THE EXPANSION OF MEDICAL EDUCATION PROVISION AND WIDENING ACCESS TO STUDY MEDICINE IN ENGLAND.

by

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ABSTRACT

This PhD submission focuses on issues arising from the recent expansion of medical education in England, including widening access to medicine. It presents 11 papers published over the last 9 years which are the product of academic collaborations with colleagues and students at the University of Birmingham. The work includes outputs from local and national evaluations that have examined the expansion policy, process, and outcomes. Three research themes are identified from this body of papers; the first around predicted and observed impacts of expansion policy at local and national levels; the second concentrating on students' and clinical teachers' experiences of education amidst expanding provision; and finally issues relevant to widening access to medicine policy.

The findings complement and add to existing knowledge in these research areas and give the basis to draw overarching conclusions about the significance of recent policy shifts for policy makers, medical schools, educators and students. In turn this work allows us to identify the need for further lines of enquiry and argues for a broad approach and conceptualisation for medical education research that is able to track macro policy changes, through meso level organisational and institutional influences, to micro level experience of educational policy and delivery.

DEDICATION

I would like to dedicate this thesis to my mother and father who never had the educational opportunities that I was afforded. Thanks for your support (and pestering) throughout. "*You know what"* is finally finished dad.

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I would especially like to thank Professor Jayne Parry for her invaluable support and collaboration during the work from which this PhD submission stems. Also of course, I owe so much to Liz, my partner, for her patience and understanding.

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CRITICAL REVIEW:

THE EXPANSION OF MEDICAL EDUCATION PROVISION AND WIDENING ACCESS TO STUDY MEDICINE IN ENGLAND.

Introduction

This PhD submission presents published research from the past 9 years, focusing on issues arising from the recent expansion of undergraduate medical education provision in England, and related policy, including widening access to study medicine. The body of work contributes to evidence describing and explaining the experience of educational provision within contemporary policy contexts from an institutional, student and educator's perspective. In particular it enhances our understanding of the institutional impacts of a substantial expansion in medical education provision, the relationship with clinical teaching provision and experience of that, and the impacts and experiences of attempts to widen access to medicine.

The papers presented in this submission represent the outputs of academic collaboration with a number of colleagues, and importantly also with University of Birmingham medical students who have conducted research contributing to 3 of the papers included. Of the 11 papers, I am first or senior author of 9 and played a central role in the work reported in the other two. Throughout the time that this group of papers represents I have worked closely with Professor Jayne Parry. Jayne is a co-author on all but one of these papers, and has helped me to develop as a researcher during this time. Jayne is also my adviser for this submission.

Background

In policy terms the background and impetus to this area of research was the national expansion programme in undergraduate medical education in England which aimed to create a near 70% increase in medical school places against a 1998 baseline. This substantial shake up of educational provision was a response to recommendations from the Medical Workforce Standing Advisory Committee which predicted shortfalls in the future clinical workforce[1,2]. The expansion that resulted was achieved by increasing places in almost all English medical schools. It also saw the creation of four new medical schools, which have a particular part to play in many of the findings presented here[3]. At the same time as this rapid expansion we have witnessed both changing medical school curricula and modes of delivery (mainly in response to recommendations set out in Tomorrow's Doctors), as well as new national policy and initiatives aiming to widen access to medicine and higher education more generally[4-6]. To complicate matters further of course, these already complex shifts must relate to and interact with wider policy influences within the clinical and NHS settings that medical education is reliant upon.

My own engagement with these policy and research agendas began with a series of discrete studies around the University of Birmingham Medical School (UBMS) expansion programme, the Black Country Strategy (BCS). The BCS was so-called because it demanded the development of new clinical teaching capacity in primary and secondary care settings in the conurbations of Dudley, Sandwell, Walsall and Wolverhampton (the 'Black Country'), to the north-west

of Birmingham[7]. In the absence of relevant evidence to gauge the impact of such transitions, my initial work at this time was designed to 'predict' how expansion might play out over time for the NHS organisations and clinicians involved, for the University and also for the students concerned. Studies were undertaken to examine student experience in varied clinical teaching contexts and to gather the perspectives of clinical teachers engaging with UBMS and its students.

Following on from this work the Department of Health Policy Research Programme commissioned the core research team to undertake the National Evaluation of the Expansion of Medical Schools (NEMS) in order to understand the issues around implementation and impact of the new national policy. This evaluation work was a natural extension of my previous local studies on the BCS, enabling my colleagues and I to examine how expansion policies were playing out across the country, whilst focusing on specific elements such as the widening access initiative. The majority of the later outputs presented here ((g)-(k)) originate from this evaluation.

Research Themes

Although, naturally, there are interrelationships across the papers included, here they are organised into three distinct themes of research. The first theme focuses on predicted and observed impacts of the expansion programme, including two papers from the BCS work ((b),(c)) and the major paper summarising the national NEMS project findings (h). The second theme concentrates on the studies that have contributed to knowledge around

students' and clinical teachers' experience of medical education amidst the context of expanding provision ((a), (d), & (f)). Finally the third strand majors on issues relevant to the widening access to medicine policy. This includes papers focused on the monitoring of impacts (e), the relative contribution of different expansion course types to student population diversity (k), and qualitative work with the students who are the focus of these policy developments ((i) & (j)).

These three themes are now discussed in more detail. Following on, I will consider how this work helps to define the need for future research in these topic areas, and then provide methodological reflection, particularly regarding the qualitative work presented.

