenography. Please see Chapter 3 for details of methodology and how this chapter sits in the overall research design.

5.2   Qualitative research methods

Both this chapter and Chapter 6 present the analysis of the same set of data using two different qualitative methods, a technique known as analytical pluralism[174]. This allows different questions to be asked of the same dataset to explore different dimensions of a phenomenon and 'know more' about the data collected[175,176]. Concerns have been raised that analytical pluralism fails to recognise the contradictory methodological and philosophical underpinnings of different qualitative methods[174], but I don't believe this to be a problem in this case. As discussed in more detail in section 3.2, this work is situated within a pragmatic paradigm worldview where the emphasis is on probing the value and meaning of research data through consideration of its practical outworkings[177] rather than engaging in metaphysical debate about truth and knowledge. I am also not seeking to 'uncover' a single, universal truth, but to develop a multidimensional understanding of a complex, socially constructed phenomenon. Previous research has shown that using multiple methods does not produce contradictory findings, but enriches understanding of the phenomenon under study[175,176]. Together, these chapters form 'unit of analysis two' in the embedded single case study design to primarily addresses research questions two and three:

2. In what qualitatively different ways do Gateway programme medical students conceive of 'success' at medical school? (This chapter)

3. How do the thoughts, behaviours and experiences of Gateway programme medical students influence progression through medical school? (Addressed in Chapter 6)

In addition, the following sub-questions guided the collection and analysis of data in both chapters:

- How do circumstances outside academia function as facilitators of or barriers to success for Gateway programme students?
- How does the response of Gateway programme students to progression challenges change over time at medical school?
- How do Gateway programme students describe their ways of managing transitions between different stages of medical school?

5.2.1 Development of the research design

The initial research question to be addressed through qualitative data analysis was: How do widening access students experience facilitators of and barriers to progression differently from their traditional entry peers?

Originally it was conceived as a piece of comparative qualitative research, including participants on both the BM5 and BM6 programmes and focussed on times of transition in year 1 and year 4 of the medical programme (shown to have lower retention and progression rates by the quantitative study – see Chapter 4). I planned to interview participants and then ask them to complete an audio diary once a month for about one year. I wanted to utilise audio diaries to facilitate collection of immediate accounts of experiences, which do not rely on retrospection and in which there is a lower likelihood of feelings or events being forgotten or filtered through the lens of social acceptability[178,179].

As my reading and understanding of qualitative research techniques progressed alongside recruiting and pilot interviews, the design evolved. I decided to focus on the experiences of Gateway programme students, and not try to compare their experiences to those on the traditional entry programme but develop a rich understanding of their particular experience of medical school. Additionally, I chose a phenomenographic approach to explore the qualitatively different ways in which widening participation students conceive of success, which made a comparison with standard entry students methodologically inappropriate. Initial recruitment for the study was slow, particularly amongst standard entry students, and was consequently widened to include students from all years as well as recent graduates from the programme, although the focus on periods of transition remained in the interview protocol. This also fit with a phenomenographic approach, where a maximum variation sample is desired[180].

I hypothesise that recruitment may have been slow for a number of reasons: Medical students are regularly approached to take part in research by their peers, lecturers, and other academics within the university and as a result may have become desensitised or saturated with requests for participation. Recruitment was particularly slow within the traditional entry cohort; these are students for whom the research is less likely to have personal resonance, and thus the intense nature of regular audio diaries was too burdensome to be worth it for them, even if they hypothetically believed it was an important subject. Despite regular lecture shout outs, social media advertisement and using word of mouth, after six months I had only recruited seven students, two standard entry and five Gateway programme students.

During this initial six months of data collection, participants who consented to complete the audio diary phase of the project were offered the choice of using the voice note function on their phone and emailing the recordings to me, or of being given a Dictaphone which they could return to me at a later stage. All opted to use their phones. They were provided with a short prompt sheet (see Appendix G) and consented to being contacted regularly by me to remind them to complete their diary each month. Unfortunately, the completion rate of audio diaries made their continued use unsustainable. Participants recruited over the first six months (seven participants) were asked to complete audio diaries. Each month I would email a reminder to ask them to complete an entry, and a week later send a second one. After six months I had received only five entries in total, and all but one of these were extremely short. As a result, my supervisory team and I took the decision to stop this aspect of data collection and focus on recruitment of enough participants who to be interviewed. Once I was only asking potential participants to do an interview and not also complete audio diaries, my recruitment rate increased sharply, suggesting that students were not motivated to engage with this type of longitudinal research even before it started.

I am only aware of two studies which had successfully employed the use of audio diaries with medical students prior to my project, though there may be more who, like me, were unsuccessful. Monrouxe[178] used audio diaries in a longitudinal narrative research study investigating first year medical students' professional identity formation and Neve et al[181] used audio diaries to identify professionalism threshold concepts for medical students when learning in small group environments.

An AMEE guide on the subject states that '*Audio diaries require a thoughtful and trustworthy relationship between the researcher and participant to share and shape the understanding of their realities, experiences and identities over time*'[182] and suggests that continued engagement between the researcher and participants is necessary to foster commitment to the process. The authors of Neve et al[181] were members of the medical education team at their university and had ongoing relationships with their participants, which may have helped in encouraging participants to submit recordings. Whilst Monrouxe[178] and her co-researcher had no direct relationship with their participants outside the research process, they met with the participants in groups at the beginning of the study to help participants understand the rationale for the study. This would also have allowed participants to see other students who were participating and make it feel more of a group activity. She noticed the way participants often framed their audio entries by addressing her at the start of the recordings, showing how they viewed her as a key part of the research process[178]. I didn't have this kind of relationship with my participants. During this part of the PhD process, I was a full time PhD student with no relationship with the students or particular visibility within the department. On reflection, I think I may have had more success if I had recruited

participants separately for the interview and audio diary aspects of the study and aimed to recruit a smaller number of more engaged participants for the audio diary phase. I would also start the audio diary phase with a focus group to create a community of participants to help maintain enthusiasm for the process.

I would like to have invited all participants to participate in an exit interview, exploring why audio diaries didn't work in this context and to understand more about the complexities of this approach. However, this is one of the aspects of the project I had to sacrifice due to my personal situation outlined in section 1.6.2 and the restrictions COVID-19.

5.2.2 Final research design for unit of analysis two

The final research design for unit of analysis two involved semi-structured interviews with Gateway programme students and recent graduates, which was then analysed in two phases. This is represented in figure 5-1 below.
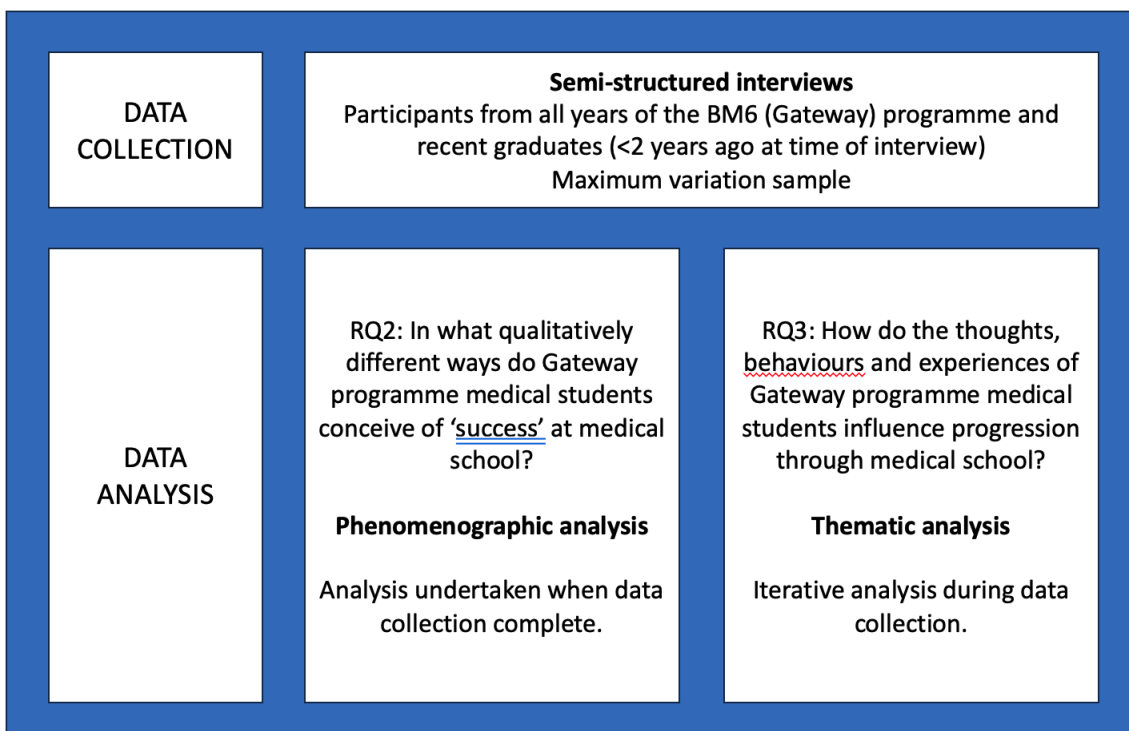
Figure 5-1 Final research design for qualitative strand

5.3   Data collection

5.3.1   Methods of data collection

Semi-structured interviews were used to enable participants to reflect on their journey so far and were chosen rather than focus groups due to the sensitive nature of some of the topics being explored[41,43]. The semi-structured format allowed participants to express their individual ideas and perspectives, but were consistent enough to gather similar data from different participants[41] [(p.359)]. I also considered the differences between semi-structured and phenomenographic interviews, knowing that I was going to use phenomenography as an analytical technique. The aim of a phenomenographic interview is to allow the participant to reflect on their experiences and communicate these to the interviewer, with the researcher asking follow up and probing questions to ensure that they have understood the participant's meaning[42,180]. Although the interview protocol provides a list of topics to explore, the researcher has to be willing to follow unexpected answers, which often lead to valuable new insights[180] and allow the researcher to understand the bigger picture[42]. Phenomenographers suggest that asking participants to give concrete examples helps ensure that the meaning of their explanation is clear[183]. A criticism levied at semi-structured interviews is that the participant does not always have the opportunity to offer their unique perspective[41 (p359)], which is clearly important in phenomenographic research, so I made sure the participant had the opportunity to bring up previously overlooked ideas during the course of interviewing by regularly asking for clarification and if they wanted to add anything or go back. The interviews I carried out used a semi-structured format and interview protocol but allowed participants to deviate from this, following up their answers to allow elaboration of their reflections and check that I fully understood their meaning.

5.3.2   Selecting the participants

I recruited participants for this study from all six years of the BM6 programme, and also BM6 graduates on the foundation programme (first two year of medical practice post-graduation) at the time of interview. Recruitment was pragmatic, as participants self-identified, but in the final iteration of the study I aimed to recruit a maximum variation sample[180] with participants from all years, male and female, and with a range of ages and ethnicities represented to maximise the variety of behaviours, beliefs, and experiences of participants within the case study. I used snow-ball sampling to assist in this. All students and foundation programme graduates of the BM6 programme were eligible to participate.

The expectation was that current BM6 students would articulate thoughts, behaviours and experiences that illuminated the experiences of Gateway student' progression. Additionally, I included BM6 students who had graduated in 2017 and 2018 as they had, by definition, been ultimately successful in progressing through and completing the BM6 programme. I chose these two cohorts as they followed the same curriculum as the current students, and their reflections were reasonably recent. The programme lead had contact details for these individuals and their permission to contact them about research opportunities.

In contrast, after significant discussion with my supervisory team and the senior pastoral tutors, I made the decision not to include those who had failed and left the programme as potential participants. The advantage of including them would have been in further exploring the barriers to successful progression for Gateway programme students. However, there were practical and ethical considerations in accessing these students: Contact details for most of these students were not available and they had not given their permission to be approached for future research, the pool of potential participants was very small making it difficult to guarantee anonymity, and they are a vulnerable group. On balance, I felt that the difficulties in accessing them outweighed the advantages of including them and decided not to attempt to recruit them for this study.

5.3.3   Organising data collection: Ethics and participant recruitment

I aimed to recruit 20-25 participants to undertake a semi-structured interview exploring their experiences of medical school, their family and social backgrounds, and their understanding of success at medical school. The sample size was chosen for methodological and pragmatic reasons relating to both the approaches to analysis used and an original intention of collecting audio diaries from some of the participants (see Appendix G for a discussion about the use of audio diaries and why I didn't continue with this aspect of the project). I sought ethics approval for the project from the University of Southampton ethics committee, ERGO number 26661 (see appendix H), and initial approval was granted on the 17th of May 2017 (appendix H.1). Further amendments to this submission were made as I changed the focus of the project to all years and then to include graduates, focussing on only Gateway programme students.

I piloted an interview protocol developed in discussion with colleagues with two medical students during September 2017 (appendix H.7). This gave me an opportunity to practise interview skills and to revise the interview protocol following the interviews to reorder topics and include questions that had arisen naturally and seemed important to explore with all participants (appendix H.8). The pilot interviews raised questions about what success at medical school means

to students and, along with my reflections from analysis of the quantitative data, led to the development of RQ2, presented in Chapter 5.

Recruitment of undergraduate participants started in late September 2017 with notices given in lectures and an email from the BM6 programme lead to all students who had previously given their consent to be contacted with regard to participating in research. Snowball sampling[184] was used to recruit contacts of participants in groups not yet represented in the sample. Interested students provided their email address and were sent an invitation to take part and a participant information sheet (appendix H.4). Recruitment of postgraduate participants started in September 2018 with an email from the BM6 programme lead to all graduates in the previous 2 cohorts who had given their consent to be contact for research purposes. Interested graduates contacted me by email and I sent them a specific participant information sheet for graduates (appendix H.5). Where necessary, I followed up these emails a week later. Interested participants contacted me to ask any questions and arrange a mutually convenient time for a 45- to 90-minute interview.

5.3.4   Conducting the interview

The interviews were conducted in quiet, private meeting rooms either on the university campus or at NHS hospitals, or by video call from home for some graduate participants. Before the start of the interview, participants were given information on the time limitations to withdrawing their consent to the use of their data, and it was stressed that participation in the study would have no bearing on students' progression. They had the opportunity to ask any questions, then consent was obtained, and the interviews recorded using a voice recorder only. I wrote limited field notes during the interview itself as I find it difficult to respond to participants and ask appropriate follow up questions, but wrote memos immediately after the interviews were complete, whilst listening to the audio recording (see appendix I for example written after interview with participant four). Where necessary, interviews with postgraduate participants were conducted via skype or telephone.

5.3.5   Transcription

The voice recordings of interviews were transcribed, and the transcriptions checked as part of the familiarisation with the data process. As part of this process, transcriptions were read many times from different perspectives[180,185], for example looking for talk about success, or university structures and processes. Transcripts were then entered into NVIVO 11 as a tool for data analysis.

5.3.6 Ethical considerations: Anonymity, confidentiality, and student wellbeing

The predominant ethical considerations in this study were maintaining participant anonymity, safe storage of data and concern for participants' wellbeing during and after the study.

At the time of recruitment and data collection I had no direct relationship with the potential participants; my only role within the faculty was as a postgraduate research student. However, I am the PhD student of the then BM6 programme lead, and she was the one to initially approach students via email about the research by forwarding them an information email I had written. The initial approach had to come from her as she was the person with permission to contact students about possible research opportunities; I didn't have access to their contact details. However, the effect of our relationship may have affected both participants' decisions to take part or their choice of what to disclose during their interviews. On one hand, she is a very popular member of staff amongst the BM6 students which may have led to students feeling a pressure of wanting to please her by taking part or a sense of responsibility or duty to the programme to further its success. On the other hand, participants who decided to take part may have worried that any negative disclosures they made about either the programme or the faculty more widely could have a negative effect on their progression or their relationships with both my PhD supervisor and the wider faculty staff.

I endeavoured to address these considerations by ensuring participants were clear about the measures I would take to maintain their anonymity and confidentiality, though acknowledge that there was likely to still be some residual effect. The participant information sheet covered participant anonymity and confidentiality and made clear that though transcripts of interviews would be available to my research supervisors during data analysis, their name and other identifiable data would be removed. In discussion with participants prior to them signing a consent form I also raised that due to their sometimes-close relationship with my research supervisor, she may still be able identify them, and reiterated that anything they chose to discuss would be treated as confidential and not affect their progress at medical school. All participant data was link anonymised using study codes. The key to these is kept in a separate password protected folder on my university network and will be deleted upon completion of the study. Consent forms are kept in a locked cabinet in the Medical Education Development Unit.

Audio recordings and transcripts were stored on my password protected network area. Audio files were sent to the transcriber using the university secure file drop site, and password protected transcripts were returned via email. After I had verified transcriptions and familiarised myself with them completely, audio recordings were deleted. The Medical Education Development Unit will

keep the interview transcriptions and consent forms for 15 years, in accordance with research conduct guidelines.

Participants are not identifiable in either this thesis or any subsequent publications. Where quotes are included, a unique identifier is used, and any information that could lead to participant identification has been removed.

All students were given information about faculty and university support services after the interview. If I was concerned about the immediate safety and wellbeing of the participants or other students mentioned by the participants during the interview, I proposed to disclose this to the faculty senior tutor only. This was never necessary. The participants were informed of this possible course of action before they give their consent to participate in the study. Participants were reminded before and sometimes during the interview that their answers have no bearing on their progress at medical school. Participants were able to request a break or to stop the interview at any point.

5.4 Phenomenography as an analytical approach

5.4.1 The phenomenographic approach

I use a phenomenographic approach to analysis to address research question two: In what qualitatively different ways do Gateway programme medical students conceive of success?

Phenomenography is a non-dualist, second order research approach that was developed within higher education research to understand phenomena around teaching and learning[41,180] [(p218)]. Marton, the Swedish researcher who developed the approach in the 1970s and 1980s described it as the '*empirical study of the differing ways in which people experience, perceive, apprehend, understand and conceptualise various phenomena in and aspects of the world around us*'[186] [(p4425)]. It is distinct from phenomenology as it not attempting to characterise the phenomenon under study, but people's experience of that phenomenon[187], which makes it a second order approach. It is considered a non-dualist approach because understandings are viewed as the product of interaction between people and the phenomenon under study[180]. In this case, therefore, I was not trying to clarify the structure and meaning of being a successful Gateway programme medical student, but the differing ways in which Gateway programme students experience, understand and discuss success at medical school.

An underlying assumption of phenomenography is that there are a finite number of different ways of perceiving, experiencing and understanding a phenomenon[41,188]. These can be identified in the outcome space as 'categories of description'[188], in which both the differences in understanding and socially significant shared ways of thinking are presented[41]. Phenomenography approaches analysis differently to thematic analysis, as these categories of description are used to identify how the differing ways of thinking about a phenomenon are structurally related to one another, often hierarchically[42]. This can be thought of as a '*map of the collective mind*' of the group from which the sample is taken[180]. A 2016 review by Tight of the development and application of phenomenography within higher education research found that the majority studies have been concerned, not solely with better understanding how students and academics handle teaching and learning, but in applying these results to improve practice[188].

5.4.2 Steps of phenomenographic analysis

Seven steps of phenomenographic data analysis	
1 Familiarisation	Reading through the interview transcripts to get a fresh impression of how the interview proceeded. Transcripts are read many times in order to seek a new perspective and clarify the participant's meaning[185]. In this initial phase, all data in entire pool are given equal consideration. Examining transcripts individually contextualises individual participants' statements[180].
2 Condensation	Identifying meaning units in the dialogue and marking or saving these for the purpose of further scrutiny. The size of these units varies from researcher to researcher[188].
3 Comparison	Comparing the units to identify similarities and differences
4 Grouping	Allocating answers expressing similar ways of understanding the phenomenon to the same category. This must include looking for non-dominant ways of understanding[187]. Categories should emerge from comparison within the data, not defined in advance and imposed upon it[44].
5 Articulating	Capturing the essential meaning of the category. This is an iterative process: after articulating a possible category of description, it is then tested through additional readings of the transcripts, modifying it in response[180].
6 Labelling	Expressing the core meaning of the category (Steps 3-6 are repeated in an iterative way to make sure that the similarities within and differences between categories are discerned and formulated in a distinct way)
7 Contrasting	Comparing the categories through a contrastive procedure whereby the categories are described in terms of their individual meanings as well as in terms of what they do not comprise.

Table 5-1 Steps of phenomenographic analysis

Reproduced from 'A phenomenographic approach to research in medical education (Stenfors-Heyes et al[42] with additions referenced in table)

Table 5-1 outlines the seven steps of phenomenographic analysis that lead to the production of an outcome space – '*a hierarchical set of qualitatively different but logically related categories*'[189]. This is usually displayed graphically to represent the structural relationships between the qualitatively different categories of description[185]. Marton and Booth (in Akerlind et al) identify three important criteria for assessing the quality of the outcome space:

1. *"That each category in the outcome space reveals something distinctive about a way of understanding the phenomenon;*

2. *That the categories are logically related, typically as a hierarchy of structurally inclusive relationships; and*

3. *That the outcomes are parsimonious—i.e. that the critical variation in experience observed in the data be represented by a set of as few categories as possible"* [185].

Categories of description are an '*interpretation of the collective voice derived from the contextualised individual voices*'[190 p.130], and so data analysis in phenomenography is carried out after data collection is completed. In contrast, reflexive thematic analysis is usually an iterative process carried out alongside data collection[46]. Therefore, although I did not start the phenomenographic analysis until after all 22 interviews were completed, I was aware that I was developing a familiarisation with what participants were saying about success at medical school during the period of data collection through the inductive thematic analysis that I was beginning. As a result, I had to consciously not allow this to affect my interviews with subsequent participants, for instance by referring to possible ways of understanding success that I had already identified.

5.5   Who are the participants?

I carried out 24 interviews between 5th October 2017 and 17th April 2019. The shortest interview was 33.40 minutes and longest 92.22 minutes, with a mean average of 53.42 minutes.

All undergraduate interviews were carried out in either a private meeting room in the Medical Education Development Unit, or a teaching space at the university hospital, both areas with which the participants are familiar. Four postgraduate interviews were conducted in the Medical Education Development Unit. Due to time and location constraints, two postgraduate interviews were carried out by Skype, another one was in the participant's workplace, and a final one by telephone when the participant's internet failed.

Interviews 3 and 7 were with undergraduate traditional entry students and have been removed from the results. As discussed in 5.2.1, this work was initially conceived as a comparative analysis between Gateway programme and traditional entry students. However, in part as a pragmatic response to a lack of participants, and in part due to the direction of analysis, this was redesigned early in the research cycle to look in more detail at the experiences of Gateway programme students, and therefore the two traditional entry student interviews have been removed from further analysis.

The following table summarises the demographics of the participants.

	Variable	Participants N (%)
Phase of training	Early (UG years 0-3)	9 (41.9)
	Clinical (UG years 4-5)	5 (22.7)
	Graduate (PG years 1-2)	8 (36.4)
Gender	Man	12 (54.5)
	Woman	10 (45.5)
	Other	0 (0)
Ethnicity	Black	4 (18.2)
	White	10 (45.5)
	Asian	5 (22.7)
	Mixed	3 (13.6)
	Total	22

Table 5-2 - Summary demographics (UG undergraduate, PG postgraduate)

Participants were interviewed from every year of medical school and both postgraduate years one and two. Slightly more men (54.5%) than women (45.5%) took part in the study. No participants identified as anything other than a man or a woman. Nearly half of all participants were white (N=10), while 3 participants identified as mixed race, 4 as black, and 5 as Asian. Summary

demographics for the whole of these eight cohorts (2010-2017) are not available. However, in comparison to the cohorts used for the quantitative analysis in chapter 4 (2007-11), white participants are overrepresented (45.5% vs 35.1%), and Asian participants are underrepresented (22.7% vs 35.1%). In comparison to the same data, women are slightly underrepresented (45.5% vs 58.1%) and men slightly overrepresented (54.5% vs 41.9%).

Study participants were asked to give their postcode at entry to medical school and identify to the best of their knowledge which of the BM6 entry criteria they fulfilled. I used their postcode to determine IMD decile and POLAR3 quintile. Table 21 gives details of which widening participation criteria each participant fulfilled.

Interview number	Phase of study[1]	Gender	Ethnicity	Previous school type	IMD decile[2]	POLAR3 quintile[3]	FSM[4]	Benefits[5]	1st Generation HE[6]
1	Clinical	Man	Asian	State secondary	8	5	Y	Y	Y
2	Clinical	Woman	White	Grammar school	5	1		Y	Y
4	Early	Man	Asian	State sixth form	1	3	Y	Y	Y
5	Clinical	Man	White	State secondary	8	5		Y	Y
6	Clinical	Woman	White	State sixth form	9	2		Y	Y
8	Early	Woman	Black	State sixth form	2	3	Y	Y	Y
9	Early	Man	Asian	State secondary	3	3		Y	Y
10	Clinical	Man	Asian	State sixth form	1	3	Y	Y	Y
11	Early	Man	White	State sixth form	4	5		Y	Y
12	Early	Man	White	State secondary	**	2		Y	Y
13	Early	Man	Mixed	***	***	***		Y	Y
14	Early	Woman	Black	State secondary	2	3	Y	Y	Y
15	Early	Man	Black	State sixth form	1	3	Y	Y	Y

ID	Phase	Gender	Ethnicity	School type	IMD Decile	POLAR3 Quintile	FSM	Benefits	1st gen HE
16	Early	Woman	Mixed	State secondary	5	5	Y	Y	Y
17	Graduate	Man	Mixed	State secondary	2	2	Y	Y	Y
18	Graduate	Woman	White	State secondary	6	2	Y	Y	Y
19	Graduate	Woman	White	State sixth form	1	1		Y	Y
20	Graduate	Woman	Asian	State sixth form	7	5		Y	Y
21	Graduate	Man	White	Grammar school	9	3			Y
22	Graduate	Woman	White	State secondary	***	***	Y	Y	
23	Graduate	Man	Black	State secondary	1	1		Y	
24	Graduate	Woman	White	State secondary	6	3		Y	Y

Table 5-3 – Study participants demographics and widening participation markers.

1. Phase of study: Early – years 0-2, clinical – years 3-5, graduate – foundation year doctors

2. IMD Decile: Postcode based index of multiple deprivation. 1 – most deprived area, 10 – least deprived area

3. POLAR3 Quintile: Postcode based measure of HE participation. 1 = lowest to 5 = highest HE participation rates.

4. FSM: Free school meals. Participant in receipt of FSM at any point during school year 10-13.

5. Benefits: Parents or self in receipt of means tested benefit on application to university.

6. 1st generation HE application: Self-declared on application to university.

** Postcode not in England

*** Participant declined to provide information

Twenty out of 22 participants were in the first generation of their family accessing higher education, while all but one had families in receipt of benefits on entry to university. Postcode based measures of deprivation were more varied, with all POLAR3 quintiles represented, along with IMD deciles one to nine. Ten out of 22 participants reported that they had been in receipt of free school meals at some point between school years 10 and 13. The range of positive markers of widening participation status amongst the participants shows the effect of using a basket of measures for entry onto the BM6 program; the participants in this study represent students with a variety of different types of social and financial disadvantage.

5.6 What does success at medical school mean to Gateway programme medical students?

Phenomenographic results are represented as an 'outcome space' where different ways of comprehending a phenomenon are represented in relation to one another, usually in a hierarchical fashion (see section 5.4 for more details). The outcome space for RQ2 *'In what qualitatively different ways do Gateway programme medical students conceive of 'success' at medical school?'* is graphically represented in Figure 5-2. *'Passing exams'* and *'it used to be passing exams'* are in the centre of the graphic. These ideas were generally expressed by participants who couldn't give much detail or depth to their thoughts about the concept. They were often earlier in the programme or struggling with their sense of achievement. *'Unique personal achievement'* was expressed by participants at all stages of training, many of whom had obviously contemplated this idea prior to the interview. However, I have situated *'passing exams is not enough, it's being a good doctor'* as the most developed conception as it was most often articulated by those in or approaching independent practice, and who were able to deeply reflect on why that was their understanding. *'Happiness and contentment'* was a minority view that didn't fit neatly within the framework and identified a completely alternative conception. It was a well-developed and articulated view, but due to its minority status and relationship to all other categories of description, I have situated it in the centre but offset and relating to all other categories.
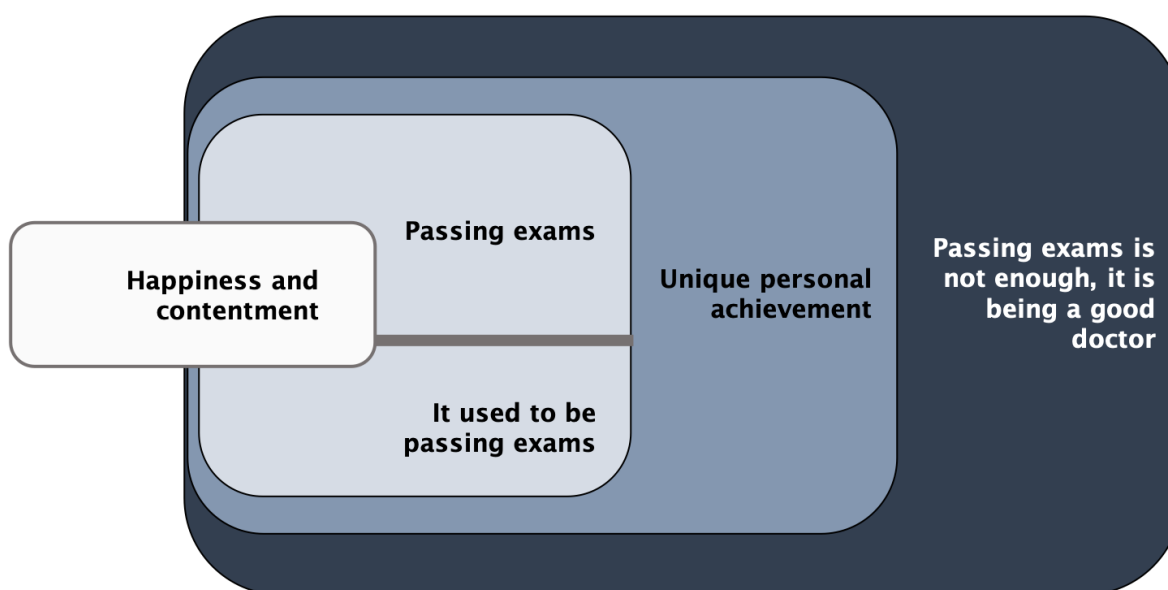
Figure 5-2 Outcome space for student conceptions of success at medical school

5.6.1   Category one: Success is happiness and contentment

Several participants alluded to the idea that being content in themselves was part of feeling confident, and then in turn that feeling confident was part of feeling successful, such as when '*things are going well, and you feel like you're coping*' (P12). However, for one participant being happy and content was the primary criteria she identified as being foundational for success at medical school. Initially, she seems to express that passing exams and being a good doctor was her idea of success, saying:

> *Because you can be successful and, like, pass the exams and stuff, but you can*
> *also feel really unhappy at the same time, and completely, like, doubting*
> *yourself or (pause). I think even if you've passed all the exams, like, just, just,*
> *just, but you're happy, you're going to be a much better doctor than somebody*
> *who has got, you know, really high grades but is just (pause) not confident or*
> *can't talk to people and is really unhappy and (pause) unsure of themselves*
> (P6)

This chimes with the majority views articulated in other categories, possibly because that is what she hears from others. However, after thinking about it more, she realised that being happy and content was the more important part of success for her, summarising thus:

> *…So, being successful is just being steady on your feet and happy with the*
> *person you are and what you're doing and helping people* (P6)

5.6.2   Category two: Success is passing exams and getting through

Three early year participants described success at medical school as '*just passing every exam*' (P4), '*when you do well*' (P12), and '*graduating*' (P13). Participant 13 considered that success might include other factors, but concluded that nothing else matters if you don't graduate:

> *I think doing other things as well, which I didn't realise is important, so things*
> *like that boosts your portfolio and getting all those things. But the thing that I*
> *always think about is, is there any point, like, doing all those things if you can't*
> *become a doctor first? Because it's easy to get distracted and join societies and*
> *do 10,000 other things and get published and all that, but be a doctor and then*
> *you can do all that* (P13)

The idea that other aspects of 'success' can wait was echoed by one participant who believed success at medical school was different to success as a doctor saying:

I think it's just passing every exam but doing as best as I could in the exam.