Research Theme 1: predicted and observed impacts of the expansion of undergraduate medical education provision

A preliminary literature review prior to the assessment of the BCS demonstrated a lack of research and evidence that might be used to infer the likely impacts of expansion locally. Perhaps this is not overly surprising, as the rate and scale of change was unprecedented in the UK. While I identified research (e.g. 8-10) that compared certain clinical outcomes according to teaching hospital status this was not informative for a number of reasons. Firstly, the existing research provided cross-sectional comparisons which were not necessarily informative regarding longitudinal changes within clinical

settings. Secondly the research focused primarily on a narrow range of clinical rather than educational outcomes. Finally, although some studies demonstrated improved outcomes for teaching hospitals such observations were not universal and therefore somewhat inconclusive. This led to a decision to conduct preliminary qualitative work with primary and secondary care clinical staff in the UBMS catchment area ((b) & (c)) to unpick perceptions of the likely impacts of expansion into those settings.

The findings from both of the exercises with local clinical staff were broadly in agreement. Placements in peripheral and newly established NHS settings were seen as advantageous for students, giving them greater exposure to common disease conditions and more diverse patient populations, in less crowded and more typical (than tertiary, specialist large teaching hospitals) NHS settings. Similarly, respondents didn't anticipate any negative impacts for patients with increased student numbers. Advantages for hospitals and trusts were anticipated including an enhanced ability to recruit and retain high quality staff, to attract additional resources, to develop specialties and to increase research productivity. However, and importantly, against these positive expectations persistent concerns were also voiced as to the institutions' and individuals' ability to accommodate education amidst competing clinical commitments in resource constrained and time-pressured environments.

The subsequent conclusions from the NEMS project (h) do little to allay the early fears expressed by the participants in the BCS studies. Although some

predicted advantages of expansion appear to have materialised in the case studies included in the NEMS evaluation (e.g. recruitment and retention in peripheral hospitals), other policies and cultures conspire to reduce the priority afforded to teaching and educational functions, both within universities and affiliated clinical settings.

The national expansion programme was implemented in environments where competing policies existed and were in explicit tension with each other. In universities the advent of the Research Assessment Exercises (RAEs) saw the prioritization of the research agenda[11]; in the NHS the emergence of league tables and publically-available performance data made clinical commitments paramount. Teaching and educational functions were thus forced to take a back seat, both in strategic decision-making at organisational level and in the prioritisation of activities by individual faculty and clinicians. Educational quality assurance mechanisms were perceived to be weak in comparison to those for research (such as the RAE) and clinical activities (service agreements, job plans, and the new consultant contract). Similarly individual careers were aligned to research and clinical achievements because of the primacy these were afforded in career progression and promotion criteria. In university settings expansion monies were diverted to bolster research functions, rather than support expanded educational requirements, and even the new medical schools had one eye on future research activity whilst developing curricula and related infrastructure. In the NHS resourcing models (Service Increment for Teaching (SIFT)) were unable to adequately redress deficiencies in teaching capacity, or the influence of

other wider national policies such as the European Working Time Directive and the new consultant contract[12-14].

The findings from NEMS confirmed the concerns about expansion articulated by participants affected by the earlier Birmingham-specific expansion programme (the BCS). My work on both initiatives seriously questions whether and how weakly incentivised teaching and curricula can maintain quality in a widely expanded undergraduate medical sector that faces strong and performance managed competition from research and clinical activity. We already see some of this reflected in work around the educational climate, particular in clinical teachers concerns (see Theme 2 and MacDonald[15] for instance) and would expect this to continue to manifest itself.

Research Theme 2: student and clinical teachers' experience of undergraduate clinical education amidst the context of expanding provision

Although models of clinical education vary between medical schools, teaching delivered in NHS hospital settings by clinical teachers is a core component of all medical degrees, and a key developmental stage for the next generation of doctors. The hospital setting has also experienced major impacts as a result of increased student numbers and earlier hospital placements within curricula, with additional demand for hospital based clinical teaching capacity. Although there is a wealth of medical education research examining detailed aspects of the delivery of clinical education, there are only a small number of studies

focusing on the general educational climate within hospital settings and factors which influence these[16-19]. The three papers in this theme add to this area of research and generally confirm findings from other medical school settings, thereby implying wide generalisability and relevance to medical education communities of the messages given. Two of the papers ((a) & (f)) examine student experiences, one via a survey and the other using focus group research. The third paper examines clinical teachers' perspectives on their educational role, again via survey research (d). I supervised the design and conduct of both of these surveys which were carried out by UBMS students undertaking their first hospital placements in Year 3 of the 5-year UBMS MBChB Programme.

The 'Hostile Teaching Hospitals' survey (a) set out to describe medical student experience of different clinical teaching settings at UBMS, with a specific comparison of existing affiliated UBMS teaching hospitals with district general hospitals (DGH) which historically had not been substantially involved in undergraduate education . This comparison was based on observations in the literature that elements of the educational climate within DGHs are reported favourably by clinical students[18,19]. The findings demonstrate that whilst the facilities and structures for teaching are seen to be better in teaching hospitals, the educational climate in DGHs is generally friendlier and more supportive with teachers more approachable and available, more likely to provide positively viewed sessions, and less likely to cancel or not turn up to scheduled teaching. At the same time the high volume of students within established teaching hospitals was thought to inhibit effective learning. Such

observations might be particularly important for students during a transitional period of learning (see below) that initial clinical teaching placements represent. This study suggests that there are disadvantages for students within large teaching hospital which in turn has inferences for expanded and larger medical schools with concomitant capacity requirements in clinical teaching settings. Upon reflection perhaps the binary comparison of teaching and district general hospitals is somewhat simplistic, and the survey methodology can mask important nuances and variation, something which some student respondents identified in free text comments about variation within hospitals. The follow up focus group study, and research from other medical schools[16,17,20] demonstrate that teaching hospital status is not a determinant of educational climate per se. Nevertheless these observations demand further reflection about elements of the educational climate that influence experience of clinical learning.

The focus group study (f) examining the experiences of students during their first hospital placements in established and newly designated (as part of the BCS) teaching hospitals, sought to unpick these issues further. Specifically I sought to examine student perspectives of and experiences of initial hospital teaching and the influences on that experience. As noted above there is considerable variation in factors which influence educational climate within hospitals, both across teaching firms and between individual teachers. However, overarching this is a more positive view of new teaching settings that students ascribe to the relative enthusiasm and welcoming nature of clinical teaching and other staff, perhaps because of the novelty of

engagement with an educational role. There are obvious questions about how these advantages can be maintained over time as both numbers of clinical students and familiarity with the teaching role increase. Additionally, an 'incidental' finding within this study was the theme labelled as the 'new hospital learner' which describes the transitional period that students experience in adopting learning styles demanded by the clinical learning environment. This observation, which has also been made elsewhere[21] perhaps has important ramifications for certain types and groups of student, beyond an initial acclimatisation to hospital based learning (see below).

Finally, a survey of clinical teachers working (d) was conducted to examine consultant attitudes to their teaching role, how this varies by teaching setting, the relationship with other commitments and also the changing context for this role (e.g. curricular changes). The findings re-iterate observations regarding competing clinical commitments that influence the ability and enthusiasm to teach, whilst demonstrating that curricular changes have not been positively received. There are some negatives views of involvement in teaching, and when viewed in conjunction with a perceived lack of recognition for teaching roles both on the part of hospital trusts, and importantly UBMS, this is potentially worrying within an expanded undergraduate educational sector. The survey findings are echoed within those of the NEMS project and other work[17,21]. Whilst most teachers profess to enjoy their educational roles, such roles are not perceived to be recognised or rewarded. At the same time wider policy changes (as per Theme 1) are likely to exacerbate such feelings and threaten previously assumed clinical teacher identities[13,14].

Reassuringly (from an academic perspective), my findings chime with those from other medical school settings[16,17,21] suggesting that the broad themes that emerge have wide applicability and can be generalised beyond the contexts within which they were generated. The results of different research approaches (e.g. survey, focus groups, and interviews) produce complementary findings. Overall, this body of research suggests that the clinical learning environment is a very particular one and perhaps not necessarily the most supportive for 'beginner' clinical students. The transitional period for students is particularly stressful, an observation which has been made elsewhere[16]. There is variation in experience of clinical teaching between firms and teachers, and with district general hospitals and newly designated teaching hospitals being seen more favourably by students. Of course these observations seem to be partly related to capacity and also to the relative importance of teaching versus clinical and research commitments, as demonstrated by reported novelty of teaching in new teaching settings.

In all of this there is a 'so what?' question. Students and teachers are stressed. Is there anything new about that? Perhaps not, but the wider NEMS study suggests that the many influences on the clinical educational climate are converging to produce pressures which have not been seen before and which might impact more fundamentally on English medical schools, clinical teachers, and students.

Apart from this there are further questions about the relative impact on students of clinical and other educational climates, which emerge from this and related work. For instance, there are suggestions that certain groups and types of medical student are potentially disadvantaged by elements of the clinical learning environment[11]. Some of the practices and experiences might be viewed as normative in terms of the experience of becoming a doctor, and decisions relating to subsequent medical careers. Such possibilities are brought further into focus by more diverse medical student populations, with emphases on widening access policy, and resultant attempts to further diversify student populations (see Theme 3). These observations suggest a need for further research examining if and how educational climates are normative, for instance when considering career preferences and trajectories. Such research would complement more traditional medical research approaches to career trajectories, such as the longitudinal survey work from Oxford University (see 22, 23 for example).

Less dramatically it seems that new teaching environments and peripheral settings are generally received more positively. Whether such advantages can be maintained, or are available to all, is questionable within a widely expanded and capacity stretched undergraduate clinical learning setting.

Finally, work with clinical teachers chimes across different medical schools[15,17,21]; they feel they are increasingly pressured; not valued by the medical schools or hospital trusts; and not funded properly or trained, recognised or rewarded. As a result many clinical teachers may not have the

awareness of educational needs or approaches that emerged from the work with students. This is potentially a very important observation for medical schools that are reliant on clinical teaching capacity to deliver high quality medical education. To outsiders it might seem strange that such an important aspect of developing doctors is at times poorly experienced and viewed by parties on either side of the learning equation.

Research Theme 3: widening access to medicine - course provision and admissions processes; influences on participation rates and student experiences; monitoring progress and impact on diversity by course type.

The final research theme examines the recent policy emphasis on widening access to medicine. The focus of widening access policy within medicine in England, reflecting that within wider higher education, has been to attempt to redress socio-economic differentials in medical school application rates, and hence representation in undergraduate student populations[24-27]. Indeed, widening access was a specific central aim set out during the specification and implementation of the national expansion programme[24]. As such the NEMS project featured a concentrated effort to look at different aspects of policy progress to date.

There is a small amount of relevant research that exists, both descriptive and explanatory, though this is limited in a medical context. There are descriptive

reports showing aggregated trends in applications and acceptances to UK medical schools[28,29], and related work demonstrating the underrepresentation of certain demographic groupings when compared to the populations that medical workforces currently serve[30]. These show persistent underrepresentation of lower socio-economic (working class) populations and generally intractable differences in application rates by social class. The only medicine-specific work attempting to explain such differences has been conducted alongside outreach activities to increase rates of applications to a London medical school[31]. This work suggests that there are certain class-specific views of medicine and the requirements to become a medical student which preclude applications from students from lower social class backgrounds, but does not necessarily demonstrate how these views are formed.