That's how I feel… yeah, it's about passing my exams and doing great, yeah….

[Later on]*: Yeah, yeah, as long as I get myself a good reputation here and then*

go there and do work both here and there... So, if I can go back and do

something charitable, something like, help other people out. You never know,

you might help someone, a little kid, and then they might do medicine as well

and carry on the cause, multiply it. That will be success (P4)

None of the clinical year students described success as just passing exams, but when looking back, several of the graduates also felt that '*getting through*' (P19), '*making it to the end*' (P17), and '*graduating*' (P24) were the most important definitions of success at medical school. In the same way as the early years participants, the graduates appeared to want success to include other aspects of life at medical school such as '*things like making good relationships and friendships* (P19) but ultimately decided that '*really it all bottled down to getting through, basically*' (P19). One participant succinctly said:

That was the reason I went. Nothing else mattered. I needed to graduate, and I

did (P24).

5.6.3 Category three: Success used to be passing exams

Passing exams was also the first factor mentioned by another group of participants who viewed it as an important aspect, but not complete understanding, of success at medical school. Unlike others, these participants seemed to have reflected on the question previously, using phrases like '*it's weird, this has changed*' (P8) and '*when I came… I was like, I just need to pass, but now…*' (P14), and have concluded that simply getting through their exams won't be or wasn't enough to make them feel successful.

I don't know if I would feel successful if I'd passed the degree and passed the

exams but didn't, like hadn't enjoyed my time there and didn't have any friends

and hadn't really like enjoyed my time in Southampton and things, so for me I

think it was a success because academically it went really well and you know I

passed and that was it, I'm a doctor now. But also, I think like it, you are

successful if you've got like friends and you really like fulfil and enjoy your time

in Southampton, at the Uni as well as like at the medical school (P18)

This was also the opinion of two early years women who participated, but while one of them spoke with confidence about how she already felt successful and what she needed to do to

continue that, the other talked about success as something aspirational. She had decided that feeling competent would cause her to feel successful:

> *So, I used to think it was, like, doing really well in exams. But I think, honestly, feeling competent, I think that is the most successful. Once you feel, "OK, I can do this," … And I don't feel like that now, obviously (laughs)… Because you're never going to know everything, obviously. Er, but I will feel like I can handle myself if things go bad. And I think that's something that I feel, like, right now, there's a huge wall up because I feel like I don't know how I'm going to scale that. Because, like, I'm always thinking, "How am I going to do this?"* (P8)

For this participant, success at medical school seemed like a far-off dream which she couldn't see herself achieving, putting more pressure on herself than when she had previously thought it was passing or doing well in exams. In contrast, moving beyond an understanding of success as passing exams had allowed the other participant to already feel successful:

> *I bought a car last year, which financially is very painful (laughs), but, like, to me, that's success because I worked for it, and I learnt to drive here. And, like, I don't know, like, I've got a boyfriend and I just, I have a life outside medicine, and to me that's (laughs) success in medical school, like, being able to see more than just the degree…because when I came, I didn't really think like that, I was like, "I just need to pass. Like, it's going to be so consuming,". But now I'm like, I want more than that. Like, I want to pick a speciality that I'm happy with, I want to have a life that I'm happy with and, like, I'm making steps towards that* (P14).

Whilst all the participants in this group had previously thought about and discounted passing exams as the ultimate definition of their success at medical school, the effect on their confidence and motivation had been variable. Some of them were moving towards the understanding of success illuminated by category four whilst for others it had unfortunately moved them further away from feeling that they had achieved success at medical school.

5.6.4   Category four: Success is unique personal achievement

A demographically diverse group of participants from all stages of training didn't mention exams or grades but focussed instead on unique personal achievements. One participant explained his view of success at medical school saying:

> *'it's definitely what you make of it. You set your own goals. Like I say, it's the*
>
> *self-director thing again, so success is different for everyone"* (P11)

For this group, success at medical school ranged from *'success in the football team'* (P5), and *'getting a pilot's licence'* (P21) to *'trying to inspire school kids [through WAMSoc]'* (P9) and *'ending up in a place better than where [he] started…earning more than [he had] always had* (P1).

Commonly, these participants were enthusiastic when talking about their unique personal achievements, laughing and smiling, and needing little to no prompting to go into detail. For those with an altruistic element to their definition of success, the symbiosis of the effect on themselves and the benefit of their activity for others was important:

> *Every time I walk away from, like, after a session of trying to inspire schoolkids,*
> *I just feel happy, feel positive about myself. And it's just like, kind of reminding*
> *myself of why I want to do medicine, which is quite nice. It's like as well as*
> *giving back to the community and stuff, it's like personally, I feel like I've*
> *accomplished something so it's quite nice at the same time* (P9)

Community and relationships are prioritised in this group of participants; many of the ideas they talked about focus on achievements requiring teamwork and social interaction. Several specifically mentioned the importance of *'finishing with a group of friends that you're close to…that would be definitely success'* (P15). One participant who believed he has been successful at medical school and had contributed a lot to the medical school and MedSoc poignantly described his view of success at medical school in a distinctive fashion, his unique personal achievement unlike any others:

> *I personally think I have been successful at medical school. I think other people,*
> *my friends probably, if they did everything that I have done, they wouldn't*
> *have considered themselves successful at medical school. I managed to*
> *integrate into a social community where 20 years ago people like myself would*
> *never ever be – would never be able to. I've had experiences here that my*
> *friends at home would never ever be able to experience, and even*
> *comprehend... I have friends at home who still do the same thing they've done*
> *ten years ago and who still have that same mentality, haven't really grown,*
> *haven't really matured. And I think that's my achievement. That's where I feel*
> *like I've been successful (P10).*

5.6.5   **Category five: Success is becoming a good doctor, passing exams is not enough**

The final category defines success at medical school as *'becoming the best doctor you can be'* (P2), often mentioning *'that doesn't just take passing exams to get there*' (P5). This was the most common conception of success amongst those currently practicing as doctors, as well as two clinical participants approaching their final exams and the prospect of imminent independent practice. Given that the stated aim of medical schools is to turn out good, safe doctors to practice in the NHS[191], it is interesting that participants did not equate passing medical school exams with being a good doctor, often seeing them as quite separate entities:

> *You could do really well at medical school and then be a terrible doctor or vice-versa, I don't think it's necessarily a direct reflection* (P22)

These participants valued learning *'to apply [their] skills well'* (P5), *'to make a difference to [their] patients'* (P16), and *'how to work well independently and in a team'* (P22), describing acquiring these attributes as central to being a good doctor. Success *'definitely wasn't like quantified by percentages in exams'* (P23) but by feeling that they '*took a really good history, or a patient said, was like really complementary about something [the participant had] done for them'* (P23). One graduate participant summed it up saying:

> *To me, success at medical school would be objectively, I'm not saying that I did this, but it would be learning to be in a clinical environment, be assertive, have the clinical acumen and be a good time-manager, manage yourself well and your mental health and you know things outside of medicine. Just not to be afraid to speak up when you think something is wrong, and to have your voice, to own your voice and be able to be confident in yourself. I think that would be successful if you came out of uni like that* (P20)

5.7   Discussion

The purpose of this chapter is to gain a student-centred, rich understanding of the meaning of success to Gateway programme medical students, by asking them to reflect on their personal thoughts and beliefs. The results demonstrate a wide variety of conceptions which sometimes change as students progress, and which are often distinctly personal. The stories told by participants illustrate that when Higher Education reduces the success of students to measurement of outcome such as persistence, retention, academic achievement or employability, the nuance and beauty of personal achievement is lost. Quantitative measures are important for medical degree programmes who have a responsibility to the funding they receive from the government to produce the medical workforce needed by a stretched NHS as well as to maintain their own institutional reputation. However, understanding individual stories and conceptions of success should help institutions to focus their student support measures on issues which students value more highly.

There is little previous research about conceptions of success for widening participation medical students and more broadly, previous research has not produced a consistent picture regarding what Higher Education students value most highly as markers of success at university: Success is subjective, depending on many different factors, though within this there are dominant discourses[167]. The variety of conceptions of success articulated by the participants in my study is reminiscent of Hannon et al's interviews of students by students which suggested that success depends on background and subject studied, but includes the importance of happiness, good relationships and personal growth as well as having new experiences and achieving qualifications[166]. The rest of this discussion considers these elements in more detail.

A quantitative study of first year health science students at an Australian university also identified completing their degrees and getting good grades as the key markers of success[192], just like some of the early years participants in this study, and were clear that completion was the most important. Going to medical school is a high stakes endeavour for all students and particularly for those without family financial and wider support to fall back on. Leaving before completion leaves students with significant debt and without a clear career trajectory as well as generating possible psychological and emotional challenges[193], and therefore completion of the degree is understandably important for current students. However, I find it interesting that when looking back at their medical school experience, many of the foundation doctors also conceptualised success at medical school as passing their exams or getting through, rather than in terms of the preparation it gave them to be doctors. Research has identified that medical students develop impressions early on of what a medical student and doctor should or should not be, which

includes that they should be able to cope with pressure, not need help, nor fail any exams[194]. Therefore, in passing all their exams participants may feel that they are conforming to the expected norm which in turn engenders a sense of belonging to the medical community, and therefore a feeling of success.

A perception of belonging to the group also underpinned many of the stories of unique personal achievement described by participants as key in being or feeling successful. Discussed in section 2.6 is the psychological desire to feel connected and valued, identified as a prerequisite for successful learning[91]. The unique personal achievements discussed by participants often relied upon teamwork or prioritised relationships with others within their university circles, which increased opportunities for connection and created a sense of pride for the participant as they saw their personal attributes or achievements valued by their community. One of the only studies to focus on success for students from widening participation backgrounds, Shea et al[195] interviewed those who were the first in their family to attend university in the latter years of their degrees at Australian universities. They found that the amount and type of external validation of their progress participants had received from teachers within the university directly impacted the perception of their own success[195]. Like the Gateway programme students in this study, O'Shea's participants wanted to feel that they had achieved something other than high academic achievement and passing exams, and also wanted that to be recognised by their university faculty. The participants in my study who described unique personal achievements were most likely to describe themselves as being successful, rather than describe their criteria for success at medical school, perhaps because of external validation they received for their achievements. This in turn may have increased their sense of belonging to the medical community and therefore their belief that they were successful at medical school.

Unique personal achievements also allowed participants to develop skills in areas that particularly interested them, personalising their experience of and learning at university. Focus groups of psychology students in London focussed on conceptions of academic success, rather than the broader 'success at university', but emphasised the importance of personal and professional development as part of success[196], which would allow students to develop as individuals and set themselves apart. Unique achievements are a way for participants to view themselves as successful without relying on direct comparison with their peers, as is the case with academic achievement in exams. A notable absence from the data I collected was explicit reference to effort or working hard, or the lack thereof. Seemingly effortless or stress-less achievement is often seen as the 'pinnacle of success' in highly academic environments, including medicine[167,197]; that is to be truly successful, achievement should not require obvious exertion. In Nystrom et al's[167] work with students on highly academic courses in a prestigious university in Sweden, this

extended to not just achieving well in their exams but doing it effortlessly whilst also socialising and undertaking extra-curricular activities. Although my data does not include discussions on effortless achievement, the aspect of passing exams not being enough to warrant success is reflected in category of description three, 'it used to be passing exams', category of description four 'unique personal achievement' and category of description five 'being a good doctor, passing exams is not enough'. For all of these participants, there was an unspoken expectation that although their assessment of their own success was not in passing their exams, they would do this *on top* of what they discussed, showing concordance with the ideas underpinning effortless achievement. A proposition in the literature is that 'effortless' identities are not equally accessible for all, and that *'working-class pupils presenting as 'effortless' run the risk of being positioned as lazy and lacking aspirations; to mitigate this risk, they must prove to their teachers that they are not lazy and ignorant – that they have 'aspirations' – by demonstrating their effort and commitment'*[197]. This may in some way explain why many of the early years BM6 participants characterised success at medical school as simply passing exams, the unspoken corollary of which is the effort they need to put in to achieve this, ensuring that I, as the researcher, was aware of their commitment to medicine. Only once they are secure in their identity as a medical student are they then free to explore other conceptions of success.

In the results presented in this chapter, I identified the conception of success as '*becoming a good doctor'* at the top of the hierarchy because it is the most developed in terms of medical identity. These participants characterised success at medical school in terms of their professional futures and explained that just fulfilling the exam requirements was not enough to ensure proficiency in their career, one going so far as to suggest that 'doing well' at medical school did not ensure that one would be a 'good doctor'. These predominantly foundation year participants characterised being a 'good doctor' in terms of their ability to apply their knowledge, have positive patient interactions, work well in teams, and manage the specific tasks of a junior doctor effectively, but didn't believe that passing medical school exams would ensure they could do all this. Many studies have identified perceptions among new doctors that they feel unprepared for the transition from medical school to independent practice[198-200], and work is ongoing to align medical school curricula and assessments with both the GMC's Outcomes for Graduates[201] and the new medical licensing assessment which specify what new graduates should know[202]. Despite these developments and the hope that they may enhance the link between achievement at medical school and acquiring the skills necessary to be a good doctor, it is acknowledged that for many new graduates the issue of unpreparedness is related to the sudden change in their responsibility and coping with uncertainly rather than their knowledge base or clinical expertise[199]. All of the participants who articulated becoming a good doctor as their conception of success at medical

school were recent graduates or final year medical students approaching this transition and dealing with the inherent change and uncertainty, perhaps explaining their preoccupation with readiness for practice as a measure of success at medical school. However, it is encouraging that these participants all espoused views in concordance with the university's aim to help students '*develop the skills to become a confident medical professional, committed to improving health and wellbeing for all*'[39].

In my experience of both being a medical student and teaching in a medical school, medical school prizes are seen as an important symbol to students that the faculty sees them as an exemplary and successful student. Looking at the list of prizes available, the vast majority are awarded to the student who 'achieves the highest marks' or writes the 'best essay' in a particular subject[203]. There are far fewer prizes which celebrate and value the development of skills other than academic knowledge necessary to become a 'good doctor' or other markers of personal or professional development. There is therefore a disparity between what Gateway students believe to be and experience as success, and that which the faculty rewards. As discussed earlier in the section, feeling valued and that one belongs can be a prerequisite for successful learning. Giving a tangible reward for a wider variety of attributes and achievements would signal to medical students both that there is more to becoming a good doctor than their exam results and also that the faculty recognises and values other achievement. However, in doing this, faculties must ensure that they do not inadvertently reward only those students who have time for extra commitments and exclude those who must work to fund their studies or have additional caring responsibilities.

Conversely to the prevailing picture, I wonder if 'success' for medical students might occasionally look like not completing their medical degree. Pastoral staff were hesitant about the idea of extending the study to include Gateway students who had left the programme before graduation, worrying about the impact on these ex-students. But if I had interviewed students who didn't complete their degree, what might they have said? Might any of these students, like some the participants in the study, have a narrative that is contrary to the that of academic achievement equals success. Might they not all see their medical school journey as a failure if they achieved personal development and achievements during it?

In their review of papers submitted to a special edition of 'Higher Education Research and Development' focussed on student success, Coates and Matthews state that '*how a given university fosters student success is dependent on what that university understands to be the purpose of higher education*'[204 p.903] and is shaped by a broad variety of stakeholders. In the case of widening access to medicine programmes such as the Gateway programme in this study, these

stakeholders will include both the university and its students, but also the NHS, government departments, and the community in which the students are trained. Each of these stakeholders will have their own, sometimes opposing, priorities for measuring the success of medical students which will be associated with the need for service provision, financial sustainability, quality, and institutional reputation. Despite this, in their book 'Success in Higher Education', Wood and Breyer argue that incorporating student perspectives as stakeholders is essential to developing a view of success beyond completion, to see student behaviours and experiences as immediate aspects of success[205]. When looking at medical students, this means seeing the value in their education for its own benefits, not purely as the mechanism by which the medical profession replaces its doctors for societal benefit. This thesis chapter contributes to this discussion; I propose that medical schools should encourage Gateway students by valuing a broader definition of success which should still include academic outcomes, but also fosters a sense of belonging and rewards individual personal and professional development of students.

Chapter 6 Navigating medical school as a Gateway programme student

6.1 Introduction

In the previous chapter I considered the qualitatively different ways in which Gateway programme medical students conceive of 'success at medical school' and identified that their beliefs encapsulated a broader set of ideas than those generally considered and rewarded by medical schools. The purpose of this chapter is to explore the experiences of the same Gateway programme medical students as they navigate their way through the liminal space of medical school. During undergraduate medical education, students' identities transition from whomever they were before they started to incorporate that of a doctor. The concept of liminality originated in anthropological work studying tribal rituals such as initiation into adulthood and has since been used to examine transitions in education and work which require professional identity formation[206-208]. During this transformative period, the participant will acquire knowledge and skills and, commonly, a new position within their community[206,207]. However, this period is frequently challenging, with the participant experiencing the 'stripping away' of the old self, and inhabiting a fragile space between stable social structures[206,207]. For medical students, this precarious 'in-between' state is protracted through the whole medical degree programme. Previous literature from the UK, Australia and Canada has described that students from backgrounds with social or educational disadvantage experience a reduced sense of belonging to the medical school community[86], challenges in adjusting to their medical student status[68], and tensions between inhabiting the 'medical world' and continuing to socialise with those from their previous communities[95]. Therefore, students from these backgrounds must contend with both the difficulty of integrating into the medical student community as well as negotiating the liminal transition from lay person to doctor common to all medical students.

The quantitative analysis of previous cohorts of Gateway programme students' progression and achievement presented in Chapter 4 showed that on average, students achieved lower grades in all exams (except the final year 'assessment of clinical competence') than their peers on the traditional entry programme (section 4.4.2). Additionally, there were lower rates of progression for Gateway programme students in the years following points of significant transition, with a statistically significantly lower percentage of Gateway programme students passing the first full time clinical year than traditional entry programme students (section 4.4.1). The progression of Gateway programme students is therefore demonstrably different to other students, but as

explored in the literature review (section 2.5) there is limited research investigating their experiences at medical school to understand why this might be. In an increasingly resource limited higher education environment, the success of WP students in progressing through medical school and into the workforce will be important for the sustainability of WP initiatives such as Gateway programmes. Consequently, a better understanding of student experiences should help policy makers and educationalists optimise these students' chance of successfully navigating the liminal space of medical school.

6.2   Qualitative methods

In this chapter I present the second analysis of qualitative interviews with Gateway students and recent graduates in which I explore their experiences of medical school to better understand their unique position. I applied Braun and Clarke's reflexive thematic analysis approach[209] to undertake an inductive analysis of the data. Please see Chapter 3 for details of methodology and how this chapter sits in the overall research design. Chapter 5.2 and 5.3 lay out the development of the research design and the methods used to collect the interview data.

The following research question guided the analysis presented in this chapter:

- How do the thoughts, behaviours and experiences of Gateway programme medical students influence their progression through medical school?

With subsidiary questions:

- How does the response of medical students to progression challenges change over time at medical school?
- How do medical students describe medical school and university wide structures and processes influencing their experiences?
- How do Gateway programme students describe their ways of managing transitions between different stages of medical school?

6.3   Principles of thematic analysis

Thematic analysis (TA) is a widely used qualitative technique, which historically has often been undertaken with little transparency and imprecision over exactly what has been done[210]. Savin-Baden and Howell Major[41] argue that much of what qualitative researchers do when analysing data could be termed thematic analysis, regardless of what researchers call it, and that despite its reputation as 'basic approach', thematic analysis can be a powerful and compelling method. However, many researchers who use it fail to provide enough detail of the analysis process followed or epistemological assumptions made[210]. As a research approach closer to a method rather than methodology, thematic analysis is not tied to a particular epistemological or theoretical perspective allowing flexibility of implementation, as long as the decisions made during that implementation are made explicit[210,211].

In this study I have used Braun and Clarke's approach to 'reflexive thematic analysis' first developed in 2006[209,212] and now widely used in health and education research. This approach to TA entails identifying, analysing, interpreting and reporting repeated patterns across a dataset[210]. It is 'reflexive' because it values a *'subjective, situated, aware, and questioning researcher'*[209 p.5], congruent with the way I have approached this whole PhD thesis and made explicit my positioning in relation to it (see section 1.6.1). The dataset is first coded and then the codes grouped into themes constructed by the researcher[210]. In reflexive TA, the codes have labels which evoke meaning shared between excerpts of data and can be on multiple levels from semantic (surface level) to latent (conceptual or implicit meaning) [209 p.236].

Table 6-1 on the following page describes the six-step approach to reflexive TA developed by Braun and Clarke. I applied this in an inductive, data-driven manner to identify themes in the whole interview dataset.

Six steps of reflexive thematic analysis	
Phase 1: Familiarising yourself with the dataset	*This requires reading and rereading of data and listening to audio recordings of interviews to become deeply and intimately acquainted with its content. Take brief notes.*
Phase 2: Coding	*Work systemically through the dataset in a 'fine-grained' way. Identify sections of data that appear potentially interesting, relevant, or meaningful to answer research question and apply short, well-defined, and demarcated descriptions (code labels) to sections of data. Coding aims to capture single meanings or concepts. Codes can be semantic or latent, inductive or deductive. This includes capturing an analytical take on the data. Code the entire dataset, compile code labels, and the relevant sections of data for each code. A single extract can be labelled with multiple codes.*
Phase 3: Generating initial themes	*The process of theme identification is an active and interpretive process to identify shared, patterned meaning across the dataset. Compile clusters of codes which share a core idea or concept and might provide a meaningful answer to the research question. Themes are constructed by the researcher based around the data; they don't 'emerge' from the data fully formed. Themes should be independently meaningful but work together to form a coherent story closely linked and representative of the original dataset.*
Phase 4: Developing and reviewing themes	*This entails going back to the dataset and ensuring that the themes make sense in relation to both the coded extracts and the full dataset. Does each theme have enough supporting data? Are any themes to large or diverse? Collectively, do the themes highlight the most important patterns across the dataset? Radical revision may be necessary. Start to consider the relationship between the themes and their relationship to existing knowledge and wider context of the research and create a thematic map.*
Phase 5: Refining, defining, and naming themes	*Create a definition and narrative description of each theme, considering how it fits into the overall story about the data. Even at this stage, reanalysis is necessary if the refining process indicates more analysis is needed. This is a good time to select data extracts to be presented in the final report. Finalise the thematic map, showing how themes relate to each other.*
Phase 6: Writing up	*Formal analytic writing may start from phase 3 but is now crystalised. At this point the narrative is woven together with data extracts to tell the reader a coherent and persuasive story about the dataset that addresses the research question/s. This is a continuation of analysis and interpretation rather than a separate stage.*

Table 6-1 Six steps of reflexive thematic analysis.

Reproduced from 'Thematic Analysis' by Braun and Clarke[209], with additions from AMEE guide number 131[210] and 'Using thematic analysis in psychology', also by Braun and Clarke[212]

6.4   The participants

Twenty-two students and recently graduated doctors participated in this study. Detailed information about them is provided in section 5.6. Tables 5-2 and 5-3 provide summary demographics.

6.5   Navigating medical school thematic analysis

There were four overarching themes actively generated from the data:

- Theme 1: Motivation, identity, and something to prove
- Theme 2: Finding my place in the medical school
- Theme 3: Choice in university life
- Theme 4: Managing external pressures

Figure 6-1 presents an ecological thematic map depicting how these themes inter-relate for participants. The Oxford English dictionary definition of 'ecological' is: *'Of, relating to, or involving the interrelationships between living organisms and their environment'*[213]. The thematic map puts the participant at the centre and illustrates the different ecological levels of relationship they describe. Themes further away from the centre are not necessarily less important.
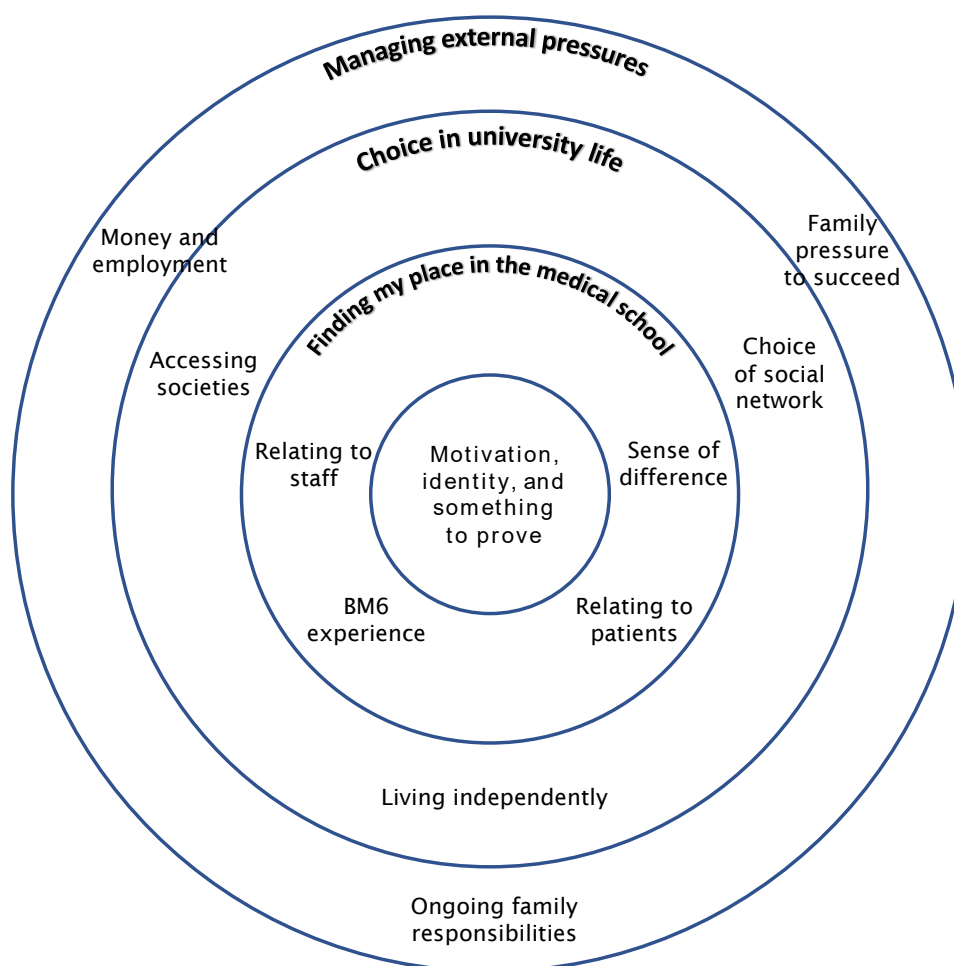
Figure 6-1 How Gateway programme students describe their experience of medical school

These themes describe the experiences of Gateway programme students as relating to themselves, their peers and tutors in the medical school, the choices they make in participating in wider university life, and pressures outside of their university studies, such as their relationship with family and need to provide for themselves as others.

6.6 Theme 1: Motivation, identity, and something to prove

The relationship between their identity, motivation for medicine, and the feeling that they had something to prove was complex for participants. They spoke a lot about the challenges of developing a 'medical student identity', even when their motivation for medicine was easily articulated. The attitude of significant adults, faculty and other students, their experiences growing up, confidence in their own abilities, and attitude to failure all influenced both participants' motivation to persevere and their developing identity as medical professionals. The complexity of participants' intersecting identities highlights the difficulty in extracting the effect of socioeconomic background on student experience and its relative importance in their overall identity.

With one notable exception who had had significant personal identity development outside of medicine during their time at university, graduates had less to say about identity and reflected less on motivation for medicine now they were on the other side of finals.

6.6.1 Motivation for medicine and 'something to prove'

An enjoyment of learning was important to participants when they discussed their motivation for studying medicine. One early phase participant who volunteers with the ambulance service talked about how it showed them that *'there's more out there to learn about'* (P13) and that by studying medicine they could find answers to questions in a way they couldn't with paramedic colleagues. Other participants further on in their training appreciated that whilst their desire to learn remained, their specific interests had changed. For one graduate participant, this meant letting go of their early motivation to undertake research into their father's medical condition:

> *Actually, my interest sadly is really I just don't really have any interest; you know your interests change, and I think your motivations do, in some ways change.* (P22)

The recognition that motivation often changed as medical students gained '*a wider appreciation about medicine'* (P23) was only acknowledged by graduate participants and those in their final year.

It was common for participants to talk about how their motivation for medicine help to keep them going when they are struggling. Several participants had experienced displacement from their country of birth at a young age, or their parents had emigrated to the UK to escape challenges at home. These participants seemed to have a distinct sense of their privilege and of wanting to *'give back'* (P1, P15):

> *The fact that I could use my British passport to run away from [a war] made*
> *me feel very privileged, and that I should do something about all the problems*
> *that's going on there and here… the being, feeling that I'm more privileged and*
> *I have to do something* (P4)

This participant also recognised that medicine was a route to increase their ability to make a difference because it would make them *'more powerful'* (P4). Only a few participants explicitly acknowledged the change in status they had experienced or expected to experience in becoming a doctor. However, there were tensions within individual narratives in the extent to which participants identified as a medical student and felt they belonged.