Against this backdrop the NEMS work specifically focused on issues relevant to monitoring the impacts of widening access policy and initiatives ((e) & (k)), current admissions policies and processes (g), and also in-depth qualitative work attempting to further describe and explain the experiences and perspectives of 'non-traditional' students ((i) & (j)). Of note, Paper (e) reports work partly undertaken by a 3rd year medical student for his BMedSci dissertation which I supervised. The paper presented is however a substantial reworking of this research and goes beyond that presented as part of the BMedSci submission. With that acknowledgement the paper is included as the methodological issue it covers is integral to this theme and the interpretation of other work presented (for example (K)).

With regards to monitoring, against a background of critiques of old measures of social class and an ever increasing proportion of students not completing parental occupation on their UCAS applications[32,33], the first study (e) examined whether an area-based measure of deprivation could be used as a proxy for social class, and what the relationship with individual level measure (based on parental occupation) was. In short, this work demonstrates that older and non-white students are less likely to fill in parental occupation on UCAS forms, and that as the proportion of students reporting parents to be from professional classes has declined over time there has been a parallel increase in the proportion of missing parental occupation (i.e. social class) data. Area-based measures do not provide a perfect correlation with those based on parental occupation and this correlation is less good for mature and non-white students. All of this infers that mature and non-white students live in poorer areas, regardless of actual social class, and that perhaps professional class students are increasingly less likely to fill in parental occupation. By implication monitoring that relies on area-based measures might artificially skew impressions of the success of certain courses, for example, if they have a high proportion of mature or non-white students.

The admissions survey (g) shows broad homogeneity in the selection criteria used by English medicals schools for traditional 5 year courses, but very different methods of assessing and processing applications. In a system where academic attainment is key and demand from suitably qualified candidates outstrips supply, this naturally leads to questions around how we

pick out those candidates who have the most potential to become good doctors[34-37]. At the same time there are ongoing debates around entry criteria that are highly relevant to widening access; for example there has been much publicity concerning whether and how we might identify and give academic compensation to candidates from underrepresented backgrounds that have not reached mainstream course academic standards, but still have the aptitude to succeed[38]. For instance, should specially designed entry routes and course types be more widely adopted by medical schools?

Although it has been reasonably argued that reasons for low and intractable rates of working class participation are underpinned by low rates of applications[39], there are some question marks about the institutional response to a policy emphasis on widening access. The analysis of demographics across course and institution (k) suggests that the main way that English medical schools chose to respond to demands to widen access, the Graduate Entry Course (GEC), has not in fact been very successful in changing the student body demography in line with the dimensions emphasised in English policy. This contrasts with the success of the very small number of Foundation Courses, specifically dedicated to increasing socio-economic diversity. This naturally begs the question about low take up of Foundation Course options by medical schools, which on the face of it seem quite successful. Additionally the four new medical schools created as part of the expansion programme appear to be more demographically diverse, perhaps reflecting their explicitly novel approach to admissions policy[3]. When one starts to look at these observations in conjunction with qualitative research examining the

experience of mature and working class medical students during applications ((i) & (j)), the responsiveness of the medical profession and medical schools to the widening access agenda could be questioned.

The two qualitative papers presented ((i) & (j)) use theoretical and conceptual tools from wider educational sociology and social theory to understand low application rates amongst working class students, and also the basis of application decision-making and experience for older mature students. The proposition formulated in the first of these papers is that 'normal working class biographies' are identity forming, causing the majority of capable working class students to form dispositions that do not acknowledge professional trajectories such as medicine as legitimate options. This tallies with the attitudes and viewpoints described within Greenhalgh's focus group sample[31]. Whilst outreach activities attempt to re-orientate these identities and change individual perspectives, maintaining a profession of medicine demands an elite status and image which is contrary to this activity. Perhaps more widespread and ubiquitous foundation or other suitable entry routes could go some way towards redressing this.

For older mature students with very particular social and personal circumstances, we see a patchwork response from medical schools to applications from these types of student, evidenced by their experience of the application and admissions processes. Again this might question whether widening access ideals are aligned to medical school priorities within the wider context of the profession[40]. It is almost certainly unfair to question

commitment across the board as there are examples of committed widening access activity[41-45]. However, there are legitimate policy and research questions which would contribute further to contemporary debates and understanding; e.g. why are there so few dedicated foundation courses? Why do certain institutions have very different approaches to admissions? Is there widespread acceptance of a widening access agenda, or is this institution specific? How do medical school cultures act to influence approaches to admissions and widening access policy? In an uncapped fee environment such issues are likely to become even more relevant.

METHODOLOGY

Reflexivity

Looking back on earlier work has been an interesting and somewhat introspective process. In many ways it is illuminating to reflect on the approaches taken and the thinking underpinning earlier work. This is especially the case as some of the methods adopted and the methodologies informing the work presented (particularly qualitative and interpretive approaches) were new to me when this strand of research commenced soon after I took up a research position at the University of Birmingham in 2000.

Interpretive approaches to research acknowledge that research findings and interpretations are a product of the interaction between researchers and research participants / contexts during the research process, and that the knowledge generated is constructed during that process[46-48]. Philosophically this is distinct from positivist and objectivist views of research which maintain

that researchers can be impartial observers within research, separating themselves from the research context and subjects they are interested in, in order to produce generalisable truths about the physical and social world. Interpretive approaches therefore expressly demand that researchers work reflexively and critically in an attempt to gain insight into the interpretive process of which they are a part[49-51]. This is not an attempt to account for and eliminate 'bias', for example, as it might be conceptualised in positivist (e.g. epidemiological) research traditions i.e. "*the possibility that some aspect of the design or conduct of a study has introduced a systematic error, or bias, into the results.*"[52] (pg. 34). Rather it is the requirement that researchers attempt to critically examine their role in the production of research findings, both in order that alternative interpretations can be given a fair hearing, and in an attempt to make explicit the basis upon which interpretations are founded, for the benefit of audiences external to the research process. Of course conceptually the notion of reflexivity is not in itself unproblematic. In requiring conscious reflection upon the research process and product it assumes that the interpretive process is accessible at this conscious level. Some theoretical frameworks, for example, those which have been used to interpret findings within this research[53], posit that aspects of an individual's predispositions, influenced by social and cultural processes, are subconscious, and therefore presumably largely inaccessible to the individual (researcher). Thus it might be argued that there are inherent limits to the reflexive process.

Nevertheless it is possible to attempt consideration of the work presented here along two dimensions. Firstly, I will provide reflection on methodological approach and development across the body of qualitative work, and specifically how that has been influenced by the research cultures, traditions and philosophical underpinnings that I have been exposed to during my development as a researcher to date. Naturally this leads to some critical reflection on aspects of method as well as methodology, specifically around the conduct of some of the qualitative work presented. As part of this I will attempt to provide critical reflection, whilst outlining my current understanding of my methodological development during the time period this group of papers represents. Here I emphasise current as I now understand, that like the social processes we are attempting to gain insight into, personal methodological and philosophical outlooks are not fixed across time.

"For us all, beliefs and practices evolve."[48 (p.18)]

Secondly, I will take the opportunity to reflect on how my own personal biography has influenced my research interests within the body of work, and also my affinity to particular theoretical interpretations arising from observations made. The reflexive process suggests that this becomes especially important in considering the work encompassed by the third research theme presented in this thesis, covering widening access to medicine.

Methodological reflection

> "*Bourdieu's concept of habitus enables us to understand individuals as a complex amalgam of their past and present, but an amalgam that is always in the process of completion. There is no finality or finished identity. At the same time, habitus includes a set of complex, diverse predispositions….. As such it is primarily a dynamic concept, a rich interlacing of past and present, individual and collective, interiorised and permeating both body and psyche.*"[54 (p.521)]

The quote above is used in paper (i) to illustrate the conceptual framework which was used to interpret mature working class medical students' early life decision-making around applications to study medicine. Conceptually 'habitus' suggests that as individuals we are an interactive product of our past and present social, cultural (and presumably professional) lives, imbued with, often subconscious dispositions that influence our actions and behaviour (social practice)[53]. It frames individuals as 'works in progress' developing and changing through time, and substantially via social interaction. I would suggest that this is an equally useful reflexive tool in understanding my own methodological proclivities and developments over the time period the submitted papers represent, and how this relates to different research cultures, or what could be termed the 'research habitus'.

My very first research position was within an exclusively quantitative epidemiological research environment, the Centre for Cancer Epidemiology, at the University of Manchester. I initially worked on research projects focusing on prognosticators, treatment and management regimes for colorectal and upper gastrointestinal cancers. The methods employed were exclusively quantitative and statistical, and the research environment did not value 'unscientific' and 'touchy feely' social science research. When faced with a need to use qualitative methods for the first time within the early BCS research projects, philosophically, the approaches were challenging in nature. In retrospect this is consequent to the inherent tensions between the thinking underpinning knowledge generation in positivist epidemiological and medical research, and the qualitative interpretive approaches that have increasingly influenced medical research agendas[48]. The philosophical groundings of the former are most often implicit and assumed within the positivist hegemony of biomedical research, rather than being open to conscious and critical reflection by researchers and research audiences. Of course now my reflection on the earlier qualitative work presented here, is, in the light of this understanding, somewhat critical.

In particular the first two papers attempting to predict the impacts of expansion via the BCS ((b) & (c)), which used semi-structured interviews to collect data, warrant attention. In retrospect, the methodological approach framing this work was more akin to a positivist interpretation of a qualitative research project. There is a highly structured, objectivist view of the process of data collection and analysis. The interview content was pre-determined, mainly by

the research team, and data collection was highly structured, attempting to cover the same ground with each interviewee. At the time I was also a very inexperienced field researcher and the interviews were relatively short, as a consequence of their structured nature and a lack of mined content via prompting and probing[55]. Although a maximum variation sample was sought after, this was conceptualised as a means to represent the range of possible impacts arising from the expansion, rather than a mechanism to explore and understand diversity of opinion analytically, or to contribute to identifying additional relevant participants as part of the sampling strategy. This is apparent in the lack of comparative analytical questioning across the sample, with each comparative unit being conceptualised as variables with missing data, rather than potentially diverse, alternate and meaningful variation across participants and settings. These early qualitative reports are entirely descriptive in nature, providing simple listings of themes and categories without examining higher order interrelationships, or providing theoretical interpretation and analysis. Even more fundamentally the focus of the research questions, which were attempting to be predictive in nature (of the expansion impacts), are not typical qualitative research questions. In retrospect, perhaps an alternate approach might have been to understand the range of issues that we observe across stakeholder groups within established clinical teaching settings, the conditions under which these arise, and the likelihood that those conditions are replicated in new teaching settings initially, or over time, as a consequence of the expansion programme in Birmingham.

My implicit positivist methodological leanings at this point, constructed within my initial experience of a research environment and culture at the University of Manchester are, post hoc, clear to see. At the time this insight and reflection was lacking, demonstrated by editorial and peer review exchange with a high profile UK based medical sociologist, as part of the initial peer review of one of these reports (not referenced). The peer review encapsulated many of the observations made above, which I argued against most fervently as they did not fit with my methodological orientation at the time. Whilst clearly naïve in retrospect, some of the remnants of this argument are clearly contained in the discussion sections of these papers (for example see paper (b) p.230).