One participant, despite speaking eloquently about their role on medical student society committees and the changes they had helped to implement to shift the medical school culture, also said:

> *I never once wore my final year badge …I just didn't feel like I could live up to*
> *the label, so I never wore the badge. Even in the final year OSCEs I just wore*
> *my student ID and the OSCE badge that you get given… I just felt like an*
> *imposter putting that badge on. It just gave, like, just made me feel like I don't*
> *belong.* (P10)

They had had a significant impact within the medical school and considered themselves to have been *'socially successful'* (P10) at medical school but found reconciling their identity with that of 'a medical student' was not easy. This change in identity was likened by one participant to the *'change in personality that you go through when you're a teenager'* (P6) because they found they *'relive[d] all of that anxiety and unfamiliarity…all over again'* (P6). Frequently, participants expressed feeling a lack of belonging or that they had *'something to prove'* (P8, P22). One participant worried that '*all BM6 have a tendency to think that we're not good enough, and so self-sabotage without realising'* (P8), possibly due to '*feeling insecure'* (P8), or because they feel they have something '*extra to prove, that you don't even just want to hit average, you want to be better, to prove that you know you do deserve your place in Medicine'* (P22).

6.6.2 Increases in confidence sustains motivation and increases sense of belonging

Commonly, participants found that towards the end of medical school they felt more comfortable with their identity both as a medical student, and also realised that *'BM6 can be part of [their] identity too'* (P14). The feeling of having *'something to prove'* (P8, P22) usually diminished for

participants over time, as they realised that *'we are all equal, and you know I do deserve to be here and do it'* (P24), though it didn't disappear completely by graduation.

Other participants described how achievement in exams and having their competence recognised served to increase their confidence and belief in their ability to succeed:

> *And then because I could interact with patients more, I was getting good feedback, which kind of made me think "Oh, maybe, maybe I'll be all right at this"* (P16)

Participants described recognition of achievement as being important to develop their confidence, feeling that *'OK, you are competent, you can do this'* (P8), while seeing other students as already confident on entry to medical school *'like they've learnt to be confident from somewhere'* (P17) and therefore have an inbuilt sense that they will succeed. For one clinical phase participant, their growth in confidence was important enough for them to identify that *'now it's got to the point where I'm starting to enjoy it a bit more, even starting to make friends'* (P5).

6.6.3   Significant adults influence motivation for medicine

Participants frequently related occasions before applying to medical school when significant adults communicated doubt in their ability to make it to or through medical school. These were most often teachers or career guidance counsellors, but also sometimes parents. Participants said that applying to medicine felt like *'a pipe dream'* (P12), and that as a result it was hard to gain the support of those around them. Teachers warned that *'medicine is really difficult, don't worry if you don't get in'* (P14), or that participants should *'pick another career'* (P12). Those students who had supportive teachers often commented that their schools weren't prepared as they *'didn't know the application process'* (P22) which limited the practical support they were able to access, even if teachers wanted to help, which unintentionally highlighted to participants that their choice wasn't usual.

Participants had also had a variety of experiences with parental support. Even following successful admission, a few parents continued to voice scepticism:

> *My dad told me he didn't think I'd get through it. He's, I don't think he meant it in a horrible way, I just think it's, he, even until I was like in my second year of Med School, he was just like, he would ask me "do you think you're going to make it through then?"* (P17)

Some participants had spoken with their parents about this reluctance to fully support their choice. There was an understanding that *'usually people are from a certain background'* (P19), and that parents didn't want participants '*getting* [their] *hopes up about things and not managing to actually do it'* (P19) to protect them from disappointment. While many participants described their parents as gently supportive of their choice, saying for example, '*she wants me to do it for me, she never wanted to put any pressure on me'* (P18), support was still often tempered with a desire to be realistic and to '*just do what you can'* (P1). A common reflection from participants was that, like teachers, even encouraging parents didn't understand the process of becoming a doctor and left them to '*just figure it out for [themselves]'* (P9). In contrast, a minority of students described pressure from parents to pursue a medical career, *'to the point where it stressed [them] out'* (P4) and it *'almost seemed like [they] didn't have another choice'* (P20).

In those students whose significant adults expressed reservations the effect was variable but long-lasting and discussed by participants at all stages of training. Some participants expressed enduring insecurity as a result. One disclosed that she has '*always had in the back of my mind, "Oh, I'm not as good as other people."'* (P2), while for others it was a motivator to '*push and keep going'* (P12). For some participants however, both these attitudes seem to co-exist. One clearly described the tension they felt:

> *I think that* [the reservation of others] *was kind of, almost a motivation. Because although it was a motivation to be like, "Actually if I want this that bad, I can do it," but then it was also kind of discouraging at some points because it was like, "Maybe it's too difficult and, like, maybe it isn't* [for me]*."*
>
> (P14)

This early phase participant hadn't yet reconciled these conflicting effects on their identity.

In general, supportive parents were an important source of emotional support for participants, though a commonly described challenge was the lack of understanding from people at home of what their daily lives entail:

> *And my parents are like really proud of me, but I think they are like bemused by what I get up to. Like they don't know like on a daily basis the things I do. That's another thing actually I find difficult, because I sometimes feel like I can't tell them all the things that happen at work, because they don't, they just literally have no idea like what I do on a day-to-day basis* (P18)

This participant has had experiences '*no one at home... would even be able to comprehend*' (P10) as they undergo the liminal transition of becoming a doctor, and this separates them from an important source of support.

For students who described their parents pushing them into medicine, pursuing the career ended up being an important motivator to *'get away from home'* (P4), although the pressure didn't cease once participants were at medical school:

> *I think I would have been more energised if I was doing it for myself, whereas I*
> *felt the pressure of having to make them happy and not engage in activities at*
> *uni that they wouldn't want* (P20)

However, as for those with gently supportive parents, this participant explained that their parents were also a positive motivator, as *'seeing how proud they were of me definitely kept me going'* (P20).

In addition to attitudes and support from family and teachers, participants explained that the affirmation of faculty staff was important to give them a sense of belonging.

> *When we initially all got in and [programme lead] said 'You deserve to be*
> *here,' and that's something that's stuck with me, someone saying, 'This is*
> *medical school, you are the same as everyone else'. And that's kind of carried*
> *me through* (P14)

Parents and teachers may underestimate the influence they have on student motivation; participants all spoke clearly about the enduring positive and negative effects of throw away comments on their confidence and motivation.

6.6.4 The tensions inherent in developing a 'medical student identity'

While participants talked a lot about the importance of their identity as a *'BM6-er'* (P2) from a lower socio-economic background, they also discussed other aspects of their identity including race, religion, and culture. For many, these intersecting identities were intertwined in their experience of being a Gateway programme medical student:

> *A lot of the BM6ers were from London, so, I think we had a lot in common, and*
> *I found people that were from ethnic backgrounds, so, understood, and also we*
> *had loads of things in common, the same humour, the same London, you know*
> *slang and everything, so, uni, I expected it to be predominantly white middle-*
> *class in Medicine, but BM6 isn't like that at all, so that helped* (P20)

The similarity of background of BM6 students was only discussed by participants from BAME or religious minority groups. This idea is developed further in theme two. However, regardless of background, participants were aware of the change in their identity taking place at medical school. Several participants discussed the comments made by friends from home, that they were '*changing as a person*' (P20) or '*sound more posh now*' (P22), sometimes losing touch with them as a result. One described the experience as *'living between two worlds'* (P4), worrying what would happen if they failed to complete the programme and '*it all gets ruined on the way*' (P4) as they would no longer fit in with their community at home, congruent with the irreversible nature of liminal transitions.

Key messages from Theme 1 – Motivation, identity, and something to prove:

- Participants describe finding it difficult to reconcile their identity as a medical student with other competing identities.
- Achievement is important to develop confidence, and developing confidence is important to foster a sense of belonging.
- Significant adults have an enduring effect on participants' motivation for medicine.

Figure 6-2 Key messages from Theme 1

6.7   Theme 2: Finding my place in the medical school

6.7.1   The BM6 Year 0 experience

The participants universally talked about the learning community in BM6 year 0 in positive terms. Some doubted they would have been able to cope with the transition to university without the *'steppingstone'* (P1, P15, P24) of Year 0 helping them to settle in, and *'get to know the faculty'* (P15) with *'a small cohort'* (P12) or *'clan'* (P13):

> *I found that a really lovely experience. It was coming straight from school to what I classed as a school-like environment. Because there was only 30 of us in the year, we knew everyone inside out, we knew everything that everyone was doing. [Programme lead] was very much keeping on top of us with essays and things. [Senior tutor], our pastoral support, knew exactly what was going on at home, if anything was going on at home. (P2)*

This participant felt *'spoiled'* by the attention they had received in Y0 and the *'excellent teaching'* (P2), struggling to adapt to being in a bigger cohort in Y1 initially, but acknowledged that they may not have managed university at all without the BM6 Y0. This was a relatively common experience, that though participants felt they had thrived in Y0, they still found the transition to Y1 problematic. For a few it was the academic aspect:

> *'I was lulled into a false sense of security, because I was in the lectures and I thought I've heard this before, so, I didn't really pay attention, and then it came to the first-year exams, and I realised that I didn't quite know it well enough, and perhaps I needed to work a bit harder' (P21)*

For others it was a recurrence or an emergence of a sense of difference and difficulty in integrating with the new BM5 year 1 students, discussed further in the next section.

A few participants talked about feeling *'very separate from the medical school'* (P24) in year 0, and that though they knew they could join medical societies and get involved with MedSoc, *'BM6 did get isolating'* (P14). It was only when they graduated into year one that things changed:

> *So, um, yeah, I think this year is definitely like I feel like a medical student this year, whereas last year was more, "I don't really know what I'm doing. I'm just like" – I, I felt like I was more – it was more like a science degree (P9)*

All three of these participants were very positive about the support they received in year 0 from the BM6 team and its importance in helping them get through the degree but did not take on an identity as a medical student until they were in the later years of the programme.

6.7.2 A sense of difference

Many participants refer to themselves as 'BM6s'; it was not just their programme; it was their identity. Lots of participants talked about times when they had come across another BM6 student in a different year and immediately felt sense of connection or belonging when they said *'Oh, you're BM6. I'm BM6 too,'* (P14). This gave them a sense of belonging to a group, but in some cases also created an 'us and them' mindset when relating to the wider medical school. This was complex, and it varied widely between participants. Some participants acknowledged that the lack of integration came to some extent because they already had their friends and often lived in student houses rather than halls with the majority of first year students. For example, participant 5 didn't make any effort to meet new year 1 students:

> *And then all the new BM5s come in, and it's very much with the attitude that*
> *you had last year, and they're fresh and bubbly. And I had a few BM6 friends,*
> *and I think maybe there was an element of still not feeling like I completely*
> *deserved a place at medical school, definitely at that point... I was living in a*
> *house with non-medics, and then everyone else is in halls. So that's when you*
> *meet a lot of your medic friends, I think. ...So, I'd just see them at lectures. But*
> *then obviously I had my BM6 people at lectures, so not really putting yourself*
> *into the positions where you meet people as much. So, for the first two years,*
> *me and my BM6 friends, we used to joke that we didn't really know anybody,*
> *and nobody really knew us (P5)*

Similarly to other participants, this participant talked about being aware that most of the sense of difference came from his own beliefs and attitude, but that individual negative experiences had a long-lasting impact on his identity as different from a 'normal' medical student:

> *I was in freshers on a night out...And they were like, "Oh, what do you study?" I*
> *said, "Medicine." And one of the BM5s who was in my block came across sort*
> *of put his hand on my shoulder and was like, "Oh, no, no, no, he doesn't do*
> *medicine, he's a BM6." And they were like, "What's a BM6?" I was like, "Oh*
> *yeah, sorry." ...And I remember feeling like, "Oh God, that's belittling me a little*
> *bit." I think, because I really had that belief in my head anyway, every time*
> *something like that would happen it would just make it worse...But I think it's*

> *the little things like that. It doesn't sound like a big thing, but when you're*
>
> *quite vulnerable at that point, little things like that just stayed with me (P5)*

This was a common experience related by participants from the beginning of their time at medical school. One participant described how feeling different meant she was hesitant to disclose being a BM6 student. '*If people asked me, I, I said I was from BM6, but I didn't offer up initially*' (P8) because '*people were being snobby already*' (P8). Despite talking a lot about how important doing BM6 was, and how she was sure she wouldn't have successfully managed the transition to university without it, this experience of feeling different and '*feeling the need to prove myself*' (P8) led to this participant needing to let people know she could have gone straight into a standard medical degree programme:

> *But sometimes when I feel like people are looking down on me in BM6, I kind of*
>
> *feel the need to say, "Yeah, but I had the grades, I got into the five-year course*
>
> *and I chose BM6," so yeah (laughs). (P8)*

However, this was not a universal experience. In contrast, another participant '*was really worried about* [being looked down on] *and genuinely thought it was going to be a problem…but it's not like that at all*' (P11). The tension in this identity was still clear however, as at another point the same participant described an experience with the words '*even though I'm only a BM6 student*' (P11).

Regardless of whether they had felt negativity associated with being a BM6 student, participants were almost unanimous about the effect of time on their integration:

> *As time progressed, um, we've integrated ourselves more, but it wasn't till*
>
> *third year and fourth year that I really felt like I was part of the year and knew*
>
> *the year. (P6)*

Despite integrating with the year, for one graduate participant the sense of difference never completely disappeared, describing themselves as '*a bit of a social nomad*' (P23), echoed by another participant who talked about the difficulty of deeply relating to students from a more affluent background because '*their idea of normal and your idea of normal is quite a contrast*' (P16).

6.7.3   Relating to staff

There was a noteworthy difference in the way participants talked about different groups of staff. Participants clearly trusted those who were directly involved in teaching them in year 0, having an

especially strong affinity for the programme lead, described as the *'mum of the BM6 course'* (P11) who would always *'fight your case so you've got one friend in the faculty who will back you'* (P10). In contrast, a minority of participants recounted stories of interactions with other faculty members:

> *I failed an exam in third year, and I went to see* [faculty member] *about it. And she said the strangest thing to me, she opened up with, "Oh, it's very well known that BM6 students do badly in MCQs." And the whole meeting was based on how to effectively answer MCQs…. I went back to all my BM6 friends, and I was like, "You'll never guess what, like, there is this thing in the faculty where they say that BM6 students are crap at doing MCQs." Yeah, and so, like, obviously after second year all of your clinical exams are MCQs. So, we translated that as there is no hope, there is no hope for us, because the system is built for us to fail, because if they're all MCQs and we're **** at MCQs (P10).*

This story shows how one negative interaction with a member of staff can have far reaching consequences; this student went and told all their BM6 friends and as a group they created the idea that the programme assessment was set up for them to fail.

By the clinical years participants' self-identification as a medical student had become stronger. Most of what participants said about being on placement and relating to clinical staff has nothing to do with their sense of being a BM6 student and 'different' in some way but simply about being a medical student on placement. However, learning on placement is described as *'really tricky'* (P6) when relating to staff can be so variable. Most students identified experiences where they had been overlooked or snubbed. One student described being *'ignored for five or six hours and literally blanked'* (P2) in a clinic they were scheduled to attend, and another was in a clinic with a surgeon after which he *'brought this cake in that he'd brought back from holiday, and he offered everyone cake, the HCAs, his registrars, and [the participant] was sat there…completely ignored'* (P17). In contrast, participants had positive experiences on placement when staff were 'e*xpecting [them]…willing to teach [them]*' (P18), or as one participant eloquently put it, when '*somebody is there to receive your enthusiasm'* (P6).

Despite their sense of difference seeming to lessen over time at medical school, a minority of participants still recounted experiences where their way of speaking was identified by staff in a negative way:

> *'I actually had a consultant say to me, "Oh, you're a BM6-er, aren't you?" I was like, "You don't know that." The only reason they know is because I've got my*

> *accent, yeah. I've also been told to lose the accent a few times. But, you know,*
>
> *I don't take that personally.' (P2)*

Whilst the participant states that *they 'don't take that personally'* (P2), they alluded to their accent and it being different from their perception of the expected norm several times during the interview, suggesting that comments like this from senior clinical staff have had a lasting impact. Another participant explains that they were told to change their way of speaking ahead of some clinical exams, leading them to reflect on the isolating effect of the liminal transition occurring for them:

> *I remember, before third year OSCEs, I had to learn to say hello as opposed to*
>
> *'ello. Because we just don't pronounce h's where we live. And, like, that*
>
> *changes but you - both groups of friends comment. When I go home my friends*
>
> *are like, "You speak like you're a white man. You speak like you're a white*
>
> *man." And then when I come back to uni my friends are like, "You can tell*
>
> *you've been home for a few days." And so, I think it goes back to, like, you*
>
> *adapt to the environment you're in. And so, accents and that don't change.*
>
> *Like I said, like, values do change a little bit. But, like, your roots, so you know,*
>
> *like, your values and where you're from and what your ethics are and what*
>
> *your morals are. (P10)*

These kinds of incidents were only relayed by students who were audibly not middle-class and were certainly not ubiquitous. One participant said, '*I was really worried about* [experiencing negative attitudes from other people towards BM6 students] *and I genuinely thought it was going to be a problem'* (P11) but all they had heard '*was complete praise'* (P11). This participant was a white student with no regional accent who attended a college with a good reputation for preparing students well for medical school.

6.7.4   Relating to patients:

> *'When I was on placement, I could relate to patients more than I could relate to*
>
> *doctors. And I found that incredibly weird.' (P10)*

Other than participant 10, relating to patients as a BM6 student wasn't talked about by current students. Yet for recent graduates now living the reality of caring for patients, it was obviously very significant. Many described events where they could relate to or had confidence in treating a patient because they shared a minority ethnic or social background.

> *'If I'm treating someone who is Black, there's something there that's almost*
> *like a kinship that you can't put your finger on, but you know, particularly by*
> *older Black people that I've treated, they wouldn't necessarily have had a bad*
> *experience but if, I don't know,* [a fellow doctor] *has explained something to*
> *them and you go in and administer some care or a treatment, and explain it to*
> *them again, they suddenly get it' (P23)*

This participant talked proudly about the way they could use their shared background to create a connection with a patient and therefore improve their experience of treatment. Another participant explained how their upbringing had prepared them for the mix of patients they meet:

> *I think the reality is people from disadvantaged backgrounds get sick more.*
> *More of our patients are from sort of working-class backgrounds and I think*
> *there is a lot of judgement around health behaviours that are associated with*
> *deprivation, like smoking and drinking and things like that, well 'they've done it*
> *to themselves in some way'…there are so many social factors involved in health*
> *behaviours. I think knowing people and seeing people and living around*
> *people who are in that position is helpful. I think it's just understanding your*
> *patients, understanding all the stuff around you know their illness is helpful*
> *and I think BM6s do have that advantage (P18)*

This participant felt they were able to better understand their patients' behaviours because they shared a background. Participant 19 felt that their patients also appreciated the unspoken shared sociocultural norms and allowed them to feel heard:

> *I feel like because you've been in similar situations to a lot of your patients,*
> *they often say that to me, oh I feel like you really understood me and you really*
> *listened and you didn't judge me, and I think being on more of a level playing*
> *field really helps (P19)*

Despite being clear about the benefits their backgrounds brought to their patients, these recently graduated doctors were keen to point out that '*that's not to say that the BM5 students can't do that as well*' (P22), but that their background perhaps made it more natural.

Key messages from Theme 2 – Finding my place in the medical school:

- Participants highly valued the BM6 year 0 experience for the help it gave in transitioning to university, and the importance of having staff who knew them and their situations intimately.
- Participants had an affinity to other BM6 students because of perceived shared backgrounds and understandings.
- The sense of difference they felt outside this 'BM6 family' was variable but enduring. Despite a preponderance of positive experiences, one off negative experiences with other students, faculty or clinicians had significant impacts on participants' sense of belonging.

Figure 6-3 Key messages from Theme 2

6.8 Theme 3: Choice in university life

6.8.1 Choice of social network

Many of the participants described developing extremely close friendships in the BM6 year 0 which was integral to their experience; friendships which endured throughout medical school. It was important, they said, because '*we were all going through it together…we had a similar kind of background, similar experiences'* (P8).

There was a distinct divide between the majority of participants who '*mostly stuck with [their] friends made on the BM6 Programme*' (P17) or has '*mostly medic friends'* (P2), and the few who had a '*complete mix'* (P16) of medic and non-medic friends or felt the need to '*get away from medics'* (P20). One participant seemed to have deliberately separated themselves from other medical students stating that they enjoyed the '*different environment'* (P1) and that they '*don't talk about work, it's let's just chill'* (P1), a sentiment echoed by a second participant who '*found it very beneficial'* to '*go home every day and not have to talk about medicine'* (P23) to their non-medic partner. A quiet participant found medical student personalities to be '*quite overbearing'* (P20) and so chose to '*keep all [their] BM6 people'* (P20) but otherwise spend time by themselves.

The first participant who deliberately sought out friends from other backgrounds also valued the separation between work and leisure that having friends from different backgrounds brought, but had recently had to move in with other medical students once their friends had graduated:

> *I don't really have loads of friends who are medics… And now they're all gone.*
> *So, I've had to move in with some medics, which ain't too bad but it's different.*
> *It's not because I don't fit in, it's just because I just like to always step away*
> *from it once I've stepped away from it (P1)*

He was beginning to realise something that others had discovered earlier in their degree. Another participant described never socialising with medical students in year 1 because they already had friends at the university but then in lectures wondering about the connections made:

> *"Who are these people and how did you meet these people?" because I'd spent*
> *my time with people that they never mix with. And so, I soon realised that…you*
> *can't do medicine on your own. It's not a – you can't do it as a lone wolf (P10)*

The feeling of not being able to do medicine as a '*lone wolf'* (P10) was echoed by others who recognised the value of '*being able to talk to someone who understands the workload and the*

situation' (P12) because *'sometimes you see things that you need to talk to medics about, because non-medics sometimes just don't understand what you go through'* (P24).

The time pressure of a medical degree also influenced the choice of social network for participants. One participant quickly realised that *'you can't do this [degree] on your own* (P2), and that there *'simply isn't the time'* (P2) to *'constantly go out'* (P2) with non-medic friends from halls. Another participant talked about wanting to have a more diverse friendship group, but that it just wasn't practical:

> *It's very hard to have a non-medic friend. Because when you're on placement,*
> *you see them, you finish at the same time, you go in the same time, exams are*
> *the same time (P13)*

The sense of other students outside medicine not understanding the unique pressures of a medical degree was mentioned by several participants, who wanted to maintain friendships with a diverse group of students but found it too difficult. Many participants referred to the students they lived with as their closest friends, and so the choice of housemates was key:

> *They didn't understand that I had to be up early, and they would have a few*
> *lectures, and they wouldn't go to some of them. I actually had to go and see*
> *patients on the wards, and I had responsibilities, and it was really difficult,*
> *because they didn't understand that… then I realised that I should be living*
> *with medics, because I'm here for six years, and actually I can't sleep because*
> *you guys are up until four in the morning, and I have a placement so, then it*
> *only got better when I moved out (P24)*

However, being *'in that bubble'* (P15) and *'being together all the time'* (P15) wasn't necessarily considered by participants to always bring benefits. While participant 24 had gained benefits from moving in with a group of medical students, they quickly identified a drawback:

> *Because what I realised is, when you spend all your time with medics, that's all*
> *you talk about is medicine, and when I lived with them, I found it quite difficult*
> *to go back home or to go into different social circles and have a normal*
> *conversation (P24)*

Friends might understand what they were going through and be able to support each other but a predominantly medical student friendship group had undesirable consequences. Another negative recognised by a participant was the stress constant comparison would cause her:

> *Just that comparison, because I think that really creates so much stress when*
> *you look at how other people are doing, or how they're working, where they're*
> *at, it just creates a lot of stress (P22)*

Some participants talked about an '*expectation that [they] would revise together*' (P20) which caused them stress because of the comparison that would arise.

When talking about forming friendships, participants spoke more about factors that drew them together with medical students from other programmes such as the BM5 programme than the differences discussed in section 7.6.2. Despite this, a few made comments which highlighted that they were still aware of a sense of difference from their perception of being a 'normal' medical student. One participant saw this as a positive benefit to mixing with people from other backgrounds:

> *It's kind of interesting, like, making friends with different values but then*
> *seeing how that affects them and how it affects you and stuff and how you*
> *think of yourself (P14)*

As an early phase student this participant had yet to have much patient contact, but seemed content at university, and was embracing the new opportunities they had. This was echoed by another participant who talked about their friends understanding their own privilege through friendship with the participant:

> *For example, my friend's school was very big on sport... And I'll tell them, like,*
> *we literally had nothing like that, like, we didn't even have sports in my last*
> *school…. He was really into rugby and hockey and if he didn't have that at*
> *school, he didn't know what he would have done at school. So, like, I think he*
> *realises how privileged he is, via me. (P9)*

While this participant valued friendships with people who were different to themselves, another participant uniquely related their choice of social networks to their cultural background rather than their medical degree programme or interests saying:

> *It goes back to our cultures and stuff, we're relatable in that sense so, like, the*
> *same sort of background and all that. But it's a mix: two BM6, two BM5 (P13)*

This participant highlighted that his background was not unique to a BM6 student and had made friends with BM5 students from the same background because they were the people to which he could most closely relate.

6.8.2 Access to societies

Almost all participants saw involvement in societies and other voluntary extracurricular activities as an important part of university life, but some also saw them as a potential risk to passing exams and progressing. Participant 1 identified his heavy involvement in societies as key to his university success, believing that if he hadn't been involved, he would have *'failed, probably failed, and had no friends'* (P1), and believing that without the time pressure this involvement put on him *'those [free] times would have been filled procrastinating'* (P1). Another participant expanded this to others, deeming that *'if people don't get involved with any societies, I think they would struggle'* (P2). One graduate participant expressed deep regret at not getting involved with any societies at medical school:

> *That's one thing I probably regret actually. Just meeting different people, just doing something that was fun, that would take my mind off Medicine. I kept saying to myself, ooh I probably should join, but I'd be a bit worried and a bit nervous about it, and a lot of them were already very good friends who would go. So, that's probably why I didn't go. So, that's one thing that I would say that I really regret not doing (P24)*

In contrast, other students deliberately tried to stay away from too much involvement in extracurricular activities warning that they had seen others fail as a result of getting distracted:

> *Because the main thing, the main reason you're here is to get your degree and everything, but also develop yourself as a person. But I feel like I've seen some people get too involved in other things, which has affected their academia and affected their, you know, ability to pass the exams and stuff like that (P15)*

This was affirmed by participant 13 who *'tried to cut out doing extracurricular activities because [they] think that was what distracted [them] a bit in first year and second year'* (p13), in their opinion leading to them needing supplementary exam opportunities to progress. One participant had been leading a local branch of a youth organisation for three years but *'eventually just thought, "I can't."'* (P6) and stopped when they had to retake a year to give them more time for studying. For most students, however, the benefit of involvement in societies *'outweigh the other side of it'* (P12) as *'you will never give [studying] 100 percent'* (P12).

Most participants were involved with and saw at least some benefits of societies, primarily in integrating with other years, building their confidence, bulking out their CV, or in simply giving them the opportunity to have a break from medicine to *'de-stress'* (P11). Multiple participants discuss how involvement in societies and extra-curriculars has helped them develop their

confidence, whether in '*giving presentations'* (P2), *public speaking* (P4), or more generally. Others spoke about how societies were important for '*building connections, networking and friendship'* (P15) which means '*you have always got friendly faces around the hospital'* (P5) and people '*to get advice from'* (P5). Participants also expressed that they needed to take part in medical student societies as a method of CV building:

> *It was something I was interested in so that's why I took part… Again, I think*
> *it's good for my CV as well. I think – I don't think it's enough to just go to*
> *medical school or go to university and not do anything else. And I think as well,*
> *not even just like career focused, I think on a personal level, like, university is*
> *more than just, it's more than just coming and getting a degree. It's a chance*
> *to expand your horizons, I guess, and try new things (P12)*

Participants who talked about CV building were at pains to point out that '*I do enjoy them'* (P2), even while it was '*more about CV building than hobbies'* (P2). Participants were more likely to be involved with medical student societies because '*the timings were just better'* (P8) but a number of participants were also involved with university societies. In these cases, a break from medicine was the most common explanation for choosing to spend their time there, so that they '*had a whole other circle of friends that was separate from medicine'* (P5) and it helped them '*not think about whatever it is that [they were] worried about'* (P11).

Only a minority of participants discussed the difficulties of getting involved with medical student societies as a BM6 student once they had joined year one, though some expressed sadness that committees could be cliquey so that '*if you know certain people then it's really easy to get into a committee'* (P14) but being enthusiastic was less valued. Several of the graduates and those approaching graduation also talked about the challenges of getting involved with societies when many social activities revolved around drinking, and they were either tea-total or had no interest in '*staying up until three in the morning and going and getting a curry on the way back. And that was a big culture at medical school'* (P24). One of the participants approached this challenge head on and decided to challenge the culture of the medical school:

> *In year 0, we were always very apprehensive of MEDSoc, because we, the BM6*
> *students had similar views of MEDSoc and so all of us were like, "We don't*
> *really belong here" …In second year… I had this passion that, like, we're going*
> *to – we're not going to be second class to anyone and we're going to change*
> *the culture in the medical school. (P10)*

This participant went on to become president of MedSoc and was in final year approaching graduation at the time of interview.

> *I had a really good team… I wanted freshers to come into medical school and*
> *see that there's a MEDSoc President who does BM6 and that is completely*
> *normal. And they did, they just assumed that anyone, BM4, BM6, BMIT, BMEU,*
> *anyone can be MEDSoc president, and there's not that hierarchy, social*
> *hierarchy in medicine. It was a really good year for the freshers because there*
> *was so much integration between the five courses. And, like, it gave me*
> *satisfaction just to, like, see the amount of BM6 students that would come*
> *through to events. And I remember when we were putting on an event and I*
> *was like, "Are you sure that this, this is Halal or if there is a, if there is a, er,*
> *non-drinking option?" And they were like, "What?" And I was like – like, there's*
> *a massive proportion of the medical school that don't eat – don't drink alcohol.*
> *And they want to integrate but they can't because there's always that fear.*
> *And we had, like – it was, it was good to see girls who wear headscarves and*
> *hijabs come to MEDSoc balls because they knew there was a non-drinking*
> *option for them and there was halal meat and halal options for them too. It*
> *was time for a change. (P10)*

Several participants from earlier years mentioned this participant's name when talking about getting involved with student societies, suggesting this change had been recognised by others outside the MedSoc committee. Whilst one early year participant still said '*I think it's harder, not easier to get involved with stuff as a BM6'* (P9), they also acknowledged that '*MedSoc is aware of that'* (P9). None of the other early year students talked negatively about medical school culture as hindering their access to societies, suggesting some shift in culture as a result of participant 10's drive for change.

Finally, finances were also discussed by a number of participants as a barrier to full involvement in societies. Participants '*went to a few of the induction things, and [they] couldn't afford a lot of it'* (P24). This was usually referring to university sports societies, where participants had to pay an athletic union subscription of *'£200 at the start just to join a sports society'* (P11) on top of '*kit…subs…transport fees…socials'* (P9). For the one participant who did choose to join, the cost was prohibitive and so they didn't keep it up as '*quite a lot of [their] money went on that'* (P9). Finances we also a barrier due to the competition for time with paid work, described as '*sad a bit as well because they're missing out on that time in their lives'* (P13). The impact of finances on participants lives more broadly is discussed further in section 7.8.1.

6.8.3 Living independently

The choice embodied in living independently for the first time was expressed by most participants. Some had come from home situations where they '*didn't have any independence at all really*' (P24) and felt '*bamboozled by the whole experience'* (P6) of coming to university. Another expressed this newfound independence by '*letting loose'* (P9) both financially and behaviourally, taking a while to settle into a routine. For most, this was embodied in the self-management regarding study-life balance that was required to become a successful medical student:

> *I gave myself advice before coming here. I told myself, know when to work and know when to relax and have fun. Because you can't only work, and you can't only relax…. Semester one I just passed, but I never made any notes throughout the whole semester. Because I was going home, I wasn't eating right and I was feeling sleepy all the time, so I used to just go home and sleep…I was getting overwhelmed by the lectures and feeling really behind. And then winter came around, and I hadn't seen my friends for a while, so I thought, "Let me go out and see my friends." And every now and then I'd see my friends and I'd be like, "I'll do my work tomorrow." I never did any notes. Came back, there's two weeks to the exam and I still hadn't made any notes and I didn't know anything. (P4)*

Like others, this participant learned the hard way that living independently required more self-discipline than they had needed at home. It was a surprise that '*you're not going to have time to do stuff'* (P4). One participant felt that they had to be a typical university student, even though they didn't really know what that meant:

> *But I did also find it a bit difficult, um sort of coping with the lifestyle part of things, because I didn't really know anyone who had ever been to university, like properly. So, in my head, it was like what you had to do was go out loads and you had to fit in with everyone (P6)*

A number of participants also mentioned initial difficulty in '*cooking [their] own meals or budgeting properly*' (P10), described as '*normal things which every student has to do, and that's just learning life, like cooking, cleaning*' (P11), and made particularly difficult because of the heavier workload and additional responsibilities being a medical student in comparison to other students in halls. At exam time this could become particularly difficult for participants:

It's like you don't have time to cook, so, you're eating really badly, and your

diet is bad, so, you feel bad, and then you'd like, you hadn't done your laundry,

so, you feel disgusting, and your room is messy, so, you feel disgusting (P20)

One participant summed it up that '*everything that's hindered and difficult for a normal student is amplified for a med student because they've got less time to do it*' (P11).

This challenge was amplified further for those participants who hadn't had parents who had been to university to help prepare them for the experience. One participant from a sheltered background described the challenge of mentally still having '*all the restrictions that [they were] brought up with*' (P24) but being surrounded by students from different backgrounds and presented with lots of new experiences. Like another participant, they felt they '*were always a bit chaotic*' (P5) for a time.

All participants talked about these challenges in the past tense, suggesting that adjusting to living independently was a significant challenge of transitioning to university life, but one that they had to have overcome in order to progress through medical school.

Key messages from Theme 3 – Choice in university life:

- The choice of social network is vital for BM6 students, and while there was diversity in how quickly this network primarily consisted of other medical students, eventually all participants came to realise that 'you can't do medicine as a lone wolf'.
- There are many benefits to involvement with university societies and other voluntary extracurricular activities, but participants saw their choices limited by perceived risk to progression from competing priorities, medical school culture, and financial implications.
- The transition to living independently requires learning many new skills. Some participants felt disadvantaged by not knowing what to expect from university life.

Figure 6-4 Key messages from Theme 3

6.9 Theme 4: Managing external pressures

6.9.1 Money and employment

Money was a stress for most participants at some stage during medical training, and most frequently talked about external pressure, with one participant saying that '*[a lack of money] worried them more than the work'* (P2). Only a minority felt that they hadn't struggled, and all these expressed that they were '*very lucky'* (P23) in comparison to peers. Participants perceived medical training to be set up for students where '*the norm for them was the parents would pay'* (P9) and found there were a lot of '*hidden costs'* (P2) that were difficult to absorb:

> *So, at the start of the year there's the DBS check, which I think that's about*
> *£60. And then you've got £100 for transport, any fees and stuff that you've got*
> *to pay, to get a house. Because you have to do that very early if you want to*
> *get a house. I had to pay admin fees at the start, which was £150…Yeah, um,*
> *so it's just – it does add up. There are things along the line which add up and it*
> *does definitely take a toll if you're not getting – especially because, with*
> *student loans, you get it in chunks (P11)*

Participants discussed not getting travel costs reimbursed in later years for '*months and months*' (P2) leaving them '*counting the weeks'* (P2) until their next loan or bursary payment with little to live on in the meantime. Some participants described having to choose between paying rent and joining their BM5 friends on trips and trying out new experiences whilst at university:

> *I knew if I had gone on that I'd lose a month of deposit, a month of rent, so I*
> *couldn't do that, for example (P9)*

Money stresses changed through the participants' time at university. In the first year (Year 0) BM6 students received a small bursary alongside their student loans. With their newfound independence, some participants recalled spending this '*recklessly*' (P9) and not having to '*worry too much about budgeting'* (P4) and now regretted it. While some were able to gain control of this relatively quickly, one participant '*managed [their] money really, really badly'* (P10), and could not pay for the bus to university so stopped going rather than speaking to anyone about it. As a result, they missed five weeks and '*paid the consequences by failing exams'* (P10).

Money was discussed most by clinical participants who wished they had '*worked [for money] more in BM6'* (P16) and had been more careful with money in early years:

> *If I knew how hard it would be now, I would have saved more earlier (P6)*

All but one participant were resident in England and so fell under the English funding system in which medical students receive loans (and grants in the case of some clinical and graduate participants) from Student Finance England for the first four years of study, before being financed by the NHS after that[214]. Participants discovered that the amount of money they received was significantly lower once the moved over to NHS funding, finding that they got '*so little, it's ridiculous*' (P2) and '*just didn't have enough money in the last years*' (P22) to live on, with some ending up going all the way into their overdraft '*just to live*' (P24). Some early years participants mentioned being aware that this change was coming but weren't sure '*how to prepare when I need all the money I have now*' (P13) and feeling that the extent of the change was '*unknown and that's troubling people*' (P16).

Several participants discussed that the expectation from student finance or the NHS bursary of parental support was unrealistic in their circumstances:

> *They said, "We think that your parents have got enough money to give you,*
> *like, £2,000 a year." So, like, that, that's the recommendation, sort of thing, of*
> *an amount that they can give you. But they, they can't, they can't do that*
> *(laughs). So, yeah, it's been trickier this year. (P6)*

Many participants discussed not wanting to ask their parents for money even when they were '*broke*' (P4) as they were aware that their parents were not in a position to comfortably help. Some parents did '*help massively, which I'm very grateful for*' (P2), but participants often felt guilt as they believed that for '*other people, it's probably harder*' (P5). Whilst no participant explicitly talked about '*sending money home to support family*' (P16) several referred to friends who had been doing that, which added to their guilt when their parents helped them out. Another participant talked about eventually letting their parents '*help [them] out with the rent and that was the toughest*' (P9) but that '*it was [their] Christmas present in the end*' (P9) which helped them not feel so uncomfortable about accepting help.

A few participants mentioned the decision of whether or not to intercalate when discussing the financial pressures they were experiencing. One identified that if they were studying on the BM5 programme they '*probably would have intercalated*' (P12), but that because of the extra year it was '*just too much for [them] personally*' (P12), while an early year participant still considering their options identified an earlier move to lower NHS funding as a barrier:

> *But I want to intercalate… but because you just see a drastic decrease in the*
> *amount of money you get for fourth and fifth year…I think that's a potential for*
> *a problem to arise and affect your studies and everything else (P15)*

Only one participant had completed an intercalated degree, now a graduate, who had previously managed to save money from a *'well-paid part time job… and had some help from [their] mum'* (P23).

Not all participants worked in a paid job during termtime, because they *'didn't feel like they had the time'* (P17) or were *'struggling to keep up already'* (P2). However, these participants generally recognised that *'some people might not have a choice at all'* (P11) and looking back some wished that they had earned during some less intense periods of the programme such as in *'Year Zero, at least. Or third year with the project'* (P20).

Those who either chose or had to work often found the *'juggle'* (P6) of study and work a challenge. One participant who had previously not worked, but recently started a new job as an HCSW, said:

> *Finances, for me, are not so bad at the moment because I'm working. But*
> *that's like a double-edged sword because although I'm more comfortable*
> *financially, I also have more of a workload. Like, it affects my workload*
> *because I have less time to dedicate to it (P11)*

There was a general acknowledgement that it was hard to do both, but that sometimes *'[they] really needed the money'* (P13). Whilst some saw increased income as the *'only motivation'* (P4) for working, others identified significant additional benefits including *'preparing [them] to work full time after graduation'* (P13), being *'useful for communication skills, especially talking to difficult people'* (P18), and *'helping [them] so much in confidence'* (P6).

Participants were increasingly judicious in their choice of job as they progressed through the programme. While many worked in bars, at supermarkets, or in kitchens and care homes initially, often they moved to jobs as student ambassadors or bank healthcare support workers as these were more flexible around their clinical commitments.

6.9.2 Ongoing family responsibilities

Most participants did not have ongoing responsibilities to their family when at university, but for some it added an additional layer of complexity to their university experience.

Several participants were still expected or wanted to provide childcare for younger siblings during university termtime, and had been granted special considerations in regard to placement location in order to do so:

> *My brother with [medical disabilities], I looked after him, and sometimes in*
> *final year… he would come down, like relatively regularly… to give like my mum*
> *a bit of time as well… it was nice to see him. (P19)*

This participant and another agreed that '*it could be a bit difficult sometimes when you had a lot of work to do*' (P19) but that they '*wanted to give [their] parent at break*' (P14). Neither of them expressed any expectation of choice but were happy to help. One participant with a disabled parent also expected to spend their university holidays caring for their family and family home as they '*couldn't just sit around doing nothing*' (P16) while other family members were out at work. Again, this was stated in a matter-of-fact manner, as an inflexible part of their life and not something they had considered as unusual compared to their peers.

Other participants felt an ongoing responsibility to the parent who had sacrificed for them to be able to get to university, wanting to '*repay [their] dad for coming to the UK and leaving his family behind in such a difficult place*' (P10) or '*be there for important moments even though she's seven hours drive away*' (P11). Whilst the priority of peers may have been on university life and academic work, these participants would prioritise family over their independent life out of gratitude for what their parents had done for them.

Finally, some participants who were very close to their families felt a tension between the independence they felt they ought to desire whilst at university and the need they felt for their family. For one participant this conflict in feelings brought them to tears:

> *Family is so, like, the complete centre of my life. I didn't think [phoning home*
> *daily] was what people did. I thought once you were at university you, you*
> *know, you're off then. And (pause) I just felt so disconnected from who I was*
> *and who I used (pause) not what I used to be, but like (pause) I don't know (P6)*

Whether or not participants had formal ongoing responsibilities to their families, the way they spoke about them showed the relationship was a complex one, as discussed further in the next section.

6.9.3 Family pressure to succeed

Family pressure to succeed was a significant issue, but only for a minority of participants. It exerted its effect in different ways for different participants. For some it seemed to be an internalised feeling; there is no explicit pressure from families, but their pride in the participant's achievement creates a feeling of pressure for the participant themselves:

> *Yeah, they're really proud of me. And they can't believe I'm doing it. And I'm*
> *the first person to go to university, so they tell everyone, anyone, you know,*
> *the next-door neighbour's dog knows. Um, but (pause) they, I think they*
> *underestimate how much work it takes. (P2)*

This participant speaks a lot about how her parents are proud of her, but that they don't understand the rigours of being a medical student and cannot understand why she needs to study in university holidays. Not all participants responded to parental pride in the same way. Participant 5's family have the same attitude as participant 2, but for them, '*going home is always quite refreshing…it puts everything back into perspective, because they're all so proud of you*' (P5). Other participants don't have explicit pressure from families, but feel an unsaid pressure because of their background and journey to medicine:

> *I think I feel pressure because of definitely my origin. I've always tried to just*
> *overlook it and just forget about it…But coming from the place that I came*
> *from it's been quite difficult. And obviously I've had a lot of pressures from*
> *when I came from [country] to get here, the language and the social aspects of*
> *it and, I guess, dealing with the loss of a parent at a young age in high school*
> *and then the siblings you have to take care of. Because I'm the oldest, I feel like*
> *I've got to set the bar high. It's a pressure that I've put on myself. I think it*
> *keeps me going…. If you can help that one person, that will make a big*
> *difference and then just cause a cascade of light effect, you know, they do*
> *something good and then – yeah, I feel like that. (P15)*

Participant 15 sees how unique and incredible their journey to medicine was and feels the pressure of being a role model to others in their family and community and therefore the need to persist and succeed, regardless of how difficult they are finding medicine.

A few participants had extremely challenging home lives and getting into medicine allowed them to '*escape*' (P20) to an easier environment. For these participants, the family pressure to succeed came from a fear of the consequence of failure: having to go home when '*you can't really go back*' (P19).

For a minority, the pressure from families was explicit, and two of the participants stated that they were only doing medicine because they had been pushed into it by their families.

> *My parents are the ones that pushed me to do Medicine, so, I think I would*
> *have been more energised if I was doing it for myself, whereas I felt the*
> *pressure of having to make them happy and not engage in activities at Uni that*

they wouldn't want…When I failed a module my parents just blew it out of

proportion, they thought it was the end of the world kind of thing, because

they thought I wasn't going to pass (P20)

Doing medicine for their families meant that failure was an even more stressful outcome and caused problems both when at university and when at home visiting. As one participant noticed:

I've noticed that when I'm here, they don't really stress me out. When I go

there, I get angry, and I get stressed out about more than one thing. Because

I'm doing it for them (P4)

Despite the pressure some participants felt from their family, other participants were keen to explain that their family aren't a pressure in the slightest, but conversely are their biggest source of support, especially when they came from a culture '*that really values education*' (P14).

Key messages from Theme 4: Managing external pressures

- Money, whether earning it or not having enough of it was the most significant external pressure for almost all participants, with participants believing studying medicine was set up for people with additional financial support from parents.
- Balancing paid work and study was often a challenge, especially in later years of the programme.
- Family pressure to succeed affected participants through different mechanisms but was an added source of stress for some.

Figure 6-5 Key messages from Theme 4

6.10 Discussion

6.10.1 The transition to medical school

The overarching narrative in many participants' stories was one of paradox. Participants expressed contradictory ideas about the experience of being a BM6 student depending upon the angle that was explored. The liminal transition, discussed in the introduction to this chapter[206,207], was particularly challenging for students during the Year 0 and into the next couple of years, not as they navigated the transition from lay person to doctor common to all medical students[206], but as they navigated the transition from aspiring medical student to current medical student. A recent paper by Picton et al identified three transitions which medical students must navigate simultaneously on starting university: learning how to be a university student, a medical student, and a doctor[194]. Much has been written on transitions later in the medical degree programme, from pre-clinical to clinical practice[215-217], and later into clinical practice[198-200], but most of the literature on the initial transition comes from the wider body of HE literature[218], and little is specifically focused on medical students[217]. As a result, the literature primarily focuses on the first of the three transitions identified by Picton, that of learning how to be a university student[194]. A number of my study participants described initially struggling with this transition: socially, financially, or academically feeling out of their depth during the Gateway programme year 0, and or in the first year of the undergraduate medical programme, and found their learning and progress suffered as a result. Literature on student engagement in HE points to a complex interplay between wellbeing, self-efficacy, belonging and cognitive engagement affecting overall student engagement during their first year at university[218] and acknowledges that this may be constrained further by their structural context, such as being from a lower socioeconomic background with limited prior exposure to higher education[170]. These concepts were reflected in the data from my participants; Some who struggled with the transition to independent study and university life also disclosed a lack of belief that they '*deserved to be here*' and talked about family not understanding their day-to-day life. These challenges only declined as they developed confidence through passing exams and progressing through the programme.

6.10.2 The contradictory nature of belonging

As discussed in the literature review in Chapter 2, fostering a sense of belonging amongst students is recognised as vital to improve retention and success of students from all backgrounds[92]. In the early years, participants on the BM6 programme primarily appear to feel they belong to the BM6 programme, rather than to the medical school. Supportive BM6 peer relationships and meaningful interactions between BM6 staff and students[92] were frequently

discussed, along with the benefit of Year 0 in developing knowledge and easing the transition to medical school. This resonates with the findings of a recent realist evaluation of a one-year Gateway to Medicine programme which identified establishing supportive relationships with peers and staff as important mechanisms to successfully transition through educational environments and prepare them for the further transition to medical school[87]. However, despite universally describing the BM6 year 0 as a positive experience, many of my participants told stories of feeling that they were not a 'proper medical student' or didn't deserve to be there, even after progressing into year 1, suggesting they didn't feel that they belonged to the wider medical community, and many described this persisting beyond their year 0 experience.

Gateway programmes differ in the relationship between the Gateway year and the rest of the medical programme. In this case study, students are admitted on to a six-year programme – they complete the Gateway year 0 and then remain 'labelled' as BM6 students all the way through their time at medical school. Conversely, some Gateway programmes operate as one-year programmes separate from the undergraduate medical programme and either allow automatic or conditional progression on to the standard undergraduate programme (e.g. University of Aberdeen G2M programme), or enable students to apply for a place at a linked medical school (e.g. University of Bradford Foundation in Medicine programme linked to the University of Sheffield MBChC programme) [28]. Being admitted straight on to a six-year run through programme may have unintended consequences on the sense of difference experienced by the participants in this study, strengthening their identity as a community of '*BM6-ers'*, but maintaining a distance from the wider cohort, at least until they are mixed and dispersed on their clinical placements. In contrast, students on programmes such as the subject of the realist evaluation by Gibson Smith et al[87] gain a new identity simply as a 'medic' on entry to medical school after completion of their Gateway programme, and less sets them apart from other students from lower socioeconomic backgrounds on those programmes.

Beyond the early years, peers, faculty, clinical staff, patients, and friends outside of medicine all served to either increase or decrease participants' sense of belonging through a variety of mechanisms. Passing exams and performing well during clinical placements served to help participants begin to believe they belonged, while paid work and extracurricular activities were credited with developing skills and attributes that the participants believed necessary to successfully navigate medical school, increasing their motivation to persist. A master's thesis in 2015[86] evaluated students at this Gateway programme's sense of belonging through the lens of Lave and Wenger's 'Communities of practice' theory and found that the majority of students in the study expressed a reduced sense of belonging, were operating on the periphery of the medical school community or experienced stereotyping by the wider medical student body. My

results show a more nuanced picture. with participants describing a strong sense of belonging to the BM6 programme, even while belonging as a medical student was still developing. An increasing representation of BM6 students on medical society committees and especially having had a BM6 president of MedSoc helped participants see they could take a full part in the medical school community. Whilst many participants had stories of stereotyping by other students, faculty, or clinical staff, these instances were rare. Other participants identified the benefits their background brings to their interactions with patients, a hope articulated two decades ago by the GMC in arguing for more cultural concordance between the medical workforce and their patients[50].

All the participants in this study were now progressing well through medical school and beyond, though many had experienced a difficult time at an earlier stage of their university career: failing exams, suspending their studies, and repeating years, which echoes the findings from chapter four that BM6 students were much more likely to need to undertake supplementary exams or repeat years than their peers. Participants found the motivation to keep going despite being challenged by the difficulty and intensity of work expected, the financial burden experienced by many, and a fluctuating but enduring sense of difference. Motivating factors varied widely, but for each participant I could identify some internal belief, desire, or fear, as well as external supportive relationships on which their progression or 'keeping going' relied. As the ecological thematic map illustrates, changing and developing relationships influenced all spheres of the participants' lives. How they made sense of what was happening to them and took control to influence their circumstances seemed to impact their journey as their thoughts, behaviours and experiences interacted with the people and processes around them.

6.10.3 Social cognitive theory, self-efficacy, and enacting agency

Many theories have been proposed seeking to understand human motivation in relation to learning, shedding light on different aspects of the concept[219]. Social cognitive theory (SCT), introduced by Bandura in the 1980s, rejects a duality between human agency and social structures, and instead posits that human learning and performance '*is a product of a reciprocal interplay of intrapersonal, behavioural, and environmental determinants*'[220 p.165], features which distinctly appear in the narratives of the Gateway programme students presented in this chapter. SCT adopts an agentic perspective to the process of learning and development; students are able to intentionally influence their life circumstances to become contributors and not just products of them[221].

Investigating how students of health professions assert agency was identified by Varpio et al[222] as a 'significant omission' from current health professions education. Previously, research has examined students' progress and experiences through self-efficacy beliefs, another aspect of Bandura's SCT[157,223-225]. Self-efficacy is a person's belief in their ability to succeed and is developed through interpreting information from previous performance, observing other people, verbal support and encouragement, and their emotional and physiological state[157]. Research has presented positive correlations between self-efficacy and academic achievement, hypothesised to be mediated through an increased belief in the probability of success and therefore increased persistence[224,225]. Self-efficacy has a foundational role in agency as belief in ability is a key determinant of how people will behave[226]. Agency, however, is the enacted capability of individuals to make choices which will change their lives[227]; students may believe they have the ability to succeed, but are they able to act in ways which ultimately lead to success?

Bandura's model of triadic reciprocal causation explains behaviour as a reciprocal interplay between personal factors, behavioural patterns, and the environment of the learner, represented in figure 7.5.
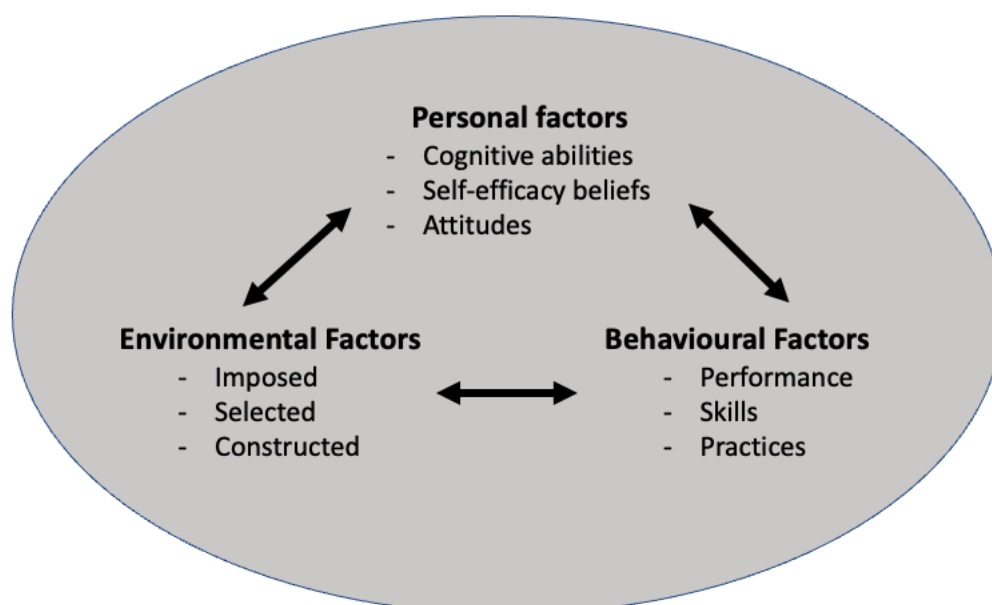
Figure 6-6 Bandura's triadic model of reciprocal causation

Reproduced from Verdin and Godwin[228]

SCT distinguishes between three environmental levels: the imposed environment, selected environment, and constructed environment[229]. Gateway programme students have no control over the physical and sociostructural environment in which they find themselves when embarking on the BM6 programme, but according to Bandura they have flexibility in how they understand

and react to it[229]. Students' choice of activities, social networks, the places they spend their time become their selected environment, and their constructed environment depends on their efforts to influence social environments and institutional systems, often in concert with others. These different levels of environmental structures require students to exercise increasing levels of agency which in turn affects the reciprocal relationship between their environment, behavioural and personal factors.

Much other research on human agency has centred on how personal agency can be exercised as an individual[221]. In contrast, SCT differentiates between three modes of agency: individual, collective, and proxy where collective agency uses collective action and group understandings to effect change, and proxy agency relies on the efforts of an intermediary acting on behalf of the individual[221,229]. Successful functioning requires all application of all three of these to achieve a successful outcome[230].

<u>Exercising individual agency as a Gateway programme student</u>

Bandura recognises four core properties of human agency: intentionality, forethought, self-reactiveness, self-reflectiveness[220]. The achievement of an outcome (successfully navigating medical school to graduation) involves acting intentionally, with forward planning to anticipate likely outcomes and use them as a guide and motivator for current behaviour. Agentic action then also requires students to be self-regulators, constructing courses of action and adjusting as necessary through functional self-awareness[220,231].

The extent to which participants in this study exercised individual agency varied widely. Some participants described significant changes in their approach to medical school after periods of struggling to adjust to transitions. In these cases, increasing confidence led to increases in a sense of belonging and therefore self-efficacy, which interacted with behavioural factors to allow students to enact more agency by changing study strategies and other behaviours. In other cases, believing that they '*deserved to be here*' helped students to modify their selected environments by joining societies or adjusting their social networks, employing self-reflectiveness and self-reactiveness to change their course. Those who had done this effectively seemed to talk less about the difference they felt from other medical students, and more generally about the experience of being simply 'a medic'.

The aspect in which participants showed most exercise of individual agency was with regards to finances. All participants had made deliberate choices with regard to the course of action they believed most likely to allow them to finish medical school. Whilst participants had no control over the amount of financial support they received in the form of loans, and little influence over

familial support, they all made deliberate choices over the form, quantity, and timing of the paid work they chose to undertake alongside their studies.

Collective agency and the medical school community

The effective exercise of collective agency requires collective intentionality[220]. The data showed a clear sense among Gateway programme students that '*you can't be a lone wolf*' in medicine, that doing things together is the way to get through medical school and change the culture to become more inclusive of students from diverse backgrounds.

> *'Many of the things [people] seek are achievable only by working together through interdependent effort. In the exercise of collective agency, they pool their knowledge, skills and resources, and act in concert to shape their future'[220]*

Historically, the exercise of collective agency for Gateway programme students may have been hampered by their collective understanding of the way they are perceived by others. Most participants had had almost universally positive experiences of '*being a BM6*' student when relating to other people in the medical school; very few individuals had had more than one or two negative experiences, and some had had none. Despite this, a deep sense of difference from 'the norm' pervaded the collective experience of Gateway programme students, especially those who were new or had already graduated. Incidents such as when a participant recalled being told by a faculty member that BM6 students were notoriously bad at MCQ exam questions spread widely and contributed to a sense of being 'less than'. Many participants described not integrating with new year one students but maintaining their exclusively BM6 social circle, maybe because it felt easier and allowed students to avoid feelings of being different. Bandura emphasises that '*perceived collective efficacy is not simply the sum of the efficacy beliefs of individual members*'[232], a perspective I see playing out in the lives of the participants. As students act on the shared belief that they are different to what is expected of a 'normal medical student', their behaviour unintentionally reinforces this idea to others.

'Trusting the system' and proxy agency

Gateway programme students do not have direct control over all conditions and practices which will influence their progression through medical school. In these cases, they must trust others in their environments such as university staff, other students, and clinicians to act as their proxy agency, creating the conditions in which they can meet their goals. The participants in this study had a strong belief that the faculty they encountered during their year 0 were entirely 'on [their] side'. The support and advice participants received during this time was remembered by

participants at all stages of training as significant in helping them successfully navigate their first transitions in medical school. Conversely, the experiences shared by participants who had negative interactions with clinicians on account of their socioeconomic or cultural background suggest that not all interested parties are acting as agents for these students.

Full participation in the medical school community and a feeling of belonging was more developed in students who joined the university later, potentially because of the visibility of other Gateway programme students within the medical school community. Research has shown the importance of relatable role models in fostering a sense of belonging among students[157] and having other Gateway programme students in significant roles such as president of the 'MedSoc' may reassure other students from under-represented backgrounds that these societies will be considering them in their actions.

6.10.4   Conclusion

This chapter aimed to explore how the thoughts, behaviours and experiences of Gateway programme medical students influence their progression through medical school. I have identified that their progression through medical school is largely a product of the interaction between their relational, economic, and academic choices and interpretation of experiences, together with their ability to exercise agency over their medical school journey. This is rarely linear, with peaks and troughs of confidence, identity formation, and self-efficacy beliefs broadly mirroring points of transition. However, there is not one unique experience for Gateway programme students, as they are a heterogenous group from diverse backgrounds.

Exploring the experiences of Gateway programme medical students through an agentic lens gives a new way of understanding their often-conflicting experiences as they seek to exercise agency in a space which is not yet fully accepting of the diversity they bring. Gateway programme students perceive benefit from the additional support and identity they gain as BM6 students, but still struggle to fit in with the prevailing culture of the medical profession. The next chapter will apply these findings to the bigger picture of Gateway programme student progression and success, suggesting a need to support students more thoroughly through points of transition and help them develop skill sets to deal with feelings of uncertainty.

6.11 Assessing quality in qualitative research

In assessing the quality of a qualitative study, qualitative researchers suggest that it is necessary to move away from positivist assessments of validity and reliability, to a broader understanding of 'quality'[41 (p470)], or at least that the terms must be reframed within the ontological and epistemological context of the research[185]. I am not pursuing the 'right' interpretation of data, but one that is well justified and congruent with the data collected[185]. Different qualitative researchers, using different methods, assess quality with different terms and concepts including 'trustworthiness', 'authenticity', 'goodness' and 'rigour' and many frameworks or lists of criteria have been advanced to facilitate this process[43,233,234]. Whilst some have contended that frameworks are limited in their applicability to the wide variety of research paradigms in qualitative research[234,235], for novice researchers they are an instrumental tool in moving towards an assessment of whether or not research is 'good research'[235]. Much of the modern development within this field started with the work of Lincoln and Guba in the 1980s, and their assessment of rigour, which they call 'trustworthiness', is still widely used today[234,236,237]. In this section I apply their criteria to explain what I chose to do and not to do within the qualitative strand of this study (covering the work of both Chapter 5 and Chapter 6).