The focus group research with third year clinical students (paper (f)) does I think demonstrate some analytical development within the work, providing a slightly more nuanced analytical framework, although again this is lacking in theoretical interpretation. It's possible to see how a theoretically informed analysis might add something over and above the interpretation as it stands. For instance some of the data, such as that on page 84 categorised as representing the impact of numbers of students in clinical teaching settings, might alternatively be framed as representing aspects of ethical and moral dilemmas inherent in the clinical medical education process and transitions that are demanded of students within the process of becoming a doctor.

The remaining qualitative papers included here stem from the broader NEMS evaluation project. I think this represents a further development in approach

and understanding, with a move to more iterative sampling and data collection methods, for example, within the overarching NEMS project findings presented in paper (h), and a move to theoretically informed and derived outputs (papers (i) & (j)). These latter 2 papers employ theoretical perspectives from wider social theory and educational sociology within interpretations of empirical data collected as part of the broader evaluation project. I will discuss these perspectives further in relation to reflexivity about more personal aspects of my own biography below.

In essence, all of these observations relate to personal developments in methodological and philosophical understanding and position through time, which in turn have been heavily influenced by the research cultures that I work within. Of note, I am still based in a research environment where the dominant paradigm is essentially positivist and quantitative and where philosophical dimensions of research are implicit and lack critical appraisal. The qualitative papers within this submission represent very much a personal journey and voyage of discovery, a journey which is also incomplete. A critical review of this body of work demands reflection on how it can be placed methodologically within rehearsed and accepted methodological traditions. Any treatment of this must also acknowledge the philosophical journey that I describe and the related influences on my methodological development along the way, rather than naively and falsely declaring the (qualitative) work to fall entirely within the boundaries of well developed qualitative methodological traditions e.g. grounded theory, phenomenology, ethnography, that have emerged from other academic disciplines (sociology, psychology,

anthropology). I believe my methodological development and positioning to have been influenced by a number of things;

Firstly, as described my research 'initiation' took place within a quantitative positivist research environment, and this socialisation influenced the objectivist tinged early qualitative work and papers focusing on the Black Country Strategy.

Secondly, the qualitative work presented here are constituent empirical parts of wider evaluation research, initially around the local BCS expansion and latterly as part of the NEMS research project. To an extent the methodological emphasis and development in this broader context has been focused on developing evaluation frameworks. The constituent qualitative elements of these form the later qualitative papers presented here ((h), (i) & (j). These broader evaluation projects were specifically commissioned and designed to examine the implementation and impact of expansion policy in real world contexts. Although not detailed in the individual papers the mixed-method evaluation work from which this series of papers stems is informed by theory-based perspectives on evaluation, specifically Theories of Change developed by the Aspen Institute in the United States[56] and also Realistic Evaluation developed by Pawson and Tilley in the United Kingdom[57]. Data collection is explicitly mixed-method, taking the form of both quantitative data where this is useful (see for example (e) & (k) which present analyses of UCAS data) and in-depth qualitative techniques. The work employs a case study sampling approach based on intervention (medical school expansion)

typologies. The in-depth qualitative case studies used are underpinned by interpretive approaches to research and evaluation. In other words, I would argue that the implementation and impacts of policy interventions are best understood within local contexts and by surfacing the perspectives and experiences of the individuals and organisations that are the focus of the research. As this work was expressly commissioned and designed to focus on implementation and impact of policy these evaluation frameworks are entirely consistent with those aims. Although a critical policy analysis framework (e.g. 58) may be useful to contextualise the findings from this empiric impact evaluation work, for example by understanding the genesis and nature of national policy and how that relates to implementation and impact, this was not a focus of the NEMS or BCS projects.

Such approaches to evaluation acknowledge that expansions in medical education cannot just be conceptualised as an isolated intervention to increase medical student numbers. Rather such policy interventions are viewed as complex and multifaceted, whilst acknowledging that they are implemented in different and varied organisations, each with their own local context and histories. At the same time there are other national and overarching policy influences (such as those within the NHS) that affect the implementation and impact of an expansion programme. Any evaluation of this programme, or equivalent complex interventions, should ideally attempt to engage and account for this complexity in methodological and philosophical approaches[55,57]. As a consequence the thinking underpinning the evaluation work from which these papers flow, shifts the focus of the evaluation

questions from simple question of what works with a sole focus on pre-defined outcomes, to contextually specific questions about how policy interventions play out in real world situations. This facilitates emphasis on implementation and impact within local organisational contexts and histories. This is important when thinking about policy changes such as the expansion of undergraduate medical education where measurement of pre-defined outcomes and summative evaluation are less relevant than learning around how policy influences, and interacts, with real world contexts. The overarching NEMS project findings (h), I hope, go some way towards dealing with this complexity whilst providing relevant learning for policy makers and more importantly the institutions and individuals charged with delivering medical education. The latter qualitative outputs, focus on some of the student groups who are targeted by widening access policy, and were lines of enquiry, and personal interest, pursued within this broader evaluation framework.