6.11.1 Lincoln and Guba's criteria for assessing quality

Table 6-2 summarises the criteria Lincoln and Guba proposed for assessing the trustworthiness of qualitative research, sometimes called their four-dimension[236] or parallel[237] criteria.

Criteria and purpose	Questions to ask in assessing a study	Potential strategies to ensure criteria is met
Credibility To establish confidence that the results are true, credible, and believable.	How well does the study capture and portray the world it is trying to describe? How well backed up are the claims made by the research? What is the evidential base for the research? How plausible are the findings? Does the study show alignment between theory, research question, data collection, analysis, and results?	Prolonged and varied engagement with the setting Use effective interviewing process and techniques Establish investigators' authority Collection of referential adequacy materials Undertake peer debriefing Negative case analysis Member checks Triangulation

Transferability To extend the degree to which the results can be generalised or transferred to other contexts or settings.	Was the quality of questioning effective for participants to fully express their views? Have the phenomena been identified, categorised, and named in ways that reflect the meanings assigned by participants? Is there sufficient internal evidence for the explanatory accounts that have been developed? Have the findings been portrayed in a way that remains true to the original data and allows others to see the analytic constructions which have occurred?	Use purposeful sampling to form a nominated sample. Reach data saturation. Use thick description
Dependability To ensure that another researcher could follow the steps given and carry out the same study, gaining similar findings within the same cohort of participants and context.	Was the sample design/selection representative of the target population? Was there any known feature of non-response or attrition? Was the fieldwork carried out consistently? Was the analysis carried out systematically and comprehensively? Is the interpretation well supported by the evidence? Did the design allow equal opportunity for all perspectives to be identified or were there features which led to selective coverage?	Provide rich description of the study methods Establish an audit trail of data collection and analysis Perform stepwise replication of the data
Confirmability	Is there a clear link between data and findings? Are claims evidenced with the use of quotes? Do the research findings relate to the wider body of literature? Do the research findings answer the research questions? Are limitations of the study made explicit?	Implement reflexivity throughout the study process Use triangulation methods

Table 6-2 Applying Guba and Lincoln's 4-dimension criteria

Reproduced and collated from Lumsden[234] and Forero et al[236], with additions from Enworo[237] and Stenfors et al[238]

6.11.2   Applying Lincoln and Guba's qualitative research trustworthiness criteria to this study

<u>Credibility</u>

Prolonged engagement with the setting: One advantage of the length of time it has taken to complete this PhD is that it has enabled me to have prolonged and varied engagement with the setting, continuing after data collection has finished. As a result, I am more familiar with the wider conversations in Medical Education and with the current cohorts of BM6 students, helping me to identify how the specific findings of this study are relevant beyond those cohorts.

Use of effective interviewing process and techniques and establishing the investigator's authority: As a novice researcher when beginning this PhD, I can identify how my skills have developed. I attended a three-day course run by researchers from Oxford University's Medical Sociology and Health Experience Research Group on qualitative interviewing and analysis techniques[239], as well as in-house training at the University of Southampton which gave me the skills necessary to undertake this research. The piloting process I carried out of the qualitative interview protocol was invaluable to both help me develop a more streamlined structure and to integrate a phenomenographic approach to thinking about success. However, when reading and analysing the data from the subsequent interviews, there were many points when I wished I had asked a follow up or more probing question. My inexperience during the initial stages of data collection was definitely a limitation, and I suspect I would collect richer data if I were collecting the data again at this end of the learning process.

Collecting referential adequacy materials: This requires the researcher to collect but not analyse a portion of the data. After the development of preliminary findings, this data can then be analysed deductively using the preliminary thematic map to test its validity[240]. I was unable to do this in its pure form as I would have had to collect more data than I needed for the study to use it only as referential adequacy material, and as discussed recruitment was difficult, so I needed all data for the original analysis. However, the iterative nature of the reflexive thematic analysis process encompassed a modified test of referential adequacy with precedence in other research[241] by ensuring I regularly returned to the raw data to test the fit of my developing themes.

Undertake peer debriefing: Peer debriefing allows outside researchers the opportunity to review and assess both the research design, as well as transcripts and the initial analysis in order to assess the credibility of the analysis[242]. Ideally this should be someone entirely unrelated to the research process, but this isn't always feasible with a PhD project. Instead of peer debriefing, in my research project, this included sharing the development of my methodology and

interpretations with my supervisory team and other experts and acting on their advice, and in presenting my work at appropriate conferences. Additionally, my ethics applications were peer reviewed by researchers in the faculty outside my supervisory team. As a lone PhD researcher in the department of medical education for the first three years of my studies, I acknowledged early on that this was a disadvantage in the development of my skills and so sought out opportunities to join students from the School of Education in their regular meetings and workshops. This gave me the opportunity to share some of my early analysis with those outside my team.

Negative case analysis: This was another method I used to enhance the credibility of my analyses[41 (p478)]. Within the phenomenographic analysis, this involved searching out ideas expressed in the data that contradicted the emerging categories of description and ensuring that the final categories completing the outcome space articulate the whole variety of understandings, and not just the dominant ones.

Member checks: I didn't choose to use member checking of results with participants[41 (p477)] as a method of ensuring quality for two reasons: First, my interpretation is based on the collective data set rather than individual participant's utterance and therefore it should not be possible to comprehend the interpretation of a single interview without an appreciation of the whole; second, an assumption in both case study research and phenomenography is that a participant's experience of the phenomenon under study is context specific and may therefore change over time[36,185]. The understanding they expressed at interview may not be what they are now experiencing.

Triangulation: Triangulation involves combining theories, methods, or observers in a single study[243]. As a single postgraduate researcher, I couldn't triangulate between the observations of different researchers in this study. However, I have used triangulation between quantitative and qualitative datasets and the two different analyses of the qualitative dataset to explain differing aspects of the phenomenon of interest, that of Gateway programme student progression at medical school. Whilst each approach answers questions about different aspects of the phenomenon, I have combined them in the following chapter. This also relates to the concept of integration discussed in section 7.3.

Transferability

Use purposeful sampling to form a nominated sample: I have explained the process of research design development in section 5.2.1, leading to recruitment of a maximum variation sample within the BM6 cohort, the goal in phenomenographic research[180]. My sample is purposive in that it contains participants from all years of the programme and both years of recent graduates, as

well as including participants from a variety of ethnic backgrounds. However, as I was reliant on self-identification of participants from a relatively small pool and needed to use snowball sampling to recruit a large enough sample, it was not a nominated stratified sample decided prior to recruitment. As a result, there are some groups of students, for example white women in the early years of the BM6 programme, whose distinct voices are not heard in the research.

Reach data saturation: Data saturation is a theoretical point at which no new themes or codes are being developed as new data is analysed, also known as information redundancy[41,244]. It is a commonly used but increasingly controversial concept in some qualitative research traditions. Initially I planned to attempt to reach data saturation in this study, mentioning it in the sampling decisions explained in my ethics application. However, as my understanding has progressed, I have come to agree with the perspective of Braun and Clarke (developers of the reflexive thematic analysis technique employed in this chapter), that discussing 'data saturation' as a possibility is not consistent with the epistemological values and assumptions of reflexive thematic analysis[244]. Instead, my decision to stop data collection was informed both by believing that the data I had collected was adequate in richness and complexity to address the research questions[244] and a pragmatic decision that the challenge of recruiting more participants would not be likely to change the thematic map in any significant way.

Thick description: As well as contextualising the results of this study in the discussion sections, I have provided details of the case study context to provide a thick description of the study and allow readers to understand the context and assess its transferability to their own contexts.

Dependability

Provide rich description of the study methods: I have written a thorough explanation of the underlying methodology (Chapter 3) and the qualitative study methods (sections 5.2, 5.3, 5.4 and 6.3) as well as providing copies of the ethics applications, participant information sheets and interview protocol to give enough information for other researchers to replicate the study in other contexts.

Establish an audit trail of data collection and analysis: By keeping a field journal I created an audit trail of the steps I took in data collection and analysis. I also systematically reviewed the transcripts against the audio files to ensure their accuracy. This was supplemented by meeting notes from supervisory meetings and three-monthly updates provided to the university, the results of which show the development of the study over time.

Perform stepwise replication of the data: Stepwise replication of the data measures inter-coder reliability, a quantitative measurement of agreement between separate coders of the data. This

type of reliability checks is not consistently used within qualitative research methods as a method of pursuing authenticity in interpretation as they have an underlying philosophical realist assumption[42,185,245]. Despite this, there were obvious benefits to doing so as a novice researcher and checking my coding and interpretations with others as I went. Consequently, my supervisor also coded two of the transcripts and through a dialogic reliability check process and wider supervisory team discussion we came to agreed decisions on codes and then themes identified. We were not aiming to identify objective agreement of a 'correct' interpretation or a measurement of coding agreement but to increase confidence in the credibility and dependability of my interpretation.

<u>Confirmability</u>

Implement reflexivity throughout the study process: Throughout the data collection and analysis process I kept a reflexive journal and field notes to record my thoughts and feelings about the data and interviews (an example is provided in Appendix E), and regularly discussed the feelings it was bringing up with both my supervisors and other colleagues. During the writing up process I have attempted to make this explicit through my writing in section 1.6.

Use triangulation methods: See discussion earlier in this section.

This process has highlighted to me the variation in ontological and epistemological assumptions underpinning the creation of checklists of quality, and the necessity to critically examine one's own assumptions while assessing and making choices about our work to ensure alignment between underpinning assumptions, research questions, data collection, analysis, and results.

Chapter 7   Lessons learned about Gateway programme student progression through medical school

7.1   Summary of findings

The overarching research question guiding this thesis was *'How do medical students on a well-established Gateway programme progress through medical school?'*. In this chapter I consider how this has been answered by first reviewing the findings of this study in the context of the literature exploring the experiences of widening participation medical students. I then outline the limitations to the research design used and consider how these might have been overcome to expand the scope or quality of the data presented. I make some suggestions for policy and practice based on the outcomes of the thesis and explore possible future research. The main findings from the previous chapters are summarised in table 8-1 below.

Research question	Main findings
To what extent do Gateway programme students differ from standard entry students with regards to student performance in assessments and progression rates?	- BM6 students are markedly more diverse than BM5 students regarding age and ethnicity with students being older on average, having fewer white students and more Asian and black students. More BM6 students come from areas of high deprivation and low HE participation rates, and fewer students have attended a private or grammar school. - BM6 students have slightly lower mean academic achievement at almost all exam points throughout medical school, but there do not seem to be particular types of assessment in which this difference is more or less marked until the final year. - There is no statistically significant difference in achievement in final year in-placement assessments of clinical competence, - There is a statistically significant difference in progression rates between BM5 and BM6 cohorts after the first clinical year, suggesting that BM6 students find the transition from pre-clinical to clinical learning challenging.
In what qualitatively different ways do Gateway programme medical students conceive of 'success' at medical school?	- Gateway programme student conceptions of success change as they progress through medical school into independent practice. - Those earlier in the programme or interviewed just before significant assessment points were more likely to equate passing exams with success.

Table 7-1 Summary of main findings from Chapters 4-6

Research question (cont.)	Main findings (cont.)
(cont.) In what qualitatively different ways do Gateway programme medical students conceive of 'success' at medical school?	- In general, passing exams was not considered to be enough to constitute success at medical school. For many participants, their sense of being successful came from a unique personal achievement which had been accomplished whilst at university. - Graduates and those approaching graduation were more likely to equate success at medical school with developing the skills and attributes to be a good doctor. - A well-developed but minority view prioritised happiness and contentment over everything else.
How do the thoughts, behaviours and experiences of Gateway programme medical students influence progression through medical school?	- All medical students must contend with the liminal transition from lay person to doctor, but Gateway programme students find the transition from aspiring medical student to current medical student particularly challenging as they reconcile their identity as a medical student with other competing identities. - As students experience achievement (whether in academics or more broadly) they develop confidence, and this confidence is important in fostering a sense of belonging. - Participants had a strong sense of belonging to a 'BM6 family', but the sense of difference they had outside this was variable. Despite a preponderance of positive experiences, one off negative experiences with other students, faculty or clinicians had significant impacts on participants' sense of belonging. - Participants recognised many benefits to involvement with university societies and other voluntary extracurricular activities, but saw their choices limited by perceived risk to progression from competing priorities, medical school culture, and financial implications. - Money, whether earning it or not having enough of it was the most significant external pressure for almost all participants, with participants believing studying medicine was set up for people with additional financial support from parents. Balancing paid work and study was often a challenge, especially in later years of the programme. - Interpreting these findings through a lens of agency, I identified that progression through medical school is largely a product of the interaction between participants' relational, economic, and academic choices and interpretation of experiences. This was rarely linear, with peaks and troughs of confidence, identity formation, and self-efficacy beliefs broadly mirroring points of transition.

Table 7-1 Summary of main findings from Chapters 4-6 continued from previous page

7.2 The experience of being a Gateway programme medical student in undergraduate medical education in the UK

7.2.1 Social integration of the BM6 'family' and developing a medical student identity

Chapter 4 – Academic progression	Chapter 5 – Student conceptions of success	Chapter 6 – Navigating medical school
BM6 students are older, more ethnically diverse, and from more socioeconomically deprived backgrounds than BM5 students.

More than three quarters of BM6 students are the first generation to go to university. | Success is having friends and enjoying university and medical school life.

Success is integrating into a social community where historically it would not have been a possibility. | BM6 students describe '*living between two worlds*'

After a positive year 0, participants did not willingly disclose to wider community that they were on the BM6 programme.

Early friendships with medics outside the BM6 'bubble' tended to be based on a shared cultural background.

Integration with the cohort increased after starting clinical placements. |

Table 7-2 Joint display table showing outcomes related to the social integration of participants

A key theme that runs through the qualitative chapters is that of the perceived importance and challenge of integration with the wider medical school community, displayed as a joint display table above (table 7-2). I identified that BM6 students are sociodemographically different from the average student on the standard entry programme; an expected and reassuring finding given the purpose of Gateway programmes. Participants were aware of these differences, and aspects of the effect of this marked their interviews in many places especially when discussing specific pressures such as feeling unprepared for academic demands[246,247], feeling inadaquate[248,249], experiencing pressure from family[250] and financial difficulties[164,251], all also recognised in the wider literature among different WP groups. Whilst there is extremely limited literature exploring these conceptions in other Gateway programme students, the literature exploring experiences of other types of WP student in medical education was summarised by Krstić et al[96] in a 2021 qualitative systematic review. Most of these studies focused on students from ethnic minorities, with representation of mature students, those with disabilities, some from low socioeconomic backgrounds, and a few first in family students[96]. The students in this case study were primarily eligible for the BM6 Gateway programme due to their lower socioeconomic status. However, the

basket of measures used to assess WP status ensured a diverse mix of students, who were older and more ethnically diverse than the those on the traditional entry programme, with more than three-quarters being from the first generation to attend university in both the quantitative and qualitative cohorts.

Despite the fact that none of the studies discussed by Krstić et al[96] were focussed on students on Gateway programmes, many of the aspects of WP student experience discussed were echoed by participants in this case study. Studies in the systematic review commonly reported WP participants primarily socialising with those who had similar backgrounds to themselves because they had experienced shared adversity and perceived benefits of stronger bonds due to that shared background[96,164,252]. In my participants, this was even more defined, perhaps due to the year they spent as a small cohort before joining others, and those who discussed early friendships with medical students outside the BM6 programme identified that shared experiences of background were important, as in the similarity-attraction hypothesis[253]. Going deeper, the idea of family was used to describe the Gateway programme cohort; students feel an affinity and belonging to the group so strong that it is not described as close friendship, but something more than that. This 'family' creates an important sense of belonging for participants, which they did not all experience when connecting with other medical students. Similarly to the findings reported by Krstić et al[96], the participants in my study talked about a feeling of 'otherness' and difference from traditional entry medical students. However, unlike students in the literature who reported feeling excluded by those from more traditional backgrounds[249], many of the participants in this study identified that most of the sense of difference they experienced came from their own beliefs and attitudes, and that when they interacted with other students their sense of difference decreased. This was particularly evident in participants in the clinical years who tended to report more integration with the wider medical school community, discussed further in the next section.

Previously discussed is the identification by Picton et al of the three simultaneous identities medical students must develop upon starting medical school: Learning to be an university student, a medical student, and a doctor[194]. For Gateway programme students this middle identity may be divided further: Learning to be a Gateway programme student and learning to be a medical student. Starting at university requires Gateway programme students to learn the skills to live away from home, whilst also becoming 'a Gateway student' and assuming a strong affinity for the group. At the same time, students are encouraged by faculty and university structures to think of themselves as medical students or even doctors[254,255], even while they themselves are not sure that they truly belong. Strengthening their identity as a medical student and future doctor requires the development of a professional identity, in this case, that of a medical professional in

training, which has been identified to have important implications in influencing learning and future professional practice[254]. Different theoretical perspectives have been explored to understand this, including the social-cognitive approaches of social identity and self-categorisation theories[256,257]. Social identity theory posits that that people transition through multiple social identities as they move into different social groupings, whilst self-categorisation theory explores the shift from individual identity to identifying as part of a group with a shared identity[256]. Gateway programme students experienced multiple barriers to navigating the shifts through these competing individual and group identities in order to see themselves as part of the 'medical student' or 'doctor' group, which in turn hampers their professional identity development in their early years.

Conflict for WP students between their personal and the medical school cultures during the process of professional identity development is noted in the literature[96] and was apparent in the stories of some participants in my study, one of whom likened the experience of integrating into the medical school culture to the '*discombobulation*' of being a teenager and doubting their identity. The identity conflicts described by participants in this case study particularly revolved around language, accents, and money, as well as the new experiences they had during training that separated them from their previous group identities. For some WP students, embracing their new medical student and future doctor identities means a growing social distance from their families. Social exclusivity, i.e., socially identifying primarily with others of the same group, is associated with the development of a strong professional identity, and usually linked to a social segregation between medical and other students[256,258]. However, for Gateway programme students, this felt distance extends to their original social groups and family. They feel that they are '*living between two worlds*' as their home communities notice they sound different or they themselves are aware that they are changing as a result of the experiences they are having that their family do not understand. For some, this gives rise to the fear that *'if it all gets ruined'* and they fail, return to their previous life will be difficult and leaves them in a precarious position during the liminal transition of assuming the identities of medical student and future doctor.

Social exclusivity is further established in the way medical students primarily socialise with one another. While some Gateway programme students espoused benefits to having a social circle outside medicine, most identified that '*you can't do medicine as a lone wolf*' and like other students[256], admitted they did not know many students outside medicine, sometimes even outside the BM6 cohort. Medical students have historically prided themselves on a 'work-hard play-hard' attitude to life, extending to a renowned liking for alcohol[259]. However, a number of participants in my study identified alcohol consumption at medical school events as a particular barrier to socialising, aligned with previous research suggesting that this exacerbated poor

integration for those for whom it is forbidden or frowned upon[13,215,216]. The sociodemographic profile of Gateway students means that a higher proportion of these students are from cultures or religious backgrounds where this is the case and work must be done to ensure it does not persist. In my study, participants who started medical school later identified that broader representation of different backgrounds and seeing WP role models in medical student committee positions has moved the conversation on so that this is becoming less of issue for the majority in earlier years of their training. However, for other participants the perception persisted even if the reality did not, and so continued breaking down of barriers relies on continuing education and the representation of these groups on medical student committees.

7.2.2 Clinical placements and the hidden curriculum

Chapter 4 – Academic progression	Chapter 5 – Student conceptions of success	Chapter 6 – Navigating medical school
Highest non-progression rates occur in year 1 (joining the wider cohort) and year 3 (transitioning to clinical learning). Lower average academic achievement at all assessment points *except* final year assessments of clinical competence	Conceptions of success develop over time to become more holistic. Success becomes: Passing exams and +++ Feeling competent Becoming a 'good' doctor	Sense of difference from a standard entry student diminished over time as participants passed exams and entered the clinical phase.

Table 7-3 Joint display table showing outcomes related to Gateway students' clinical learning

The move to clinical placements with increased patient contact and a different style of learning appeared to mark a turning point for many participants. The quantitative analysis identified that some Gateway programme students found this a more challenging transition than the standard entry cohort on average, with a statistically significantly lower proportion successfully progressing after the first clinical year. However, for those who manage the transition academically, it appears to be an important point at which many students begin to feel that they belong and consider themselves to be '*a medic*' rather than '*only a BM6 student*'. Additionally, after this transition students' perceptions of success often develop towards a more holistic view beyond passing assessments to include conceptions such as feeling competent or becoming a 'good doctor'. As students' timetables and place of learning changed, their need for other medical student contact increased, increasing their social exclusivity from other students at the same time as their exposure to medical professionals also increased. This may potentially speed up the process of integrating a professional identity by also increasing professional and peer inclusivity[256,258,260].

Additionally, by achieving progression to this point of the programme, students validate their self-identity as a medic because they are passing exams and '*able to manage a large workload and deal with pressure*'[194], which they believe is true of a '*proper medical student*'.

Despite this increased identification and integration with the medical student cohort, participants identified that learning on placement could be difficult when they didn't know how they would be received by staff. Learning on placement occurs not just through meeting formal learning outcomes and observational learning[261], but also through the hidden curriculum. The hidden curriculum refers to unplanned, often unarticulated and sometimes unintended learning of knowledge, values and insight that occurs outside the formal taught curriculum but which contributes positively or negatively to students' conceptions of what it means to be, behave or think like a doctor[262,263]. This can be through positive interactions and doctors role modelling authentic human connection with both their patients and students[264], empathy, resilience or perseverance[265], but more often in the literature it is characterised through demonstration of power and hierachy[264], apathy, aggressive communication[265] or an erosion of empathy[262]. For WP medical students who are still negotiating their multiple identities of Gateway programme student, medical student, and doctor in training, subtle, or not-so-subtle, value-laden messages are learned by students about who is part of the accepted 'in-group' are an enduring consequence of the hidden curriculum. Explicitly negative interactions with clinicians were rare for my participants, but they still told stories of being ridiculed for their accent or because they had not learned Latin or because felt they couldn't contribute to break room discussions about holidays and skiing. Despite most participants having few to no stories of feeling othered or made to feel less than by clinical or academic representatives of the institution, the stories that were told had had an enduring effect and were widely known amongst the BM6 cohort. Similarities can be drawn from these experiences to other studies in which the effects of damaged trust between faculty and students due to discrimination resulted in the avoidance of help-seeking behaviour[246,248,252]. For the students in this study the effect seemed to be mitigated by having Gateway programme staff who knew them extremely well and continued to look out for them after they joined the larger cohort in their second year, so that participants felt they always had someone who would '*stick up for [them]*'.

7.2.3 Money as a barrier to full integration for Gateway programme students

Financial pressures were a significant point of worry and discussion for most participants. Training medical students is expensive, with the cost shared between a number of government departments and the students themselves through tuition fees[266]. As tuition fee levels have increased, the proportion of university revenue coming from students has increased[267]. At the

same time the financial burden for training is increasingly falling upon the student as available grants and loans are reducing or not keeping up with increasing living costs[214,268]. It is increasingly recognised that the drop in funding as students move from Student Finance funding to NHS funding in their fifth and subsequent years is a source of concern for students from many backgrounds, and leads to some failing to complete their degrees[269,270]. For Gateway programme students however, this challenge is exacerbated by moving on to NHS funding a year earlier due to their 'Year 0', or even sooner if they undertake an intercalated degree year or need to repeat any year of their degree. The quantitative results presented in 4.4.3 identified that Gateway programme students were significantly more likely to need to repeat years than standard entry students and therefore take on more student debt as a result of moving to NHS funding at an earlier stage of their degrees. I identified that the financial consequences of moving to NHS funding is anticipated with fear by early years students who feel out of their depth in knowing how to prepare for it, especially as many are learning to budget for the first time, as well as balance the desire to make the most of university sporting and social opportunities.

Discussion around intercalated degrees was notably minimal in the qualitative data I collected, only mentioned in passing by a minority of participants who stated they couldn't afford to take another year to complete their degree, either in time or money. Additionally, only one participant out of 22 had or were planning to intercalate, compared to about a third of medical students nationally[271]. Results of a survey of medical students published in 2010 revealed that more than half of those surveyed did not intercalate as they did not want to accrue more debt[271] and in the decade since then tuition fees and associated pressure on student finances have increased further. In a move to support students from less advantaged backgrounds unable to afford to intercalate, the UK Foundation Programme Office, who oversee applications and job allocations for newly qualified doctors, will no longer award students with intercalated degrees any additional application points from 2023[272]. Whilst this is a welcome move on one hand, intercalated degrees are often seen as the first step towards a clinical academic career[273], and there is some evidence that they may improve subsequent undergraduate performance[274], develop transferable skills and enhance post-graduation career progression[275]. Given these benefits of intercalation, perhaps a better approach to promote equity would be to provide additional financial support to Gateway programme and other disadvantaged students wishing to undertake an intercalated degree, rather than reducing the rewards for doing so.

7.2.4 COVID-19 and Gateway programme students

My data was all collected before the COVID-19 pandemic and so must be interpreted with caution in this 'post-pandemic' world with high inflation of food and living costs. However, in reflecting on

the impact of the pandemic on medical students, I believe it is even more important to implement outcomes from this research to further support students from WP backgrounds. When the COVID-19 pandemic began, medical schools cancelled in-person teaching and placements and as the country entered lockdown most students returned home to continue their studies. This created challenges and uncertainty for all students, but was exacerbated for those from lower socioeconomic backgrounds (and therefore Gateway programme students) who, according to research by the Sutton Trust, were less likely to have adequate access to internet and digital technology or to a suitable private study space[276]. In response to the rapidly changing educational interface and concern over the loss of placement time for medical students, many universities implemented novel methods using digital technology to simulate or aid clinical learning[277], but which may not have been accessible to all, especially those worried about maintaining patient confidentiality in a public learning space. In late 2020, Stetson and Dhaliwal articulated a concern that medical students adapting to new ways of learning away from the social influence of patients, peers, and teachers may not continue to advance their professional identity formation[278]. Whilst they identified alternative mechanisms by which professional identity formation could be advanced, they acknowledged that for some, the lack of access to the hidden curriculum may have led to the stagnation of some students progression[278], identified in my research as a possible mechanism for decreasing Gateway programme students sense of difference. A survey of UK medical students looking at how disruption from COVID-19 impacted professional identity formation concluded that the break in studies and perceived under-utilisation of medical students' skill sets amongst those who volunteered also created disruption to identity development[279]. To the best of my knowledge, there has not yet been any work specifically considering socioeconomically disadvantaged students in the context of COVID-19 and professional identity formation; given the importance I have identified of the hidden curriculum and socially mediated learning in the progression of these students, I suggest that further work is needed to explore this.

7.2.5 Challenging a deficit discourse

The experiences of Gateway programme students in this case study echo that of other types of widening participation students in the literature with regard to many of the specific challenges they face. A large proportion of what is discussed is framed to suggest a deficit in WP students compared to what is 'expected' as a medical student, and there is an absence of discussion around the benefits that WP students may bring to medical school communities[96]. Whilst participants in this case study talked a lot about the challenges they faced and their sense of difference, some also identified opportunities and instances where their background conferred

advantage in communicating with patients. Others discussed instances where their perspective introduced an alternative viewpoint to their peers, which they universally framed in a positive manner. These participants differed from WP groups discussed in most literature as they had the benefit of a year being taught as a distinct group. I have described some of the challenges this created in immediate integration with other students after that year, but perhaps it also conferred an advantage in allowing time for programme leaders to inculcate students with an understanding of the value they bring to the medical school community.

7.3   Critical reflection on the research design and process

The previous section outlined the contributions of this research by integrating its outcomes with the current literature. In this section I critically reflect on and draw out strengths and limitations to the research design. Quality of quantitative and qualitative research is usually evaluated according to different criteria. Furthermore, in mixed-methods research it is important to not only assess the quality of the individual quantitative and qualitative strands but also how they are brought together and integrated. This is important to ensure transparency in a field where essential principals are still unfamiliar to many[124,280] and in the past two decades, several researchers have proposed criteria or frameworks by which to do this[32,119,281]. However, criticisms of many of these lists of criteria is that they are too extensive or difficult to operationalise for new researchers[280,282]. In response to this, Hirose and Creswell[282] evaluated the literature on quality in mixed methods research and proposed a shortlist of mixed methods quality criteria which built on the work of Bryman[281] and Creswell and Plano Clark[32] and which I have drawn on to evaluate the quality of my research. The six core criteria they propose are:

1. Advance a rationale for the use and appropriateness of mixed methods methodology.
2. Write quantitative, qualitative, and mixed methods questions or aims.
3. Report the quantitative and qualitative data separately.
4. Name and identify the type of mixed methods design and present a diagram of it.
5. State the use of integration in a joint display.
6. Discuss how metainferences and value resulted from the integration analysis.

Core Criterion 1: Advance a rationale for the use and appropriateness of mixed methods methodology

This thesis explores the experience of Gateway Programme medical students and answers the question of how they progress through medical school through both a quantitative analysis of their academic progression and a qualitative analysis of their lived experience. As explained in section 3.3.7, this methodological approach allowed me to expand the breadth of inquiry in an under-researched field than either on its own could do. A qualitative investigation into the lived experience of students from widening participation backgrounds on Gateway programmes is valuable on its own in giving a voice to those historically marginalised, but by including the quantitative analysis of academic progression I could show that these students were demographically different to a standard entry cohort and had different challenges to progression.

Core Criterion 2: Write quantitative, qualitative, and mixed methods questions or aims

A strength of this thesis is the clear quantitative and qualitative research questions. RQ1 asked for a comparative analysis of performance in assessments and progression rates, which was addressed through quantitative analysis, while RQ2 and RQ3 asked questions of participants' thoughts and conceptions, best answered through qualitative methods. It would have been possible to answer RQ3 through a quantitative survey, but without the richness of participant quotes interpretation would have been limited. Finally, the overarching research question was a mixed methods question which required integration of the qualitative and quantitative strands.

Core Criterion 3: Report the quantitative and qualitative data separately.

The distinction between quantitative and qualitative data and its analysis is clear in this thesis, as I have presented the quantitative data in one chapter, and the two analyses of the qualitative data in another two chapters. I also separated the qualitative and quantitative methods from the methodology chapter and presented them within data chapters. The decision about how to structure the methodology and methods sections of this thesis has been challenging and gone through several iterations; a benefit of how it is now structured is that it makes very clear the distinction between the qualitative and quantitative methods and the overall mixed methods design.

This PhD has taken six years to complete and therefore the data in quantitative study is now relatively old, relating to cohorts starting in 2006-2011. These were chosen as cohorts which followed the same programme structure and undertook the same sets of assessments which allowed me to combine cohorts to create a large enough dataset to undertake meaningful analysis. Additionally, they had all finished or nearly finished their degrees at the point of analysis in 2018, allowing me to compare their ultimate degree outcomes. The qualitative dataset is newer, but due to both COVID-19 and my health circumstances the writing up process has taken longer than expected and many of the participants are now established in their medical careers. Consequently, the age of both sets of data limits their applicability and transferability to current cohorts, especially with the COVID-19 pandemic and an increasing cost of living crisis occurring in the intervening time.

Core Criterion 4: Name and identify the type of mixed methods design and present a diagram of it.

An overview of the case-study mixed methods design is presented in section 1.4 with a detailed development presented in section 3.3, making explicit the methodological decisions I had to make

in designing the modified convergent mixed methods core design, nested within an embedded single-case study[32-34]. I have presented the design in figure 1-3.

There are limitations to my use of this approach: as discussed in section 3.3.7.1, the decision to use collect data sequentially whilst using a modified convergent approach to complete the quantitative phase ahead of the qualitative phase was mostly practical, allowing me to complete the data collation, cleaning, and analysis of the quantitative data while I was learning about qualitative methods. It cannot be classed as a true explanatory sequential design as this requires the collection of qualitative data from the same subjects under study within the quantitative phase, in order to explain and expand understanding of the quantitative data[32]. Upon reflection however, consideration of using data pertaining to the same cohorts as were under study in the qualitative phase of the case study may have added additional value to the analyses I was able to undertake. Although Guetterman and Fetters describe using different data sets as a reasonable adjustment in case study-mixed methods designs[34], if the data concerned the same group of students I would have had more scope to further mix the results of the two phases. Because the datasets relate to different people, I have not been able to identify patterns in the quantitative data that might be explained by the insights from the qualitative interviews. This means that conclusions drawn from integrating the results must necessarily be more tentative.

Core Criterion 5: State the use of integration in a joint display.

The core idea of integration within mixed-methods results is that combining the results of both qualitative and quantitative may lead to greater insight than either one alone, quantitatively expressed by Fetters and Freshwater in the equation $1 + 1 = 3$[283]. Joint displays have emerged as a key method in representing integration of findings in a table or graph, occasionally with an addition of an interpretation of the comparison[282].

This is an area of relative weakness of my thesis. I have used joint display tables to address themes of social integration and of increasing attainment mirroring a decreasing sense of difference across the three data chapters, presented in section 7.2. In order to strengthen this aspect of the research design, I needed to consider the technique of integration earlier on in the research process, so that the questions I asked of the different datasets allowed increased development.

Core Criterion 6: Discuss how metainferences and value resulted from the integration analysis.

Hirose states that '*the word "metainferences" refers to the inferences drawn from the quantitative analysis, the qualitative analysis, and finally, the inferences that transcend both databases*'[282]. These can be inferences drawn from looking at data presented in joint displays, or by assessing

how metainferences connect with the existing literature. In order to be confident in this, it is also important to have confidence in the quality of procedures used in both quantitative and qualitative strands and therefore the inferences that can be drawn from their outputs. Consideration of the strengths and weaknesses of the qualitative data collection and analysis is assessed in section 5.5 of this thesis, and a brief reflection on the quantitative methods follows below.

I started this PhD with little knowledge of research methods. I had passion for the subject but was learning about the philosophical underpinnings of different research approaches from scratch. As a result, I embarked on the initial quantitative phase of the case study with little comprehension of how it might fit into the overall research design. There are several recognised limitations to the implementation of the quantitative methods employed in this study. The observational design of the quantitative element made it difficult to ensure that the groups under investigation were truly comparable, and that all confounding variables were accounted for[131]. Additionally, the relatively small sample size meant that most outcome variables needed to be dichotomised; losing the nuance a more exhaustive list of attributes for each variable would confer[284], and meant that the power was not sufficient to identify predictive variables. As the data was not collected specifically for the purpose of this study, and collated from multiple sources, not all the data of interest was available, and it is possible that the data was not all collected with the same level of rigour[132].

This thesis has integrated the use of case-study methodology with a mixed-methods design. The most frequently cited limitation of case study research is its unsuitability for producing generalisable results[35,103,111], but that instead it generates an '*in-depth, multifaceted understanding of a complex issue in its real-life context*'[111]. Readers cannot take the results of my analysis and assume it will be true of their students; if another case study was carried out doing the same investigation in a different institution, the results may (in fact most likely would) be markedly different. However, by contextualising my research outcomes in relation to relevant literature[46], I have made explicit the ways this thesis links to and extends the knowledge created in other research. In doing this I have aimed to produce knowledge which may be of practical use to those working in WP, especially those establishing and running Gateway programmes or other WP initiatives in medical schools.

7.4 Recommendations for medical schools and supporting bodies, and suggestions for further research

I have developed these recommendations from the key findings of my PhD. Consistent with the care needed in interpreting the results of case study research, these recommendations should be considered with reference to the context in which they might be applied.

When I started this doctorate there were five Gateway programmes in the UK; there are now 19, evidencing their popularity as a means for medical schools to respond to WP targets suggested by the MSC '*Selecting for Excellence'* group[11]. They are typically small but resource intensive programmes, the structure of which varies widely[285], and with little published research evaluating their effectiveness. The research I have presented in this thesis shows that many students on these programmes can and do successfully graduate and enter the medical workforce. Additionally, I have shared stories of their experiences identifying both challenges and achievements in navigating medical school after entering through one of these programmes. However, the resource commitment required by both the student and the institution is much higher for these programmes than other WP methods such as offering contextual admissions. As such, both the MSC and individual medical schools should consider the relative impact of a range of WP approaches to ensure that new and existing Gateway programmes are offering value for money for both the individual student and the institution.

Medical schools which run Gateway programmes should identify the particular benefits and drawbacks of their approach and consider strategies to overcome identified weaknesses: Enduring relationships with faculty staff with responsibility for the BM6 programme and investment in its students' success who continued to have a role in participants' education beyond the initial year are key supportive relationships for students, and appear to mitigate for some of the effects of negative interactions with other faculty or clinical staff. Gateway programmes should consider how these relationships can be continued in institutions where there is more separation between the Gateway years and medical degree programme, and what the implication may be for students if they find themselves unknown in a large cohort with no continuity of support. However, programmes like the one in this study should consider whether admitting students onto a run through programme instead may have negative effects for students' integration into the wider cohort, their sense of belonging, and belief in their ability to be at medical school. For some students there appears to be an ongoing sense of difference into the early years even after successful completion of year 0, and a continuing sense that they are 'lucky' or don't deserve a place. Work should be done to extend the realist evaluation of a one-year Gateway programme by Gibson Smith[87], integrating my findings from a different type of

programme further develop understanding into what works to create the most effective Gateway programmes. It maybe that there are benefits to students in participating in an informal selection process between year 0 and year 1 to help them develop confidence in their ability and readiness for the next stage of medical school.

Developing this, medical schools should consider the support they provide for Gateway programme students beyond their progression into year 1 of the degree programme. Transitions are points of risk for these students, with higher proportions failing to progress after transition years than on the standard entry programme. Interventions such as the 'life skills workshops' (see appendix A) initiated for these Gateway programme students can help increase students confidence, sense of belonging, and self-efficacy beliefs[157], however this should be balanced with the challenge of developing their sense of identity as a medical student, not just a Gateway programme student. Continuing with an exclusive programme of support may maintain this lack of integration as well as disadvantaging those on standard entry programmes also from WP backgrounds. It may be that opening up these interventions to others on the standard entry programme who identify as 'not from an advantaged background' could break down barriers between the cohorts and speed up the process of integration. Research in this area would give programme directors and educators more evidence for implementing appropriate student support measures. Additionally, participants discovered that when they established relationships with students from different backgrounds, they developed an awareness of the value they brought to the medical school, and realised the sense of difference they perceived was mostly self-imposed. Consideration could be given to opportunities for facilitating deliberate conversations between students from different backgrounds at an early stage in order to break down stereotypes and increase understanding. Research has identified that reverse mentoring between WP medical students and senior members of the faculty led to a positive change in perceptions of the other[286], and it could be that careful exploration of similar discussions between students would enhance integration.

During this PhD I have developed an enduring interest in those students who may fulfil the WP criteria for entry to a Gateway programme but achieve the necessary A-level (or equivalent) grades to gain a place on a traditional entry programme. Identifying them is tricky with currently collected data, and exploring their experiences was beyond the scope of this case study in any case. However, with the increase in use of contextual offers for admission to traditional entry programmes[287], it is likely that this group of students is increasing in number nationally. Research to compare their experience to that of Gateway programme medical students could help identify what aspects of the experience of students explored in this thesis are a result of their backgrounds, and what are due to the unintended consequences of singling out a group students

for additional support through a Gateway year, as well as helping medical schools to appropriately target support.

In chapter 4 I identified that Gateway programme students had lower average exam results at all points of assessment when compared with their traditional entry peers. Only part of this can be explained by their previous lower academic achievement prior to medical school[80]. Bond et al[288] identified that being part of a low-achieving network is associated with a decrease in the student's own achievement, and that this is at least partly due to the influence of that social circle rather than being purely a result of shared environment. In a cohort of undergraduate medical students, another study identified friendships are most likely between people who share sex and ethnicity as well as those in the same tutorial group, and that these friendships relate to subsequent exam performance[289]. Anecdotally we know that some social groups of Gateway programme students fail sets of exams and have to repeat years together. Additionally, I found that Gateway programme students differ in the extent to which they integrate and engage with other medical students and students from other programmes until it was required by being mixed up on clinical placement. It would be valuable to explore the relationship between choice of social network and exam outcomes for students on Gateway programmes to identify the relative importance of social integration on academic progression.

There has been no published research to date exploring the experiences of WP medical students who do not complete their degree. Despite the ethical and practical difficulties in accessing and recruiting these students, it seems a missed opportunity to add a powerful perspective to the understanding of the mediating factors and conceptions of success and failure for these students. Careful research by experienced researchers who ensure that participation is truly voluntary and that follow up support is available[290] would allow these new voices to add valuable nuance to the conversation. Precedence has now been set by Picton et al who interviewed first year medical students from a standard undergraduate programme who failed to progress and left the programme[194], and particularly identified student beliefs that seeking help was not compatible with being a doctor. Exploring similar ideas with students leaving Gateway programmes would help identify to what extent their findings are generalisable to different groups of failing students and provide evidence for medical school faculty to identify and challenge these beliefs at an earlier stage.

The most significant external pressure discussed by Gateway programme students in this thesis was finances, which is not surprising given a 2018 survey of UK medical students found that four in ten had considered, or knew someone who had considered, ending their studies due to financial difficulties[291]. However, research into the working patterns of medical students is limited,

especially of WP medical students, and the impact this has on their medical school journey is unexplored. A student project conducted in 2019 identified that WP students were more likely to be working due to financial need and closer to exam times than other medical students[292], suggesting that their working patterns may have a more detrimental effect on outcomes. With the rapidly increasing cost of living, this is likely to only get worse. Medical schools should evaluate their policies to allow students in need easier access to financial support. Additionally medical schools should ensure their procedures regarding expense payments do not leave students out of pocket for long periods of time and account for those who are living on extremely tight budgets and consider the timing of bursaries they provide. Gateway programme students rely on the reduced NHS bursary for at least two years, or more if they wish to intercalate or need to repeat years, leading to further financial pressure. Gateway students often receive a bursary at the beginning of their studies to help with the transition to university, but many report that their budgets are tighter after the transition to NHS funding. Whilst they are aware of this at the beginning of their degree, they find it challenging to budget for that far into the future and medical schools could research whether there would be benefit in splitting the bursary to provide support at a later stage. Intercalated degrees no longer carry benefits for students in applications to Foundation Programme jobs, but are still considered important in developing a competitive portfolio for entry to a career as a clinical academic[273]. Medical schools and associated bodies should therefore consider possibilities for offering bursaries to academically able students from lower socioeconomic backgrounds on all programmes in order to increase equity of access to intercalated degrees, and by extension, beginning careers in academia.

Although instances of negative interactions with faculty or clinical staff are now rarely reported, most participants in this study only disclosing one or two, those that do occur have a significant effect on Gateway programme students and their cohorts as stories are shared and assumptions made that these views must be widespread. Medical schools should ensure academic staff and clinicians receive up to date training on the range of backgrounds from which students come to reduce the frequency of these negative encounters. This could form part of broader equality, diversity, and inclusion training. Additionally, consideration should be given to opportunities to widely share the success stories of Gateway programme students and increase their profile in the university and hospital contexts. As graduates from early Gateway programmes are becoming senior doctors, there are opportunities to involve them in the education of the next generation, becoming relatable role models[157] for their students.

Another benefit of sharing success stories of Gateway programme students would be in providing an opportunity for medical schools to identify and reward a wide variety of what 'success' means. Medical schools should evaluate the rewards and prizes they currently offer to ensure they

intentionally communicate to students and wider faculty the range of skills and attributes truly valued by the institution and medical profession. This thesis has shown that Gateway programme students often see success as developing the skills to be a good doctor and achieving unique personal accomplishments; rewarding this, if appropriate, could help improve students' sense of belonging to the medical school and belief in their acceptance into the medical community.

7.5   Concluding remarks

In this thesis I aimed to contribute original insight into the progression experiences of WP medical students on one of the original Gateway programmes, and to produce findings useful for medical school programme leaders and strategic decisionmakers. Widening participation programmes such as these have the potential to allow young people from disadvantaged backgrounds to enter the medical profession, both to change their own lives and to transform the medical profession. However, empirical evidence is as yet unclear of the extent to which this has so far been realised.

In answering the research question *'How do medical students on a well-established Gateway programme experience progression through medical school?'* I suggest that the majority of Gateway programme students are likely to successfully complete their degree and enter the medical workforce. However, I have also furthered our understanding of the experiences of students from WP backgrounds to understand why they might be less likely to complete their degree than those from non-WP backgrounds. Findings indicate that Gateway programme students can experience tensions in developing the identity of a medical student, impacted by their beliefs about belonging to the medical school and mediated by feeling socially, financially, or academically out of their depth.

Medical schools should be applauded for their commitment to increasing WP initiatives as evidenced by the explosion of Gateway programmes in the UK. However, maximising the success of students entering via these programmes will require institutions to examine their learning environments carefully and critically. Social, cultural, and financial barriers to success must be identified, and steps taken to remove or reduce them to enable further progress in providing an equitable experience for all students.

Appendix A   Enhancing self-efficacy through life skills workshops paper

Enhancing self-efficacy through life skills workshops

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Abstract University attrition rates are often higher for students from groups under-represented in Higher Education (HE), for example those who have experienced social and educational disadvantage. Points of educational transition have been identified as key risk factors for progression and retention, and interventions to increase self-efficacy may act protectively to reduce higher attrition rates.

This study presents an evaluation of an intervention implemented at one UK medical school, which aimed to enhance participants' self-efficacy and sense of belonging. Participants completed Schwarzer's General Self-Efficacy Scale and written evaluations. Qualitative data were examined inductively using thematic analysis. Average self-efficacy scores showed a statistically significant improvement six months after the intervention. Key themes including 'it's not just me' and 'learning from the experiences of others' were identified from the qualitative data and explored within a framework of self-efficacy.

The intervention appeared to have a positive impact on self-efficacy through two key sources. Firstly, creating positive 'physiological and emotional states' enabled participants to engage in constructive discussions of personal difficulties they faced, such as imposter syndrome. Secondly, 'vicarious experiences', hearing how others had coped during difficult situations, improved participants' beliefs in their ability to cope with future challenges and imagine being successful. These factors may be key in supporting transitions for under-represented university students engaged with a range of disciplines.

Key words higher education; retention; widening participation; role models; belonging; self-efficacy

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Appendix B   GMC case study

General
Medical
Council

Exploring the progression and success of medical students on a bespoke widening participation 'Gateway' programme

Rebecca D'Silva – Postgraduate researcher in Medical Education, University of Southampton

Dr Sally Curtis – BM6 Programme Lead, University of Southampton

What was the problem?

Students on the BM6 programme at the University of Southampton have a lower success rate than those on the standard entry medical degree programme. The BM6 programme is one of a growing number of 'Gateway' programmes at UK medical schools that have a specific focus on widening access and recruit nationally. These programmes aim to address the persistent underrepresentation of those from lower socioeconomic backgrounds in medicine. The BM6 programme consists of an initial 'Year 0' in which 30 students are taught and supported by dedicated staff, after which they enter Year 1 alongside students on the standard medical programme with no further specific input. Previous analysis at both Southampton and another institution have shown a 7% lower retention rate for these students compared to those on the standard medical programme, but there is little understanding of where and why these differences occur.

What was the solution?

The solution was to undertake research into and evaluation of the progression of Gateway students through the medical degree in order to identify particular additional support needs. A PhD mixed-methods project is underway to explore this problem and aims to identify facilitators of and barriers to success for Gateway programme students. The first study had a retrospective descriptive and predictive cohort design and used routinely collected data to identify similarities and differences in progression between the standard entry and Gateway programmes. It also aimed to identify predictive factors for success on entry for students on the Gateway programme.

What were the challenges?

Changing entry requirements and assessment structures over the years of the programme made identifying a large enough sample size with a consistent profile challenging. Z scores were calculated for all assessments in order to allow collation of different cohorts into one data set. Using routinely collected data was problematic – data were collected from a

variety of sources, and not all data have been collected with the same level of rigour; significant cleaning was required to create a usable data set.

What were the results?

Results showed that students on the Gateway programme were more vulnerable to non-progression than standard entry students in years of significant transition, such as from Year 0 into Year 1, and in the first clinical year. This finding fed into the development of a programme of voluntary support sessions for students preparing for clinical practice. These sessions have been trialled this academic year, and initial evaluation has been positive. Long-term follow up will be carried out to identify if these sessions impact student success.

The Gateway programme has eligibility requirements for application, such as being a first generation applicant to HE. Results showed that none of these factors were predictive of success or failure. It is reassuring to know we are not setting students up to fail by selecting them using criteria predictive of failure.

The next phase of this research project is a qualitative study exploring Gateway student perceptions of success at medical school, and then qualitatively exploring facilitators of and barriers to their success.

Want to know more?

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Appendix C Abstract for oral presentation at ASME 2017[293]

Progression and retention: Are there differences between students entering via a Gateway programme and traditional entrants?

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University of Southampton

Background:
The widening participation agenda is of considerable contemporary interest, especially in regard to socioeconomic status; improving social mobility is one of the three priorities for higher education highlighted in the 2016 report released by the Department for Business Innovation and Skills (1). This is of particular concern in medicine where figures continue to show it to be one of most socially exclusive professions (2,3) and the Medical Schools Council has set targets for medical schools to increase the proportion of students from a lower socioeconomic background4. The BM6 programme at the University of Southampton is one of a small, though growing, number of 'Gateway' programmes at UK medical schools that have a specific focus on widening access and recruit nationally (5). The BM6 programme consists of an initial 'Year 0' in which 30 students are taught and supported by dedicated staff, after which they enter Year 1 alongside students on the standard medical programme with no further specific input. A 2008 study including descriptive analysis of the Extended Medical Degree Programme (EMDP) at King's College London, in which students receive additional support over the first three years, found a 7% lower retention rate in EMDP students when compared with traditional entry students (6). There is otherwise a paucity of research into the progress of widening access students through medical school and therefore there is limited empirical evidence of the effectiveness of widening access initiatives in diversifying the medical workforce. This study is the first to use multivariate statistical analysis to explore the relationship between socio-demographic variables and performance within a widening participation context. BM6 student progression and retention is compared to progression of BM5 (traditional entry) students, identifying similarities and differences between the two groups at key academic milestones in order to help optimise progression of these students.

Methodology:
Retrospective cohort study of students entering the University of Southampton medical school between 2006-2011 (n=1051). Admissions data, including sociodemographic indicators, progression and assessment data are analysed using descriptive statistics. Appropriate multivariate statistical analysis is carried out with necessary corrections made to account for multiple comparisons.

Results:
Initial results show that compared to BM5 students approximately 10% fewer BM6 students who entered Year 1 completed the programme. Results of the multivariate analysis will be presented at the meeting, including identifying specific points at which differences in achievement and progression are more or less pronounced between BM5 and BM6 students. Initial results suggest that a higher proportion of BM6 than BM5 students undertake repeat years. Sixty-one percent of non-progression in BM6 students is due to academic failure, while 23% is a result of student withdrawal. Results will be presented comparing these findings to non-progression data of BM5 students, in addition to more granular data for all students on timing of and reasons for student withdrawal.

Discussion:
Widening participation should concern more than merely enabling access to medical school, but encompass progression through it and entry into the medical workforce. Similar to the data from King's College London (6), we found a lower retention rate in students entering medical school through the BM6 programme compared with traditional entry students. For these students, a lower probability of successful completion may then present additional barriers to applying for a medical degree in the first place. Our analysis allows identification of patterns of non-progression unique to widening access medical students, which, in a resource limited environment, should help programme developers and educators improve the timing and content of support measures aimed at increasing student retention and success.

References:
1. Department for Business Innovation and Skills. Success as a Knowledge Economy: Teaching Excellence, Social Mobility and Student Choice. London: Stationery Office; 2016.
2. Milburn A. Unleashing aspiration: the final report of the panel on fair access to the professions. London: Cabinet Office 2009.
3. Steven K, Dowell J, Jackson C, et al. Fair access to medicine? Retrospective analysis of UK medical schools application data 2009-2012 using three measures of socioeconomic status. Bmc Medical Education 2016;16.
4. Selecting for Excellence Executive Group. Selecting for Excellence Final Report: Medical Schools Council, 2014.
5. Medical Schools Council. Entry requirements for UK medical schools: 2017 entry, 2016.
6. Garlick PB, Brown G. Widening participation in medicine. Bmj-British Medical Journal 2008;336(7653):1111-13.

Ref: 275, Wednesday 21st June, 4.40-5.00pm, Seminar Room 5

Appendix D   Abstracts for two oral presentations at ASME 2019[294]

Navigating medical school: Exploring the experiences of Gateway programme medical students

R D'Silva, S Curtis, M Barker, J Rowland, J Cleland
University of Southampton

Background:
An increasing number of six-year 'Gateway' programmes specifically recruit students from widening participation (WP) backgrounds into medicine, aiming to improve the representation of students from lower socioeconomic groups (1). However, little is known about the experiences and progression of these students, though there is some evidence that success rates are lower than for traditional entry programmes (2,3). In an increasingly resource limited higher education environment, the success of WP students in progressing through medical school and into the workforce will be important for the sustainability of WP initiatives. This study qualitatively explores the thoughts, behaviours and experiences of medical students and recent graduates from WP backgrounds that may act as facilitators of and barriers to successful progression to professional practice.

Methodology:
Twenty-three semi-structured interviews were carried out with current students (n = 15) and recent graduates (n = 8) from a well-established Gateway medical degree programme at a UK university. These were audiotaped and transcribed and then inductively analysed using principles from Braun and Clarke's thematic analysis method within a pragmatic research paradigm.

Results:
Initial analysis suggests that financial burdens, on-going competing responsibilities and struggling to fit in with the prevailing medical student culture all negatively affect students during their six-year programme. However, positive factors include the deep motivation for medicine of most students, the programme structure and faculty support in the first year that produces an enduring sense of family and belonging throughout the programme, and the gradually increasing sense of integration of Gateway programme students within the wider medical school. Further analysis will be presented at the conference.

Discussion:
It is important to recognise that the circumstances that qualify a student for a Gateway programme are unlikely to disappear on entry; the situations that prevented them from fulfilling their academic potential at school may still be at play. Gateway programme students are themselves a heterogeneous group and come from diverse backgrounds, but many participants talk about the shared financial and social challenges of being from a WP background. They are acutely aware of a sense of difference between them and their perception of a 'typical medical student', even while they mostly report feeling accepted and included in the medical school community. This analysis brings a greater understanding of the often conflicting experiences of Gateway programme students navigating the liminal space between who they are and their future professional identity. We hope this will enable medical schools to better support students from WP backgrounds through to graduation and successful professional practice.

References:
1.   Medical Schools Council Selection Alliance. Selection Alliance 2017 Report: An update on the Medical School Council's work in selection and widening participation. London, 2017.
2.   Curtis S, Blundell C, Platz C, et al. Successfully widening access to medicine. Part 2: Curriculum design and student progressions. Journal of the Royal Society of Medicine 2014;107(10):393-7.
3.   Garlick PB, Brown G. Widening participation in medicine. British Medical Journal 2008;336(7653):1111-13.

Presentation Details: Thursday 4th July, 3.00-3.20pm, Fyne

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A phenomenographic exploration of widening participation students' conceptions and experiences of success at medical school.

R D'Silva, S Curtis, M Barker, J Rowland, J Cleland
University of Southampton

Background:
The current focus on widening participation (WP) in higher education is of particular concern in medicine. It remains one of most socially exclusive professions (1,2) and medical schools have targets to increase the proportion of students from a lower socioeconomic background (3). The importance of taking a lifecycle approach to supporting WP students through higher education is well recognised (4), but there is currently a paucity of published research exploring the experiences of and outcomes for these medical students. Quantitative data analysis from two bespoke WP 'Gateway' medicine programmes, the BM6 programme at Southampton and the EMDP programme at King's College London, identify 7% lower overall student success rates in comparison to their traditional entry equivalents (5), and the reasons for this are not yet clear. This study uses a phenomenographic approach to explore the qualitatively different ways in which Gateway programme students conceive 'success at medical school' and make sense of their progression through the programme.

Methodology:
A phenomenographic analysis of 15 semi-structured interviews with undergraduates from an established Gateway medical degree programme. A maximum variation sample was sought by inviting students from all years to participate, with snowball sampling used to follow up further participants.

Results:
Five main conceptions of success at medical school were identified from participant responses: 1) it is passing exams; 2) passing exams is not enough, it is being a good doctor; 3) it used to be about passing exams but; 4) unique personal achievement; 5) happiness and contentment. Students interviewed in the first year of the programme, and senior students interviewed just before important exams more frequently expressed that the most important aspect of success was passing exams, while clinical medical students often articulated the conception that passing exams is not enough unless one is also a good doctor.

Discussion:
Widening participation should concern more than merely enabling access to medical school, but encompass progression through it and entry into the medical workforce. In line with guidance from the Medical Schools Council (6), this analysis is a step towards better understanding of medical school progression experience for those from WP backgrounds. It suggests that students see exam results as important, especially when they have particular career aspirations, but that their understanding of success changes over time at medical school, especially when they approach graduation. It is important to recognise that an understanding of success is unique to each student, but usually includes more than simply academic achievement.

References:
1. Milburn A. Unleashing aspiration: the final report of the panel on fair access to the professions. London: Cabinet Office 2009.
2. Steven K, Dowell J, Jackson C, et al. Fair access to medicine? Retrospective analysis of UK medical schools application data 2009-2012 using three measures of socioeconomic status. Bmc Medical Education 2016;16.
3. Selecting for Excellence Executive Group. Selecting for Excellence Final Report. Medical Schools Council 2014.
4. OFFA and HEFCE. National strategy for access and student success in higher education. London: Department for Business, Innovation and Skills 2014
5. Garlick PB, Brown G. Widening participation in medicine. Bmj-British Medical Journal 2008;336(7653):1111-13.
6. Selecting for Excellence Executive Group. A Journey to Medicine: Student Success Guidance. Medical Schools Council 2014

Presentation Details: Wednesday 3rd July, 4.10-4.30pm, Carron 1

Appendix E   Reflexive journal entry example

28th February 2018

Interviewing 'participant 10' today was really interesting. My upbringing was so different to most of the students I have interviewed that I haven't really seen myself reflected in them, except for the shared experiences of being a medical student. But today, I saw the similarities between growing up on an East London housing estate where all your friends are British Bangladeshi Muslim and you've never had a white friend before, and my experience of growing up in a rural Dorset village where all my friends were Dorset born and bred for many generations and I didn't have a non-white friend or anyone who wasn't at least nominally Christian. We've both broken the mould. Our experiences at medical school have meant that we no longer quite fit in at home. Although maybe the difference for me was that I never felt like I fit in at school or in the village, and it was only when I started medicine that I found friends who seemed to think like me. Whereas the student I was interviewing found the transition to medical school hard because he didn't.

Hearing his story and the way his attitude and thinking have developed as he's progressed through medical school almost choked me up and I remembered how much I care about this project. Recently I've been getting quite down about the difficulties in recruiting and also felt like I've been drowning trying to understand the qualitative methodology side which has made me want to rethink what I'm doing. But listening to the student today completely reminded me why I think this is important. In the things he was saying and the way he was articulating the process he has been through he showed such insight, and somehow some of that needs to be transmitted and disseminated, both to students in the earlier years who haven't grasped it yet, and to people who doubt the purpose and efficacy of programmes like BM6.

Appendix F   Ethics committee application for quantitative strand (ERGO number 24020)

Ethics application form

Application for Ethics Approval to the Faculty of Medicine Ethics Committee for SERVICE EVALUTION and NEEDS ASSESSMENT undertaken as part of an undergraduate or post-graduate service evaluation programme.

DETAILS OF APPLICANT AND SUPERVISOR RESPONSIBLE FOR PROJECT (where applicable)

Please Tick (✓)

Undergraduate ☐   Masters ☐   PhD X   Staff ☐

NB Staff should always tick the 'staff' box

Applicant Title		Applicant Name	
	Dr		Sally Curtis
	Dr		Judith Holloway
	Dr		Shelley Parr
	Dr		Veronica Hollis
	Mr		**Mohammed Al-Ausi (MAA)**
			Bruce MacManus
	Dr		Jane Wilkinson
	Dr		Kishanth Srikathirkamanathan
			Rebecca D'Silva
	Mr		Mary Barker

	Jeremy Rowland		
	Miss Dr Dr		
University Department Address *These MUST be current addresses as this is where correspondence will be sent.*	Medical Education Development Unit		
	e-mail: s.a.curtis@soton.ac.uk	**Telephone:** 02380 595609	
Current Post	Principal Senior Teaching Fellow & BM6 Programme Leader		
Signature		**Date:** 3/10/2016	

Name of course if project forms part of a course of service evaluation (e.g., PhD/BMedSc)		PhD Medical Education for RD'S	
Supervisor (name and title)	Dr Sally Curtis	**e-mail:** s.a.curtis@soton.ac.uk **Telephone:** 02380 595609	
Current post/ Division /School & institution			
Signature		**Date:** 3/10/2016	

Short Title of Service evaluation *(Maximum Six Words)*

Taught student admissions, performance, and progression

MAA project component: Who performs better at medical school: Science or Non-science graduates?

KS project component: UKCAT as an indicator of performance.

RD'S postgraduate research component: Progression and retention of BM6 students.

Full Title of Service evaluation

An evaluation and analysis of undergraduate and taught post graduate student admissions, performance, and progression data.

MAA project component: An analysis of the performance of students in assessments on the BM4 Programme 2004-2015 according to the subject of their degree to identify any trends.