Finally this work has also been influenced by and aligns quite closely philosophically with the Framework approach to the study of applied social policy, which has been developed by members of the National Centre for Social Research[59]. Accepting of interpretivism, epistemologically this approach also explicitly acknowledges aspects of pragmatism, giving priority to the suitability and 'fit' of methods to the research questions at hand[48]. This mixed-method submission and approach to research also implicitly draws on pragmatist ideas, seeing diverse research approaches (qualitative and quantitative) as complementary;

> "*…our search is for complementary extension – that is using different forms of evidence to build greater understanding and insight of the social world than is possible from one approach alone.*"[48 (p.22)]

Part of the task of developing work which is pluralist, mixed-method and influenced by interpretivism is being able to develop and place oneself methodologically. This is no easy task for researchers working in medically influenced research areas where dominant philosophical paradigms are assumed and largely unchallenged. To place a foot outside of the dominant paradigm results in demands from within the hegemony to demonstrate objectivist credentials for research products. We see this in calls for the application of structured quality criteria such that qualitative research products may be judged in parallel with traditional quantitative 'evidence', and in the development of strategies to confer rigour and validity, such as demands for dual coding and abstraction[60,61]. Concurrently researchers are often asked by qualitative research audiences to place their work within accepted qualitative traditions developed within other academic disciplines, whilst demonstrating coherence between method, methodology and philosophical underpinning[62]. In my opinion this often results in novice converts desperately seeking to align their work with specific and recognised qualitative traditions, even when patently the coherence demanded is lacking. To an extent this also denies the flexible, creative, iterative and developmental nature of much interpretive methodological work in favour of recipe book research. It assumes that

qualitative methodologies developed in different academic disciplines will fit medical research agendas, and also ignores the constantly evolving nature of qualitative approaches and emerging methodologies within varied academic disciplines[63]. Calls for the development of flexible approaches to interpretive qualitative enquiry, which might borrow from accepted methodological approaches, but cohere with the research questions and areas they are focusing upon, are consistent with this position[64], as are developments in social policy research approaches such as Framework[59].

In summary, the early work presented here can substantially be understood within the context of my early research training and background. Latterly my qualitative work has been influenced by elements of theory-based evaluation approaches (Theories of Change and Realistic Evaluation), qualitative approaches to the evaluation of social policy (Framework), whilst also borrowing elements of narrative approaches to data collection[65] and analytical strategies that are common to recent developments in grounded theory approaches[63]. My research beyond this submission is most recently influenced by the latter, particularly in my view of the iterative relationship between data collection, analysis and sampling.

Widening access to medicine and biographical infuence

As detailed above my involvement in the body of work presented here has I believe allowed me to develop as a researcher with a broad methodological appreciation and understanding. The research presented in theme 3 has further enabled this via a move to more theoretically informed and placed

representations of the qualitative research findings. These representations are strongly influenced by the social theory of Pierre Bourdieu[53] and the application of this in the UK within the educational sociology of Reay, Ball, Davies and David (see for example[54, 66-68]). It also chimes with other applications of Bourdieu's social theory in understanding the experience of minority groups within higher education, for example the work by Cathy Yang-Costello with students in professional schools in the US[69].

I have to admit a particular affinity with the work programme that theme 3 details, one which I didn't envisage at the outset of the NEMS project work. With colleagues I continue to conduct research which is relevant to this theme, and hope to generate further funding to enable a more detailed appreciation of widening access policy in English medical schools, particularly against the backdrop of a changing fee regime. Again speaking reflexively this is undoubtedly tied to my own personal biography. Having come from a working class family without any history or experience of higher education, as I see it now, I benefitted from an opportunity to enter higher education, and for this to at least provide the initial credentials required to apply for a research position.

The theoretical positions used in paper (i) employ the concepts of 'habitus' and 'normalised biographies' to suggest why professional careers such as medicine are far less likely to be on the horizons of many of the students that widening access initiatives hope to engage with. These positions argue for the continued influence of structural societal factors, manifested as individual

identities and dispositions, in turn influencing conscious and subconscious decision-making, here in relation to higher education participation.

My own biography is undoubtedly linked to my interest in this research theme and quite probably to my alignment with the theoretical positions used. A deeper analysis might argue that this work is in itself an opportunity for framing and rationalisation of a personal biography. Indeed, it is remarkable how many of the academics I have met working on widening access themes have similar personal biographical elements. Bourdieu himself argued for a reflexive approach within his sociology, and might have seen a personal biography as a 'checking mechanism' for empirical and theoretical work.

SUMMARY AND FUTURE WORK

This group of papers adds substantially to knowledge regarding contemporary undergraduate medical education in England following an unprecedented expansion programme. The three individual themes of research presented, and their constituent papers, stand alone in giving useful insights into a range of relevant policy and educational issues. At the same time this work provides the basis to draw some overarching conclusions about the significance of recent shifts for policy makers, medical schools, educators and students. In particular the findings point to a need to focus attention on the implementation of educational policy and initiatives, and their interaction with wider policy drivers within different educational, clinical and medical school contexts. Such a focus may lead to a position where espoused educational policy outcomes

and climates are able to be accommodated within often pressurised and alternatively incentivised research and clinical institutions and cultures. It would also allow the surfacing of often unanticipated interactions and influences which serve to corrupt otherwise laudable policy objectives.

There are implications beyond the substantive findings for future approaches in medical education research. There is a need to ensure that research agendas acknowledge the influence of macro level policy, its interaction and accommodation within meso level institutional and organisational cultures and practices, and in turn the influences on micro level experience, for instance, for students and clinical teachers. Research which focuses on the latter without paying attention to the former will be lacking in its explanatory power, and therefore broader utility in influencing medical education agendas. There is some wider recognition of this, for instance in acknowledgments of distinctive cultures between medical schools, and demands for cross-school research which acknowledges such difference and its contextual influences[70-71]. At its most useful research should attempt to make connections between the macro and meso level influences of micro experience and outcomes.