KS project component: UKCAT in medical selection and its relationship to exam performance at the University of Southampton.

RD'S postgraduate research component: An analysis of BM6 2002-2010 cohorts' student admissions, assessment and progression data, compared to BM5 student data, to identify any predictive factors for student progression and retention.

Start date:	Anticipated completion date:
October 2016	October 2019

Version number and date of completion of application form:	Version 4, 3rd October 2016

DETAILS OF SERVICE EVALUATION PROPOSED

1. BACKGROUND TO SERVICE EVALUATION

Please use language suitable for the non-specialist reader

a   Key aspects of clinical service delivery/outcome measures to be evaluated

This study intends to explore and evaluate the progression and performance of students on taught programmes from the Faculty of Medicine in order to:

- Determine student performance of BM4, BM6 and MSc Allergy programmes
- Determine student progression rates of BM4, BM6 and MSc Allergy programmes
- Analyse data in relation to student groups for admissions and educational method
- Enable a comparison of data from the Faculty of Medicine, University of Southampton with published data from other similar UK programmes

MAA project: The project undertaken by the student aims to explore and evaluate performance data of BM4 students from Faculty of Medicine in order to:

- Enable a comparison of student performance data with previous degree data of BM4 Students to identify trends, if any
- Enable a comparison of data from the Faculty of Medicine, University of Southampton with published data from other similar UK programmes

KS project component: -

The research questions this study aims to address are;

1. Is there a correlation between UKCAT scores and Finals examination performance in BM5 and BM6 students?
2. Is there a difference in UKCAT scores between BM5 and BM6 students?
3. Is there a difference in Finals Examination scores in BM5 and BM6 students?
4. How do UKCAT scores differ between all applicants to BM5 and BM6, applicants invited to selection days, applicants given an offer, and entrants?

Research questions 1, 2 and 3 are addressing the relationship between UCKAT scores and exam performance – and are referred to under the heading of "Performance".

Research question 4 is addressing the use of UKCAT scores as a selection tool - and are referred to under the heading of "Selection".

RD'S postgraduate research component:

The research questions this study aims to address are:

1. What predictive factors for retention, progression and success can be identified from BM6 student admission data?
2. How predictive is year 0 academic performance of future achievement and progression through the undergraduate medical programme to finals performance?
3. Are there any significant differences between BM6 and BM5 student performance in assessments throughout the undergraduate medical programme?
4. How is the A-level performance of BM6 students associated with their retention and progression through the undergraduate medical programme?

Specify the key areas of service delivery that your service evaluation is designed to address

b   Background to Service evaluation/summary of literature

Beyond some initial analysis when the programmes were first set up, the data from the taught programmes delivered by the Faculty of Medicine have not been thoroughly and consistently analysed. Analysis of assessment and progression data will enable identification of how the programmes are performing at different points in their delivery. Analysis will also enable a comparison of student performance and progression between different programmes and between groups of students within programmes as determined by admissions or assessment data (e.g., groupings according to entrance qualifications, and groupings according to assessment results early in the programme). The evaluation may identify areas for further exploration and research such as factors

impacting on student performance and levels student support throughout the programmes

KS project component:

There have been papers published on the suitability of the UKCAT as a method to select students for interviews or places at medical and dental school and whether it is a suitable factor to predict medical school exam results[1]. However, the majority of these papers have only undertaken research in one or two universities and the papers also present conflicting results. The aim of this study is to investigate possible correlations between UKCAT scores and exam performance at finals and also the UKCAT's use in selection processes at the University of Southampton.

RD'S postgraduate research component:

The widening participation agenda is of considerable contemporary interest; improving social mobility is one of the three priorities for higher education highlighted in the recently published report released by the Department for Business Innovation and Skills[2]. Using contextual data in admissions is a powerful tool to improve selection of widening participation students, which should help medical schools achieve the targets set by the Medical Schools Council for increasing the proportion of students from a lower socioeconomic background[3]. However, there is a paucity of research into the progress of these students and therefore there is limited empirical evidence of the effectiveness of programmes such as BM6 in diversifying the medical workforce. The BM6 programme at Southampton is one of only a small number of courses at UK medical schools which recruit nationally and have a specific focus on widening participation[4]. The aim of this research project is to investigate how BM6 students' progress through the undergraduate medical programme, when compared to progression of BM5 students, and identify any possible predictive factors of success. This then hopes to both inform selection processes for BM6 students and identify any specific support they may need throughout the undergraduate medical programme.

Summarise the relevant literature and explain how the idea for the service evaluation evolved (max 250 words)

1) http://www.ukcat.ac.uk/our-research/published-research/ (Accessed – 10 June 2016)
2) Department for Business Innovation and Skills. *Success as a Knowledge Economy: Teaching Excellence, Social Mobility and Student Choice,* CM9258. London: Stationery Office; 2016.
3) Selecting for Excellence Executive Group. *Selecting for Excellence Final Report.* Medical Schools Council, 2014. Available online: http://www.medschools.ac.uk/SiteCollectionDocuments/Selecting-for-Excellence-Final-Report.pdf (Accessed - 3rd October 2016)

Appendices

4) Medical Schools Council. *Entry requirements for UK medical schools: 2017 entry.* Available online: http://www.medschools.ac.uk/SiteCollectionDocuments/MSC-Entry-requirements-for-UK-medical-schools.pdf (Accessed - 3rd October 2016)

2.   SAMPLE AND SETTING

a   Details of proposed participants/sample

MAA project component:

2002-2015   BM6   total ~ 370 student records

2004-2015   BM4   total ~ 440 student records

1998-2015   MSc Allergy ~ 500 student records

i.e., all students who have or are currently studying on these programmes

MAA project – BM4 students only (total approx. 480)

KS project component:

This project will require BM5 student data in addition to the data sets on the original application. The permission of the BM5 programme lead, Dr Jane Wilkinson, has been sought and received to include these data in this study. Dr Wilkinson's name has also been added to this application.

This project will require UKCAT scores for the relevant applicants. Permissions have been sought and received for this data to be provided by Alison Stanton, the admissions SAA team Leader

This project will require Finals examination data. The Finals year assessment Coordinator Dr Bruce McManus (a supervisor of this project) has granted permissions for this data to be provided for this study

Performance

The data being gathered is for medical students on the BM5 and BM6 programmes from University of Southampton; the data collated will be UKCAT scores and Final's examination results. These data sets will enable the study to analyse UKCAT results and the students' performance.

2009-2010   BM5   total ~500 student records

2008-2009   BM6   total ~ 60 student records

Selection

The data being gathered is for applicants to the BM5 and BM6 programmes at the University of Southampton. These data sets will enable the study to analyse UKCAT scores of all applicants, those applicants subsequently invited to selection days, those applicants subsequently given an offer, and the entrants to the BM5 and BM6 programmes.

2013-2015 BM5 and BM6 ~ 5000 applicant records

RD'S postgraduate research component:

The data being gathered is for medical students from the BM5 and BM6 programmes at the University of Southampton.

2002-2010 BM6 – widening participation eligibility criteria, application, progression, and assessment data. About 270 student records

2002-2010 BM5 - application, progression, and assessment data. About 2000 student records.

Inclusion and exclusion criteria

b   Specify and justify the number of patient data-sets you will be collecting

These are student and not patient data sets. These cohort data sets enable a detailed exploration of cohort admissions, progression, and performance as well as a full comparison of all identified taught programmes. Further analysis of these data sets may also highlight further patterns and trends of the programmes for future research.

c   Access to participants/data

The three programme leaders and module leader may know the participants through teaching roles, and all have curriculum and programme responsibilities. However, the researchers will treat all information related to this evaluation as confidential and once each set of data has been collated it will be link-anonymised and treated as confidential at all times.

(All data we are requesting access to is routinely available to the researchers)

MAA project component:

The student carrying out the project is from BM5 and not BM4 and is therefore from a different programme to the students whose data is being analysed. However, since BM4 and BM5 students study together in Years 3 and 5 of the curriculum and BM students socialise together there are some BM4 students that the research student is an acquaintance of (though doesn't know well). Therefore, the student will be analysing assessment data that will include some of his BM4 peers. The data will however be anonymised; names and student IDs will be removed. Each student will be assigned a unique study code number, which will allow multiple data sets to be cross-linked to show trends between different exam types.

KS project component:

Only the supervisors and the student (KS) will have access to the data available. The data will all be link-anonymised by the supervisors before KS has access to the data. There is a possibility of the supervisor identifying and recognising the students, however they will act responsibly and maintain student confidentiality at all times. Even though KS may have peers or know students in the study, the data will be link-anonymised therefore KS will not be able to identify any scores relating to a specific student.

RD'S postgraduate research component:

The postgraduate researcher (RD'S) carrying out the project was a member of the BM5 cohort starting in 2005 and graduating in 2011. Therefore, they are part of the dataset and may recognise some of the students. In order to minimise this risk, the data will be anonymised as soon as possible after collation. Before becoming a PhD student, the researcher was a professional, teaching in the secondary and further education sectors, and is a medical graduate. Therefore, they fully understand the requirement to keep personal data confidential and are comfortable working within strict confidentiality guidelines. The researcher will treat all information collected as part of this project as confidential and once each set of data has been collated it will be link-anonymised and treated as confidential at all times.

Specify where the service evaluation (data collection) will be conducted. Outline your relationship with participants in the proposed sample and confirm that you have permission to conduct the service evaluation by the relevant clinical lead. Please provide letter or e mail evidence in supporting documents.

d   How will participants/sample be identified?

Student data are link-anonymised by their student ID numbers. Student ID numbers will be further encoded into study code numbers by the investigators prior to analysis.

> **MAA project component:**
>
> Student data will be anonymised, and ID numbers replaced by study code numbers by the programme leader prior to analysis so that the student can link together data, but all data will be anonymous.
>
> **KS project component:**
>
> The admissions team and assessment team will provide the data. KS has sought and been granted permission by the BM5, BM6, Finals Examination and the admissions team leads to access the data and provide it for the supervisors to anonymise before inclusion in the study
>
> The data collated will be link-anonymised by their student ID numbers. Furthermore, their Student ID numbers will be further encoded into ordinal data (numbers) by the supervisors before KS has access to them.
>
> **RD'S postgraduate research component:**
>
> Student data are link-anonymised by their student ID number. These will be further encoded by RD'S as soon as possible following collation of data into study code numbers, prior to analysis.

e   Will information be sought directly from patients (e.g., interview/ questionnaire)?

If NO skip to section 3b

If YES   How will participants be approached and recruited?

> NO
>
> **KS project component:**
>
> NO
>
> **RD'S postgraduate research component:**
>
> NO

Note it is good practice to provide as a minimum an invitation letter for patients making it clear that their participation is voluntary. Expectation will be that data will be collected anonymously. If patient interview is planned and/or anonymity is not possible, participant information sheet and consent forms are recommended (see examples in ERGO 'downloads' section). If a recruitment poster is to

be used, provide a copy, and provide evidence that you have permission to display it in the desired (specified) location

f   How will consent be obtained

> N/A
>
> **KS project component:**
>
> N/A
>
> **RD'S postgraduate research component:**
>
> N/A

g   Will participants be given written   **Yes ☐   If no, why?**

   information?   **No ■**

(Include Patient Information Sheet (PIS) in application)

h   Will participants sign a consent form?   **Yes ☐   If no, why not?**

   No ■

Tick 'yes' or explain why not (e.g., may not be required for questionnaires). Include copy of consent form where appropriate. Include consent form in application where appropriate

3.   INTERVENTIONS AND MEASUREMENTS

a   What will happen to the participants/sample?

> N/A
>
> **KS project component:**
>
> N/A
>
> **RD'S postgraduate research component:**
>
> N/A

Specify what participants will be asked to do and for how long they will be asked to do it. Ensure that demands on the participants (including time and travel) are reasonable.

b   Explain what will be measured/explored and how

The admissions, performance and progression data for all identified cohorts will be collated and analysed. Appropriate statistical tools will be used to analyse the datasets. The investigators will jointly be responsible for all aspects of the collation, analysis, and evaluation of data.

MAA project component:

The assessment data will be collated, linked with first degree information, and analysed. Data includes all assessment data and first-degree information for BM4 students from 2004-2015. The student will categorise first degree data and then analyse assessment results to look for any patterns in relation to first degree category. Appropriate statistical tools will be used to analyse the datasets.

KS project component:

Appropriate statistical tests and descriptive statistics will be used to analyse the following:

Performance
- Compare UKCAT and Finals scores of BM5 & BM6 students who entered Year 1 in 2009/10 and 2010/2011.
- Investigate correlations between the UKCAT scores and Finals examination performance for BM5 & BM6.
- Investigate whether there is a difference in correlation between UKCAT scores and Finals examination performance in BM5 and BM6 students.

Selection
- Compare UKCAT scores before and after the introduction of the new selection process in 2014.
- Compare UKCAT scores between all BM5 and BM6 applicants, applicants invited to selection days; applicants in receipt of an offer, and entrants to the BM5 & BM6 programmes.

RD'S postgraduate research component:

The admissions, assessment and progression data for all identified cohorts will be collated and anonymised by the researcher.

They will then use SPSS to produce descriptive statistics and carry out appropriate statistical tests to analyse the data sets. The researcher has attended the RSBS statistics course run by the faculty of medicine and identified a statistician (Scott Harris) who has agreed to assist with predictive modelling.

Provide copies of relevant documents (including questionnaires and interview frameworks) and confirm that permission to use them is in place. Ensure that the role of all assistants and/or collaborators is made clear. Comment on the validity and reliability of the proposed tools.

4. DATA MANAGEMENT

a   Explain how participant/sample anonymity and/or confidentiality will be maintained?

Student admission, performance and progression data that is not already available to the programme leaders will be requested from the faculty administrative team. Student ID numbers will be link-anonymised to study numbers.

MAA project component:

The BM5 student carrying out the analysis of the data will only receive data that has already been anonymised; names and student IDs will be removed. Each student will be assigned a unique code number, which will allow multiple data sets to be cross-linked.

(All data we are requesting access to is routinely available to the supervisor)

KS project component:

The supervisors will request the data from the faculty admissions team and the assessment team. The supervisors will anonymise the data gathered, by link-anonymising Student ID numbers to study numbers. The data will be stored in a subfolder of a computer that will be password protected. *(All data we are requesting access to are routinely available to the supervisors).*

RD'S postgraduate research component:

Access to student admissions, assessment and progression data that is not held by SC (supervisor) will be requested from the faculty administrative teams. Student ID numbers will be link-anonymised to study numbers. All data will be stored on a password protected sub-folder on the researcher's network area.

b   Outline how the data will be analysed

Quantitative data will be entered into Microsoft Excel spread sheet and then further analysed using SPSS. The details of the analysis undertaken will be informed by initial exploration of the descriptive statistics. Following these parametric and/or non-parametric tests may be applied to the data as appropriate.

KS project component:

The supervisors will anonymise the data gathered. It will then be entered from a Microsoft Excel spreadsheet into SPSS, which will allow the data to be analysed. The details of the analysis undertaken will be informed by initial exploration of the descriptive statistics. Following this, parametric and/or non-parametric tests may be applied to the data in order to assess the correlation and difference.

RD'S postgraduate research component:

Quantitative data will be entered into Microsoft Excel spread sheet and then further analysed using SPSS. The details of the analysis undertaken will be informed by initial exploration of the descriptive statistics. Following these parametric and/or non-parametric tests may be applied to the data as appropriate. This will be followed by more complex predictive modelling, with the assistance of a statistician (Scott Harris) from the faculty of medicine.

c   How will data be stored securely during and after the service evaluation?

Data will be stored on a password protected University of Southampton sub-folder of a network drive for 15 years in line with Data Protection Act.

MAA project component:

The student will undertake analysis on a password protected computer and any transfer of information between computers will take place using a password protected encrypted USB stick.

KS project component:

After the service evaluation, the data will be stored on a password protected University of Southampton sub-folder on the University network for 15 years as per the Data Protection Act 1998. The subfolder will be password protected. Any transfer of information between computers will take place using a password protected encrypted USB stick.

RD'S postgraduate research component:

During the project, data will be stored in a password protected folder on the researcher's University of Southampton network area. After completion of the project the data will be stored as above in accordance with the Data Protection Act.

5. MANAGEMENT OF THE SERVICE EVALUATION AND RISKS INVOLVED

a   Outline the potential risks/harm to participants in the service evaluation

None

MAA project component:

Despite anonymisation there is a very small chance that the details of the first degree of one of the students may be so unique amongst the data set or within that year that it may enable an individual that the student knows to be identified, however there are a small number of BM4 students that have completed a unique and easily identifiable degree, as most come from similar degree backgrounds, and the student undertaking the project is not familiar enough with any of the bM4 students to know their prior degree.

KS project component:

Potential risks are being able to identify individual students' data, however this is minimised greatly by link-anonymising data before KS has access to them. There is also a possibility of the supervisor identifying and recognising the students, however they will act responsibly and maintain confidentiality at all times.

RD'S postgraduate research component:

Despite anonymisation, there is a small chance of an individual's dataset being so unique that they are recognisable to the researcher from the data. However, it is five years since the researcher graduated, so it is very unlikely that they will recall enough detail for this to be a significant risk. Should this occur, the researcher will maintain confidentiality at all times.

b   How will you *attempt to prevent* the potential risks/harm from occurring?

N/A

KS project component:

All student's results and all UKCAT scores will be anonymised; therefore, individual students will not be able to be identified.

RD'S postgraduate research component

All data will be link-anonymised as soon as possible after collation and prior to analysis.

c   How will you *manage* any that do arise?

N/A

KS project component:

As I am a medical student, I have already been taught, and am practising, the value of confidentiality. Furthermore, if a breach or potential breach of confidentiality arises, I will seek advice from my supervisors.

RD'S postgraduate research component:

Should the researcher recognise individuals from the anonymised data they will maintain confidentiality at all times.

Explain the steps taken to manage any discomfort and/or distress etc (e.g., a helpline telephone number)

d   Raise any ethical problems not covered elsewhere and how you will deal with them.

None

KS project component:

N/A

RD'S postgraduate research component:

N/A

Highlight any additional ethical issues not covered elsewhere on the form (e.g., where the topic of an interview is sensitive or may cause friction between parties).

Appendices

Confirmation of ethical approval

24020 - UG/PG Evaluation (Amendment 3) (Amendment 3)

Submission Overview | **Submission Questionnaire** | **Attachments** | **History**

Details

Status	Approved
Category	Category B
Submitter's Faculty	Faculty of Medicine (FMED)

The end date for this study is currently 31 October 2022

📅 Request extension

If you are making any other changes to your study please create an amendment using the button below.

Latest Review Comments

17/10/2016 08:59:31 - Committee: Approved

Comments:

Dear Sally, Re: 24020 - UG/PG Evaluation (Amendment 4) Thank you for submitting an amendment to this study, specifically to focus on data analysis from BM6 students as part of Rebecca DâSilvaâs PhD studies. I am pleased to inform you that approval has been granted by the Faculty of Medicine Ethics Committee for this amendment. Approval is valid from today until 31/10/2019, the end date specified in your application. Please note the following points: â¢ the above ethics approval number must be quoted in all correspondence relating to your research, including emails; â¢ if you wish to make any substantive changes to your project you must inform the Faculty of Medicine Ethics Committee as soon as possible. Please note that this email will now constitute evidence of ethical approval. Should you require a paper signed copy of this approval, please contact the FoMEC Administrative Team via email at: medethic@soton.ac.uk. We wish you success with your work. Yours sincerely Dr Catherine Hill Chair of the Faculty of Medicine Ethics Committee

Appendix G   Audio diary prompt sheet

UNIVERSITY OF
Southampton

Audio diary prompt sheet (draft v1 17ᵗʰ April 2017)

Study title: Exploring the experiences of widening access and traditional entry medical students at a UK medical school. What are the facilitators of and barriers to progression?

Researcher: Rebecca D'Silva, Postgraduate researcher in Medical Education,
Contact: R.R.D'Silva@soton.ac.uk

ERGO number:

Thank you for agreeing to complete an audio diary about your experiences at medical school. I am interested in all your experiences while you are at medical school, both academic and personal, positive and negative, and how they affect your ability and desire to keep going and become a doctor.

How to complete the audio diary:
- Use the voice memo function on your phone/tablet, and then email the recording to me (contact above) when you have finished.
- Please complete an audio diary entry at least once per month until February 2019. You will be emailed to remind you to do this.
- There is no maximum number of entries you can make, so make one whenever you feel you have something to say. You may find you go for several months making one entry per month, and then do several in one week.
- For each entry, start by recording the date and time, and let me know where you are (ie your bedroom, in the hospital in a break between lectures).
- The prompts below set out issues you could comment on during your audio diary entries. Some of the issues may be more relevant to you than others, so you may want to talk about them more.
- There is no minimum or maximum diary entry length; you may have said all you want to in less than five minutes, but you may need much longer to fully explain what you want to.

Prompt issues for you to discuss in your diary. Please comment on any that are relevant each time you record:
- How you are.
- Any particular events/experiences/feelings you want to talk about.
- Anything particularly positive or negative that has happened to you since your last diary entry.
- How you feel about your progress at medical school at the moment.
- Any personal/financial issues that are affecting your ability to study at the moment.
- Any events/experiences that are increasing your motivation for medicine.
- Any events/experiences that are decreasing your motivation for medicine.
- What upcoming exams/assessments you have and how you feel about them.
- Anything that is affecting how prepared you feel for your upcoming exams/assessments.

Appendix H   Ethics committee documentation for qualitative strand (ERGO number 26661)

Ethics form (Amendment 3 – this shows all three applications as additions have been made in first red and then green text)

Application for Ethics Approval to the Faculty of Medicine Ethics Committee for RESEARCH Amendment 3

DETAILS OF APPLICANT AND SUPERVISOR RESPONSIBLE FOR PROJECT (where applicable)

Please Tick (✓)

Undergraduate ☐   **Masters** ☐   **PhD** ✓   **Staff** ☐

NB Staff should always tick the 'staff' box

Applicant Title	Miss	**Applicant Forename**	Rebecca	**Applicant Surname**	D'Silva
University Department Address *These MUST be current addresses as this is where correspondence will be sent.*	MEDU, Building 85, University of Southampton, University Road, Highfield, SO17 1BJ				
	R.R.D'Silva@soton.ac.uk			07525497905	
Current Post	Postgraduate researcher in Medical Education				
Signature	*[signature]*			**Date** 27ᵗʰ September 2018	

Name of course if project forms part of a course of study (e.g., PhD/BMedSc/BM5/BMEU)	PhD Medical Education	
Supervisor (name and title)	Prof Sally Curtis	S.A.Curtis@soton.ac.uk
Current post/ Division /School & institution	BM6 Programme Lead, Faculty of Medicine	
Signature		**Date**

Short Title of Study *(Maximum Six Words)*

Progression and retention in medical students

Full Title of Study (for which approval is sought)

Exploring the experiences of widening access and traditional entry medical students at a UK medical school. What are the facilitators of and barriers to progression?

Completion date: *September 2019*

NOTE – please ensure this matches the date in your IRGA form.

Version number and date of completion of application form:	V4 27th September 2018

Committee use only:

Received date and submission no:	Decision and date:	Full Approval number

DETAILS OF RESEARCH PROPOSED

Short Title of Study *(Maximum Six Words)*

Progression and retention in medical students

1. BACKGROUND TO PROJECT

Please use language suitable for the non-specialist reader

a   Key research questions

The main research question to be addressed by this study is:

What are the facilitators of and barriers to progression for widening access and traditional entry medical students?

Subsidiary questions to be explored are:

1. How do widening access students experience facilitators of and barriers to progression differently from their traditional entry peers?
2. How does the response of medical students to progression challenges change over time at medical school?
3. How do medical students describe medical school and university wide structures and processes as supporting or impeding their progress?

Specify the key questions that your study is designed to address

b   Background to Study/Summary of Literature

The widening participation agenda is of considerable contemporary interest; improving social mobility is one of the three priorities for higher education highlighted in the 2016 report released by the Department for Business Innovation and Skills[1]. This is of particular concern in medicine where figures continue to show it to be one of most socially exclusive professions[2,3] and the Medical Schools Council has set targets for medical schools to increase the proportion of students from a lower socioeconomic background[4]. The BM6 programme at the University of Southampton is one of a small, though growing, number of 'Gateway' programmes at UK medical schools that have a specific focus on widening access[5]. A 2014 analysis of students completing Year 0 and entering Year 1 between 2003 and 2007 found that 10% fewer students successfully

graduate with a medical degree compared with traditional entry students[6], congruent with a 2008 study of another widening access programme at King's College London, which found a 7% lower retention rate in widening access students when compared with traditional entry students[7]. There is otherwise a paucity of research into the progress of widening access medical students and little understanding of the reasons for the differential in retention and success presented by these two studies. This study is the first to qualitatively explore the experiences of widening access and traditional entry students through the lens of progression, with the aim of both increasing understanding of the specific challenges experienced by widening access students and contributing to the design of student support measures.

References

1. Department for Business Innovation and Skills. Success as a Knowledge Economy: Teaching Excellence, Social Mobility and Student Choice. London: Stationery Office; 2016.

2. Milburn A. Unleashing aspiration: the final report of the panel on fair access to the professions. London: Cabinet Office 2009.

3. Steven K, Dowell J, Jackson C, et al. Fair access to medicine? Retrospective analysis of UK medical schools' application data 2009-2012 using three measures of socioeconomic status. Bmc Medical Education 2016;16.

4. Selecting for Excellence Executive Group. Selecting for Excellence Final Report: Medical Schools Council, 2014.

5. Medical Schools Council. Entry requirements for UK medical schools: 2017 entry, 2016.

6. Curtis S, Blundell C, Platz C et al. Successfully widening access to medicine. Part 2: Curriculum design and student progression. Journal of the Royal Society of Medicine 2014:107(10):393-7.

7. Garlick PB, Brown G. Widening participation in medicine. Bmj-British Medical Journal 2008;336(7653):1111-13.

Summarise the relevant literature and explain how the idea for the study evolved (max 250 words). Please include key references

c   Study Design

Cross-sectional qualitative study consisting of initial one-to-one semi-structured interviews, followed by the completion of audio diaries by some participants until February 2019.

> This mixed methods approach has been chosen to facilitate collection of richer, more detailed data than the use of either by itself. Semi-structured interviews will be used to allow participants reflect on their journey so far and have been chosen rather than focus groups due to the sensitive nature of some of the topics being explored. Interviews will also allow the researcher to build rapport with the participants and increase the participants' understanding of the purpose of the research prior to the longitudinal audio diary data collection. Audio diaries have been chosen to facilitate collection of immediate accounts of experiences, which do not rely on retrospection and in which there is a lower likelihood of feelings or events being forgotten. Additionally, information is less prone to conscious or unconscious editing by the participant than in interviews. Please see the attached interview framework and audio diary prompts.

E.g., cross-sectional observational study

2.   SAMPLE AND SETTING

a   Specify and justify study size

> 24-28 participants recruited for semi-structured interview phase. This range has been chosen for methodological and pragmatic reasons. Previous research using audio diaries in which data has been collectively analysed using the full sample (i.e., not within participant analysis) has included between 17[1] and 22[2,3] participants. Based on previous research[2,3], there is an expectation of some participant attrition before the completion of the audio diary phase. This initial sample size allows for this, with the hope that 20 participants will complete the audio diary phase, allowing the possibility of reaching data saturation. Data saturation is the point at which no new themes emerge as new data is collected. Although with a longitudinal study design it is difficult to predict at what point this will occur, 20-28 participants are consistent with previous research, and is a practical number of participants for a PhD project to manage.
>
> *References*
>
> 1. *Monrouxe LV. Solicited audio diaries in longitudinal narrative research: a view from inside. Qualitative Research Journal 2009;9(1):81-103.*
> 2. *Williamson I, Leeming D, Lyttle S et al. Evaluating the audio-diary method in qualitative research. Qualitative Research Journal 2015;15(1):20-34.*
> 3. *Worth N. Making use of audio diaries in research with young people: Examining narrative, participation, and audience. Sociological research Online 2009;14(4). Available at http://www.socresonline.org.uk/14/4/9.html*

Include sample size calculation, if applicable

b   Setting

Within the Faculty of Medicine, University of Southampton. Individual interviews will be carried out in private, quiet, and comfortable rooms. The interviewer has attended a course on qualitative interviewing run by the Health Experiences Research Group at the University of Oxford. Participants will record audio diary entries at times convenient to them. Where necessary, the researcher will travel to interview graduates at a location convenient to them.

Specify where the study (data collection) will be conducted

c   Details of proposed participants/sample

BM5 and BM6 medical students in any year during 2017-2018, including year 0 of the BM6 course. Both BM5 and BM6 students are to be recruited in order to compare and contrast the experience of widening access and traditional entry students. By recruiting students in all years, it will be possible to explore students' experiences throughout the student lifecycle and identify themes that continue from the preclinical into the clinical years.

BM6 students who have graduated in 2017 or 2018. Including these participants will help increase understanding of successful behaviour. Recruitment is limited to the students who have previously given permission to be contacted in regard to future research. Recruitment is limited to these two cohorts as interviews require reflection on the medical student experience, and those who graduated longer ago may find this is clouded by time.

E.g., fellow students/cohort no/year. Etc

d   Relationship of participants/sample to researcher

The researcher has no direct relationship with the participants. The research supervisor, Prof Sally Curtis, is the BM6 programme leader, and BM6 students have given her permission to contact them about research opportunities; these students will be approached with an email from her. BM6 students who have graduated in 2017 and 2018 were invited to give their permission to be contact by Prof Sally Curtis about future research opportunities. Only those who gave this permission will be contacted by an email from her.

Outline your relationship with participants in the proposed sample and confirm that you have permission to contact the participants. Provide letters of collaboration, where applicable.

e   How will participants/sample be identified

All eligible students in any year will be given the opportunity to take part. Participants will self-identify by responding to the invitation.

Graduates who have given permission to be contacted will be identified by Prof Sally Curtis.

f   How will participants be approached and recruited

BM6 students will be approached with an email from Dr Sally Curtis, inviting them to take part. If they are happy to consider being involved in this research, they will be asked if their telephone number and email address can be given to the researcher, who will then call them to discuss the study in more detail and to arrange a convenient time for the interview. If interested in taking part, they will be emailed a copy of the participant information sheet.

Both BM5 and BM6 students will be informed about the study through a notice in lectures or tutorials and given a flyer (attached). Interested students will be asked for their telephone number and email address, so the researcher can contact them to discuss the study in more detail and arrange a convenient time for the interview. They will have the opportunity to ask questions of the researcher and read the participant information sheet (see attached) before agreeing to take part. This is comprehensive and considers in its depth and language that the audience are medical students.

Social media will also be used with copies of the flyer and participant information sheet posted on the WAMSOC, MEDSOC and other appropriate social media group. Interested students can then contact the researcher directly for more information.

The study will also be posted on the Connect Project website (https://www.connectproject.co.uk/submit) using wording from the participant information sheet.

Graduates identified by Prof Sally Curtis will be approached with an email from her inviting them to take part by contacting me via email or telephone. Interested individuals will be sent a copy of the Graduate Participant Information Sheet and an interview time and location will be organised.

The aim is to recruit a purposive sample that is balanced between BM5 and BM6, in all years, male and female, in addition to the graduated BM6 students. However, it is

appreciated that this may not be possible, depending upon uptake, and a convenience sample may have to be sufficient.

If a recruitment poster is to be used, provide a copy. Please refer to the example poster.

g   State inclusion and exclusion criteria and screening tools, if applicable

Inclusion criteria: BM5 and BM6 medical students in any year. BM6 students who graduated in 2017 or 2018.

Exclusion criteria: BM5 international students and mature graduates. This is because all BM6 students are UK residents without a prior degree. BM6 graduates who have not given permission to be contacted for future research.

h   How will consent be obtained

Students and graduates will be given a comprehensive participant information sheet to read, followed by an opportunity to ask questions. They will be asked to sign an informed consent form if they agree to take part (see attached), a copy of this will be given to the participant to keep.

i   Will participants be given written   Yes ✓   If no, why?

    information?   No ☐

(Include Patient Information Sheet (PIS) in application)

j   Will participants sign a consent form?   Yes ✓   If no, why not?

                                                              No ☐

Tick 'yes' or explain why not (e.g., may not be required for questionnaires). Include copy of consent form where appropriate. Include consent form in application where appropriate

k   Explain how participant/sample anonymity and/or confidentiality will be maintained?

The participant information sheet will cover issues around anonymity and confidentiality, and this will be discussed with participants prior to signing the consent form. All participant data will be link anonymised using study codes. The key to these will be kept in a separate password protected folder on the researcher's university network and will

be deleted upon completion of the study. Consent forms will be kept in a locked cabinet in the Medical Education Development Unit.

Audio recordings and transcripts will be stored on the researcher's password protected network area. After the researcher has verified transcriptions, audio recordings will be deleted. The Medical Education Development Unit will keep the interview transcriptions for 15 years; in accordance with research conduct guidelines.

Participants will not be identifiable in the PhD report or any subsequent publications. Where quotes are included, a pseudonym will be used, and any information that could lead to participant identification will be removed.

If the researcher is concerned about the immediate safety and wellbeing of the student participants or other students mentioned by the participants, she will disclose this to the faculty senior tutor only. The participants will be informed of this course of action before they give their consent to participate in the study.

Anonymity:

i) Unlinked anonymity - Complete anonymity can only be promised if questionnaires or other requests for information are not targeted to, or received from, individuals using their name or address or any other identifiable characteristics. For example, if questionnaires are sent out with no possible identifiers when returned, or if they are picked up by respondents in a public place, then anonymity can be claimed. Research methods using interviews cannot usually claim anonymity – unless using telephone interviews when participants dial in. Unlinked data cannot be withdrawn.

ii) Linked anonymity - Using this method, complete anonymity cannot be promised because participants can be identified; their data may be coded so that participants are not identified by researchers, but the information provided to participants should indicate that they could be linked to their data. Linked data can sometimes be withdrawn.

Confidentiality – The non-disclosure of research information except to another authorised person. Confidential information can be shared with those who are already party to it and may also be disclosed where the person providing the information provides explicit consent.

3.   INTERVENTIONS AND MEASUREMENTS

a   What will happen to the participants/sample?

Participants will take part in one semi-structured interview, one-to-one with the researcher, at a time convenient to them. A private, comfortable space will be used. The interview will be audio recorded for transcription and expected to last between 45 and 90 minutes. Participants will be reminded that they do not have to answer any or all of the questions, and that the interview can be paused or terminated at any time. If

participants ask to stop the interview, they will be asked if the data collected to that point might be kept and analysed. If they withdraw their consent to this, the audio recording will be destroyed. The questions asked will follow the structure on the interview schedule (attached), with follow up questions asked as appropriate.

For student participants, at the end of the interview, the researcher will discuss the practicalities of keeping an audio diary with the participant and ask if the participant is willing to take part in the second element of the study. If the participant has a mobile phone or tablet with voice memo functionality, they will be asked to bring this with them to the interview, and the researcher will go over with them how to create a diary entry and how to email it to the researcher. If not, the researcher will give the participant the necessary equipment. The participant will be reminded that they should make at least one entry per month, but that there is no maximum to the number of entries they can make. The researcher will go over the audio diary prompts (see attached) with the participant and answer any questions they may have.

Participants will then keep an audio diary until February 2019 (or earlier if data saturation is reached prior to that point). They will email their entries to the researcher, who will acknowledge their receipt by return email. The researcher will be in touch with participants each month to check their progress and remind them to submit diary entries if necessary. The participant may also be in touch with the researcher at any time with questions.

Participants who agreed to keep an audio diary will be contacted by email in autumn 2018 to ask questions about how they found the experience of keeping an audio diary (proposed email attached).

Specify what participants will be asked to do and for how long they will be asked to do it. Ensure that demands on the participants (including time and travel) are reasonable.

b   Explain what will be measured/explored and how

Through the interviews and audio diary entries, data will be collected to cover the key research questions outlined in section 1a. These methods also allow flexibility to explore other issues that emerge through the research process. The interview schedule and audio diary prompts have been developed by the researcher following training by the Health Experiences Research Group at Oxford University and adjusted with feedback from academic experts in qualitative research.

The PhD researcher will conduct all interviews and manage the audio diary process. She will also transcribe the initial interviews and some of the audio diary entries. A

> company used by the Medical Education Development Unit will carry out most of the transcription.

Provide copies of relevant documents (including questionnaires and interview frameworks) and confirm that permission to use them is in place. Ensure that the role of all assistants and/or collaborators is made clear. Comment on the validity and reliability of the proposed tools.

c   Outline how the data will be analysed

> With consent from the participants, all audio recordings of interviews and audio diaries will be transcribed. NVivo software will be used to aid data management. A pragmatic approach to data analysis will be used, using thematic analysis. In the interviewing phase, this will include an iterative process of analysis and interviewing. A manual, line-by-line examination of transcripts will be conducted to code the data, which will be grouped into categories of related codes. These will be used to develop a coding framework. The primary researcher and research supervisor will independently code the first three interview transcripts to ensure objectivity in the development of the coding framework. It is expected that the coding framework will change throughout the research process, as codes emerging from individual participants are compared and contrasted both over time, and with data from other participants.

4.   MANAGEMENT OF THE STUDY AND RISKS INVOLVED

a   Is this a pilot study?   **Yes** ☐   **No   X**

If not, outline what pilot work has already been completed or outline the pilot work that will be carried out as part of the project, as applicable

> A current quantitative study is examining demographic and assessment data of BM5 and BM6 medical students. The design of this qualitative study is based on the questions emerging from this initial study.
>
> The interview schedule will be piloted on two students prior to the main data collection.

Specify the decisions to be made before the main study (e.g., procedures to be clarified)

b   Outline the potential risks/harm to participants in the study (including the researcher/s)

> There is a risk that participants may become distressed during the interview portion of the study, and that it will bring up issues that the participant may not have previously

considered. Recording an audio diary will require the participant to reflect on current situations, thoughts, and feelings without the presence of the researcher or other form of support. If the participant is in an emotionally vulnerable state, there is a small possibility of the audio diary process increasing their distress at that time.

c   How will you *attempt to prevent* the potential risks/harm from occurring?

Participation in this study is completely voluntary, and participants may withdraw at any point in the data collection phase. Before the interview they will be reminded that they may refuse to answer any or all of the questions, and that they are able to pause or terminate the interview if they wish to.

During the audio diary phase, participants will be reminded that they may contact the researcher at any point if they have any questions or difficulties. As the process is participant-driven, they will only record what they wish to record. Participants will be informed that if the process brings up issues that they wish to discuss further, they can be referred on to the faculty senior tutors.

Participants will be provided with a list of faculty and university support services. Participants will be informed that if they indicate intent to harm themselves, or that other students may do so, the researcher will discuss their disclosure with the faculty senior tutor for advice.

d   How will you *manage* any that do arise?

If the participant becomes distressed during the interview, the researcher will remind them that the interview can be stopped, temporarily or permanently. After the interview, participants can be referred on to faculty senior tutor if necessary. In addition, a list of other university support services will be provided.

If participants indicate intent to harm themselves, or that other students may do so, the researcher will discuss their disclosure with the faculty senior tutor for advice.

Explain the steps taken to manage any discomfort and/or distress etc (e.g., a helpline telephone number)

e   How will data be stored securely during and after the study?

Please see section 2k.

All participant data will be link anonymised using study codes. The key to these will be kept in a separate password protected folder on the researcher's university network and will be deleted upon completion of the study. Consent forms will be kept in a locked cabinet in the Medical Education Development Unit.

Audio recordings and transcripts will be stored on the researcher's password protected network area. After the researcher has verified transcriptions, audio recordings will be deleted. The Medical Education Development Unit will keep the interview transcriptions for 15 years, in accordance with research conduct guidelines.

Please note: Faculty of Medicine research conduct guidelines require data to be stored for 15 years. Audio recordings should be deleted following transcription.

f   Raise any ethical problems not covered elsewhere and how you will deal with them.

n/a

Highlight any additional ethical issues not covered elsewhere on the form (e.g., where the topic of an interview is sensitive or may cause friction between parties).

Acknowledgement: this document is adapted from the Application Form developed by SoHPRS

Confirmation of ethics approval of qualitative study

Your Ethics Submission (Ethics ID:26661) has been reviewed and approved

○ **ERGO** <**ergo**@soton.ac.uk>

Wednesday, 17 May 2017 at 16:55

To: ⊗ D'Silva R.R. ⌃

Submission Number: 26661
Submission Name: Exploring the experiences of widening access and traditional entry medical students at a UK medical school. What are the facilitators of and barriers to progression?
This is email is to let you know your submission was approved by the Ethics Committee.

You can begin your research unless you are still awaiting specific Health and Safety approval (e.g. for a Genetic or Biological Materials Risk Assessment)

Comments
1.Dear Rebecca, Re: ERGO reference 26661 - Exploring the experiences of widening access and traditional entry medical students at a UK medical school. What are the facilitators of and barriers to progression? Thank you for your revised application relating to the above research study. I am pleased to inform you that full approval has now been granted by the Faculty of Medicine Ethics Committee. Approval is valid from today until 26/02/2019, the end date specified in your application. Please note the following points: â¢ the above ethics approval number must be quoted in all correspondence relating to your research, including emails; â¢ â¢ if you wish to make any substantive changes to your project you must inform the Faculty of Medicine Ethics Committee as soon as possible. Please note that this email will now constitute evidence of ethical approval. Should you require a paper signed copy of this approval, please contact the FoMEC Administrative Team via email at: Medethic@soton.ac.uk. We wish you success with your research. Yours sincerely Dr Catherine Hill Chair of the Faculty of Medicine Ethics Committee

Click here to view your submission
Coordinator: Rebecca D'Silva

ERGO : Ethics and Research Governance Online
http://www.ergo.soton.ac.uk

DO NOT REPLY TO THIS EMAIL

Confirmation of ethics approval of first amendment

Your Ethics Amendment (Ethics ID:30865) has been reviewed and approved

E ○ **ERGO** <**ergo**@soton.ac.uk> Tuesday, 31 October 2017 at 09:53

To: ⊗ D'Silva R.R. ︿

Submission Number 30865:
This email is to confirm that the amendment request to your ethics form (Exploring the experiences of widening access and traditional entry medical students at a UK medical school. What are the facilitators of and barriers to progression? (Amendment 1)) has been approved by the Ethics Committee.

You can begin your research unless you are still awaiting specific Health and Safety approval (e.g. for a Genetic or Biological Materials Risk Assessment)

Comments
1.Dear Rebecca, RE: 30865 - Exploring the experiences of widening access and traditional entry medical students at a UK medical school. What are the facilitators of and barriers to progression? (Amendment 1) Thank you for submitting your amendments relating to the above research, specifically to extend the sampling frame to include third year students and to extend methods of recruitment to include social media sites, the Connect project and flyers in lectures. I am pleased to inform you that full approval has been granted by the Faculty of Medicine Ethics Committee for these amendments. Approval is valid from today until 01/02/2019, the end date specified in your application. Please note the following points: â¢ the above ethics approval number must be quoted in all correspondence relating to your research, including emails; â¢ â¢ if you wish to make any substantive changes to your project you must inform the Faculty of Medicine Ethics Committee as soon as possible. Please note that this email will now constitute evidence of ethical approval. Should you require a paper signed copy of this approval, please contact the FoMEC Administrative Team via email at: Medethic@soton.ac.uk. We wish you success with your research. Yours sincerely Dr Catherine Hill Chair of the Faculty of Medicine Ethics Committee

Click here to view your submission
Coordinator: Rebecca D'Silva

ERGO : Ethics and Research Governance Online
http://www.ergo.soton.ac.uk

DO NOT REPLY TO THIS EMAIL

Confirmation of ethical approval of second amendment

Your Ethics Amendment (Ethics ID:31816) has been reviewed and approved

E ○ **Ergo** <**ergo**@soton.ac.uk>   Monday, 12 February 2018 at 08:32

To: ⊗ D'Silva R.R.   ⌃

Submission Number 31816:
This email is to confirm that the amendment request to your ethics form (Exploring the experiences of widening access and traditional entry medical students at a UK medical school. What are the facilitators of and barriers to progression? (Amendment 2)) has been approved by the Ethics Committee.

You can begin your research unless you are still awaiting specific Health and Safety approval (e.g. for a Genetic or Biological Materials Risk Assessment)

Comments
1.Dear Rebecca, RE: 31816 - Exploring the experiences of widening access and traditional entry medical students at a UK medical school. What are the facilitators of and barriers to progression? (Amendment 2) Thank you for submitting your amendment relating to the above research study, specifically to extend recruitment to all years of the Year 6 programme. I am pleased to inform you that full approval has been granted by the Faculty of Medicine Ethics Committee. Approval is valid from today until 01/09/2019, the end date specified in your application. Please note the following points: â¢ the above ethics approval number must be quoted in all correspondence relating to your research, including emails; â¢ if you wish to make any substantive changes to your project you must inform the Faculty of Medicine Ethics Committee as soon as possible. Please note that this email will now constitute evidence of ethical approval. Should you require a paper signed copy of this approval, please contact the FoMEC Administrative Team via email at: Medethic@soton.ac.uk. We wish you success with your research. Yours sincerely Dr Catherine Hill Chair of the Faculty of Medicine Ethics Committee

Click here to view your submission
Coordinator: Rebecca D'Silva

ERGO : Ethics and Research Governance Online
http://www.ergo.soton.ac.uk

DO NOT REPLY TO THIS EMAIL

Undergraduate participant information sheet

UNIVERSITY OF Southampton

Participant Information Sheet (draft v2 2ⁿᵈ May 2017)

Study Title: Exploring the experiences of widening access and traditional entry medical students at a UK medical school. What are the facilitators of and barriers to progression?

Researcher: Rebecca D'Silva, Postgraduate researcher in Medical Education
ERGO number:

Please read this information carefully before deciding whether to take part in this research. If you are happy to participate you will be asked to sign a consent form.

What is the research about?
This is a PhD study that is part of a project to explore what helps and hinders medical students as they progress through medical school. It will examine students' experiences, and their thoughts and feelings about what happens to them. We are interested in the experiences of both BM5 and BM6 students. Its aim is to increase understanding of how medical students feel and what impacts their decision making, and to generate ideas to improve medical student support.

I am a postgraduate researcher working towards a PhD. I completed my medical degree at Southampton in 2011, and now work in the Medical Education Development Unit.

Why have I been chosen?
You have been chosen because you are a BM5 or BM6 medical student in Year 1 or Year 4.

What will happen to me if I take part?
If you agree to take part, you will be given a consent form to sign. I will arrange to meet you and carry out a one-to-one interview for as long as you feel willing/able to talk. I would anticipate it lasting for between 45 and 90 minutes. I will ask you about your background and motivation for studying medicine, and your experiences since starting medical school. With your consent, the interview will be audio recorded and transcribed.

You will then be asked to keep an audio diary until February 2019. This method should be convenient and quick for you to make entries, simply by digitally recording your thoughts. If you have a mobile phone, tablet or computer with a voice memo function, you will be able to use this, otherwise you will be provided with the necessary equipment. You will be asked to make at least one entry every month, or as regularly as you wish to, and then to email it to me. I will always reply so you know it has been received.

The content and length of your audio diary entries is up to you. I am particularly interested in the 'highs' and 'lows' of being a medical student. What events, thoughts and feelings make you more excited about becoming a doctor or give you confidence that you will get there? Which ones make you doubt you will be able to make it through? These may be associated with your degree, or may be in your personal life. You will be given a prompt sheet to help you.

At the end of the initial interview I will make sure you are happy with how you will make audio diary entries, and how you will send them to me. During the data collection period I will make regular contact with you to check you are happy with what you need to do for the study, and you are welcome to contact me at any time if you have any questions or concerns. At the end of the data collection period I will meet with you to ask you about your experiences keeping an audio diary, and answer any final questions you may have.

Last updated: 2ⁿᵈ May 2017   Version number 2

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Are there any benefits in my taking part?
Yes! Your answers will contribute to important research that will inform future support offered to medical students. It will give you the opportunity to talk about your experiences and express your opinion on a variety of subjects to an interested, non-judgemental listener who is not directly involved in your education. Additionally, through keeping an audio diary, you will develop key skills in articulating your thought processes, which is a required skill for doctors throughout their careers. Verbalising your thoughts and feelings can be a helpful tool in helping you work through any difficulties you are experiencing.

Are there any disadvantages and risks involved?
It will take time out of your day for the interview, but every effort will be made to minimise inconvenience and to ensure your comfort in the interview process. Keeping the audio diary for a number of months will require some commitment, both of your time and organisational skills.

I am asking you to share with me some potentially personal and confidential information, and you may feel uncomfortable talking about some of the issues. You do not have to answer any question or disclose any information if you don't wish to do so, and you don't have to give me any reason for not responding to any question, or for withdrawing at any stage. If any of the data collection process brings up issues you wish to discuss further, we will be able to refer you on to more expert sources of support.

Will my participation be confidential?
All the information you provide will be kept strictly confidential and available only to my research supervisors and me. It will not be disclosed to your tutors, lecturers, or clinical supervisors and will not be used in any way to advantage or disadvantage your progress at university. However, if I am concerned about your safety, or that of any of your fellow students, I will discuss this with the faculty senior tutor.

Your data will be coded so your name is not attached to it during analysis. Quotes used in papers and reports will use a pseudonym, and care taken to minimise the risk of your identification.

Data will be kept on a password-protected sub-folder of my University of Southampton network in accordance with the Data Protection Act. All audio recordings will be deleted after transcription, and your responses link-anonymised. This means that a key to the code used to identify your data is kept in a separate place to the data, and can be used to identify which data belongs to you if you wish to withdraw it a later date.

What happens if I change my mind?
If you agree to take part, you can withdraw at any point during the interview or while completing the audio diary. This will not affect your progress at university in any way. We would ask to be able to use all data collected up to the point of your withdrawal, which will be kept subject to confidentiality procedures. However, it will be possible for you to withdraw your permission for the use of interview data until the end of February 2018, and audio diary data until the end of February 2019.

What happens if I have a complaint?
We do not anticipate any problems arising during this study. However, if you do have a concern or complaint you feel unable to raise with me, please feel free to contact my research supervisor Dr Sally Curtis (contact details below). You can also contact the Research Governance Office, tel 023 8059 5058, rgoinfo@soton.ac.uk.

Where can I get more information?
If there is anything that is unclear, or you would like more information, please feel free to contact me (contact details below).

Last updated: 2nd May 2017   Version number 2

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Thank you for taking the time to read this information sheet.
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Last updated: 2nd May 2017   Version number 2

Postgraduate participant information sheet

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Participant Information Sheet – Graduates v1

Study Title: Exploring the experiences of widening access medical students at a UK medical school. What are the facilitators of and barriers to progression?

Researcher: Rebecca D'Silva, Postgraduate researcher in Medical Education
ERGO number: 26661

You are being invited to take part in the above research study. To help you decide whether you would like to take part or not, it is important that you understand why the research is being done and what it will involve. Please read the information below carefully and ask questions if anything is not clear or you would like more information before you decide to take part in this research. You may like to discuss it with others but it is up to you to decide whether or not to take part. If you are happy to participate you will be asked to sign a consent form.

What is the research about?
This is a PhD study that is part of a project to explore what helps and hinders medical students as they progress through medical school. It will examine students' and recent graduates' experiences, and their thoughts and feelings about what happens to them. Its aim is to increase understanding of how medical students feel and what impacts their decision making, and to generate ideas to improve medical student support.

I am a postgraduate researcher working towards a PhD. I completed my medical degree at Southampton in 2011, and now work in the Medical Education Development Unit.

Why have I been asked to participate?
You have been chosen because you were a BM6 medical student who graduated in 2017 or 2018.

What will happen to me if I take part?
If you agree to take part, you will be given a consent form to sign. I will arrange to meet you and carry out a one-to-one interview for as long as you feel willing/able to talk. I would anticipate it lasting for between 45 and 90 minutes. I will ask you about your background and motivation for studying medicine, and your experiences since starting medical school. With your consent, the interview will be audio recorded and transcribed.

Are there any benefits in my taking part?
Yes! Your answers will contribute to important research that will inform future support offered to medical students. It will give you the opportunity to talk about your experiences and express your opinion on a variety of subjects to an interested, non-judgemental listener who is not directly involved in your education or career.

Are there any disadvantages and risks involved?
It will take time out of your day for the interview, but every effort will be made to minimise inconvenience and to ensure your comfort in the interview process.

I am asking you to share with me some potentially personal and confidential information, and you may feel uncomfortable talking about some of the issues. You do not have to answer any question or disclose any information if you don't wish to do so, and you don't have to give me any reason for not responding to any question, or for withdrawing at any stage. If any of the data collection process brings up issues you wish to discuss further, we will be able to refer you on to more expert sources of support.

Last updated: 27th September 2018   Version number 3

Medicine

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What data will be collected?

Background data on your ethnicity, gender identity, age and markers of BM6 eligibility will be collected to identify how representative the research sample is of the BM6 population. Audio recordings of the interviews will be transcribed. This will be kept confidential and handled securely; hard copies will be kept in a locked cabinet in the University of Southampton. Electronic data will be kept on a password-protected sub-folder of my University of Southampton network in accordance with the Data Protection Act. All audio recordings will be deleted after transcription, and your responses link-anonymised. This means that a key to the code used to identify your data is kept in a separate place to the data, and can be used to identify which data belongs to you if you wish to withdraw it a later date.

Will my participation be confidential?

Your participation and the information we collect about you during the course of the research will be kept strictly confidential.

Only members of the research team and responsible members of the University of Southampton may be given access to data about you for monitoring purposes and/or to carry out an audit of the study to ensure that the research is complying with applicable regulations. Individuals from regulatory authorities (people who check that we are carrying out the study correctly) may require access to your data. All of these people have a duty to keep your information, as a research participant, strictly confidential.

Your data will be coded so your name is not attached to it during analysis. Quotes used in papers and reports will use a pseudonym, and care taken to minimise the risk of your identification.

Do I have to take part?

No, it is entirely up to you to decide whether or not to take part. If you decide you want to take part, you will need to sign a consent form to show you have agreed to take part. You can inform me via email or phone that you want to take part and I will email you the consent form. You can give this to me at the interview.

What happens if I change my mind?

You have the right to change your mind and withdraw at any time without giving a reason and without your participant rights being affected. We would ask to be able to use all data collected up to the point of your withdrawal, which will be kept subject to confidentiality procedures. However, it will be possible for you to withdraw your permission for the use of interview data until the end of February 2019.

What happens if I have a complaint?

If you have a concern about any aspect of this study, you should speak to the researchers who will do their best to answer your questions.
If you remain unhappy or have a complaint about any aspect of this study, please contact the University of Southampton Research Integrity and Governance Manager (023 8059 5058, rgoinfo@soton.ac.uk).

Where can I get more information?

If there is anything that is unclear, or you would like more information, please feel free to contact me (contact details below).

Thank you for taking the time to read this information sheet.

Contact details:

Lead researcher
Rebecca D'Silva
Postgraduate Researcher
Medical Education
Faculty of Medicine

Last updated: 27th September 2018   Version number 3

Medicine

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Participant consent form

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CONSENT FORM v2 17th May 2017

Study title: Exploring the experiences of widening access and traditional entry medical students at a UK medical school. What are the facilitators of and barriers to progression?

Researcher name: Rebecca D'Silva

ERGO reference:

Please initial the box(es) if you agree with the statement(s):

I have read and understood the information sheet (version 2, dated 2nd May 2017) and have had the opportunity to ask questions about the study.

I agree to take part in this research project and agree for my data to be used for the purpose of this study.

I understand my participation is voluntary and I may withdraw at any time.

I give permission for the researcher to contact me by phone and/or email during the period of the study.

Name of participant (print name)...

Signature of participant..

Date...

Name of researcher (print name)..

Signature of researcher ....

Date...

Last updated: 05/07/2017   Version Number 1

Initial interview protocol

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Interview Protocol (draft v1 17th April 2017)

Study title: Exploring the experiences of widening access and traditional entry medical students at a UK medical school. What are the facilitators of and barriers to progression?

Date:	Location:	Interviewer:
Time:	Interview number:	Interviewee:

Interview procedure
You are being asked to participate in a research study investigating what helps and hinders medical students as they progress through medical school. The purpose of this study is to increase understanding of how medical students feel and what impacts their decision making, and to generate ideas to improve medical student support.

During this interview you will be asked to respond to a series of open-ended questions. You may choose not to answer any or all of the questions. The procedure will involve recording the interview, and the recording will be transcribed verbatim. Your answers will be confidential, and will not impact on your progress at university.

Informed consent
Please sign the informed consent form signalling your willingness to participate. You may withdraw your consent at any point during the interview.

Questions	Comments
Please could you tell me about your experience of medical school so far, take as long as you want, I won't interrupt. When did you first decide you wanted to be a doctor? Why? How did your family react when you told them you wanted to be a doctor? What about your friends? And teachers? What have been your best experiences at medical school so far? What have been the biggest surprises for you since you started medical school? Thinking about you and your friends, what do you think are the biggest challenges for medical students? When you are finding university difficult, what different things/people help you to keep going?	

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Do you ever doubt that you will finish medical school and become a doctor? If yes, what do you think is behind these thoughts/feelings? Have you had any experience of failure on the course yet? How did you deal with that? Do you/have you ever worked alongside your degree? How do you balance the two? What are the benefits/drawbacks for you of working/not working? What extracurricular activities are you involved in? Why do you choose to do/not to do these? How do you think your involvement has made your experience different than it would have been? Do you have any responsibilities caring for family/friends, either during term time or in the holidays? How does this affect you? How has being at medical school affected your relationships with family and friends at home? What do you think they think of you being at medical school? How do you think your experiences of medical school would differ if you were a BM5/BM6 (opposite to what they are)? If you were going to give advice to people in your school about applying to medicine, what would you say? **For later cohort:** Tell me about the transition to clinical medicine and placements. What has gone well? What has been difficult? Thinking back over the last 3 years, at which points of the course was it hardest to keep going? Why do you think that was? What makes a day on placement a good day or a bad day?	

Interview protocol version 2

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Interview Protocol (Version 2, updated October 2017)

Study title: Exploring the experiences of widening access and traditional entry medical students at a UK medical school. What are the facilitators of and barriers to progression?

Date:	Location:	Interviewer:
Time:	Interview number:	Interviewee:

Interview procedure
You are being asked to participate in a research study investigating what helps and hinders medical students as they progress through medical school. The purpose of this study is to increase understanding of how medical students feel and what impacts their decision making, and to generate ideas to improve medical student support.

During this interview you will be asked to respond to a series of open-ended questions. You may choose not to answer any or all of the questions. The procedure will involve recording the interview, and the recording will be transcribed verbatim. Your answers will be confidential, and will not impact on your progress at university.

Informed consent
Please sign the informed consent form signalling your willingness to participate. You may withdraw your consent at any point during the interview.

Questions	Comments
Please could you tell me about your experience of medical school so far, take as long as you want, I won't interrupt. When did you first decide you wanted to be a doctor? Why? How did your family react when you told them you wanted to be a doctor? What about your friends? And teachers? How has being at medical school affected your relationships with family and friends at home? What do you think they think of you being at medical school? What have been your best experiences at medical school so far? What have been the biggest surprises for you since you started medical school? Thinking about you and your friends, what do you	

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think are the biggest challenges for medical students?	
When you are finding university difficult, what different things/people help you to keep going?	
What about the pastoral and practical support available from the university? How has that impacted you?	
Do you ever doubt that you will finish medical school and become a doctor? If yes, what do you think is behind these thoughts/feelings?	
Have you had any experience of failure on the course yet? How did you deal with that?	
What does 'success' at medical school mean to you?	
Do you/have you ever worked alongside your degree? How do you balance the two? What are the benefits/drawbacks for you of working/not working?	
What extracurricular activities are you involved in? Why do you choose to do/not to do these? How do you think your involvement has made your experience different than it would have been?	
Do you have any responsibilities caring for family/friends, either during term time or in the holidays? How does this affect you?	
How do you think your experiences of medical school would differ if you were a BM5/BM6 (opposite to what they are)?	
How socially inclusive has your experience of medical school been so far?	
If you were going to give advice to people in your school about applying to medicine, what would you say?	
For later cohort:	
Tell me about the transition to clinical medicine and placements. What has gone well? What has been	

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| difficult?

Thinking back over the last 3 years, at which points of the course was it hardest to keep going? Why do you think that was?

What makes a day on placement a good day or a bad day? | |

Appendix I   Example memo

This interview felt quite a challenge to get the participant to open up. I didn't push for expansion of thought as much as I should have done.

I struggle to be an impartial interviewer at times. When participants say things where they are exhibiting negative thoughts, or their thinking doesn't show logical progression, the teacher and pastor in me needs to reflect that back to them and help to move their thinking on. Eg interview 1, talking about luck in exams and rolls of the die. P was talking about it being his turn to fail, I reflected back that he has no evidence based on past outcomes that the next exams will be any different.

Participant is a funny mix of being driven by wanting more, and a sense of altruism.

Interview ended fairly abruptly with no follow up questions.

Listening to this, I doubt how much useful information is going to come out of the interviews. Then I wonder what I mean by 'useful'. I need to go back to my research questions and think about how I am coding.

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