It is certainly possible to point towards examples of this need from observations made via the research presented here. For instance, there appear to have been varied reactions to widening access policy drivers across different medical schools, and relatively clear institutional patterns of openness as experienced by certain categories of non-traditional students e.g. older mature students. A logical research progression would be to examine

the influence of different institutional cultures on the development and enactment of widening access initiatives. At the same time there is a need to review and evaluate those initiatives and courses that have been put in place, whilst relating all of this to micro level experience of applicants and current students, including the minority of school leaver working class students who do make their way into medicine.

Further work could also focus on the impacts of clinical and other learning environments on student experience, development and subsequent career trajectories, including examination of whether differential impacts exist for students from different backgrounds. Apart from this it would be useful to understand whether the general impacts within a widely expanded undergraduate sector implied here are being felt across different medical schools. If so how are students and clinical teachers responding in larger capacity medical schools? What impact is this having on the students, educators and individual institutions?

Unfortunately the time and resource implications of such broadly conceptualised research approaches are relatively costly, and by implication they demand institutional co-operation and collaboration. In the absence of such approaches contemporary research agendas may fail to develop explanatory power and true policy influence. However, without a funding body specifically devoted to medical education that acknowledges the need for such broad research approaches, it is difficult to make substantial progress in this area. Though the National Institute for Health Research (NIHR) may

consider medical education research applications within some of its funding streams, often there is an explicit need to demonstrate a short term trajectory towards patient benefit, that may be more difficult for policy related medical education research.

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STATEMENT OF CONTRIBUTIONS

Jonathan and I have worked together in the field of medical education for ten years. In each of the papers we have published together, Jonathan has made a unique and senior intellectual contribution without which the paper would not have taken the form that it did.

In nine of the eleven papers contained in this thesis, Jonathan's contribution was such that his leadership of the work and his intellectual input is correctly recognised by either First Author or Senior Author status. In two papers (g and h) Jonathan's contribution, although listed second among the authors, was substantially greater than the remaining co-authors in that he and I were the two researchers who designed the study, obtained funding, conducted all the fieldwork and led the analyses. Indeed, Jonathan very much led the case study fieldwork for both the Black Country Strategy (BCS) (Papers a-d & f) and for the evaluation of the National Expansion of Medical School (NEMS) (Papers g-k) studies.

I can thus confirm that the series of papers presented in this thesis, although co-authored with colleagues including myself, do represent very much Jonathan's own intellectual and practical outputs and as such I am delighted to support him to put the work forward for consideration of the degree of Doctor of Philosophy (by Publication).

Jayne Parry
Professor of Policy and Public Health

February 2011

SUMMARY SHEET: SUBMITTED PAPERS

a)Parry JM., **Mathers JM**, Al-Fares A., Mohammad M., Nandakumar M., Tsivos D. Hostile teaching hospitals and friendly district general hospitals: final year students' views on clinical attachment locations. *Medical Education* 2002, 36:1131-42. http://onlinelibrary.wiley.com/doi/10.1046/j.1365-2923.2002.01374.x/full

b)**Mathers JM**., Parry JM., Lewis SJ., Greenfield S. What impact will the 'conversion' of two district general hospitals into teaching hospitals have? Views from the field. *Medical Education* 2003, 37: 223-32. http://onlinelibrary.wiley.com/doi/10.1046/j.1365-2923.2003.01434.x/full

c)**Mathers JM**., Parry JM., Lewis SJ., Greenfield S. What impact will an increased number of teaching general practices have on patients, their doctors and medical students? *Medical Education* 2004, 38: 1219-1228 http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2929.2004.02014.x/full

d)Hendry RG, Kawai GK, Moody WE, Smith LCR, Richardson M, **Mathers JM,** Parry JM. Consultant attitudes to undertaking undergraduate teaching duties: perspectives from hospitals serving a large medical school in England. *Medical Education* 2005, 39: 1129-1139 http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2929.2005.02320.x/full

e)Do PCT., Parry JM., **Mathers JM**., Richardson M. Monitoring the widening participation initiative for access to medical school: are present measures sufficient? *Medical Education* 2006, 40(8): 750-758 http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2929.2006.02535.x/full

f) **Mathers JM,** Scully E, Parry J.M., Popovic C. A comparison of medical students' perceptions of their initial basic clinical training placements in 'new' and established teaching hospitals. *Medical Teacher* 2006, 28 (3): e80—e89
DOI: 10.1080/01421590600617392

g)Parry J, **Mathers JM**, Stevens A, Parsons A, Lilford R, Spurgeon P, Thomas H. Admissions processes for five year medical courses at English schools: review *British Medical Journal* 2006; 332: 1005 – 1009 http://www.bmj.com/content/332/7548/1005.full?sid=04ced9ec-7037-46d3-b9f1-37e9f4956bce

h)Parry J, **Mathers JM**, Stevens A, Lilford R, Spurgeon P, Thomas H. More students, less capacity? An assessment of the competing demands on academic medical staff. *Medical Education* 2008. 42; pp 1155-1165 http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2923.2008.03234.x/full

i) **Mathers JM,** Parry J. Why are there so few working-class applicants to medical schools? Learning from the success stories. *Medical Education* 2009. 43: 219-228 http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2923.2008.03274.x/full

j) **Mathers JM,** Parry J. Older mature students' experience of applying to study medicine in England: an interview study. *Medical Education* 2010, 44(11): 1084-1094 http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2923.2010.03731.x/full

k) **Mathers JM,** Sitch, A, Marsh J, Parry J. Widening access to medical education for under-represented socioeconomic groups: population based cross sectional analysis of UK data, 2002-2006. *British Medical Journal* 2011; 341: d918 http://www.bmj.com/content/342/bmj.d918.full?sid=04ced9ec-7037-46d3-b9f1-37e9f4956bce