

AN INVESTIGATION INTO THE MATRIX OF SUPPORT
FOR MEDICAL STUDENTS ON HOSPITAL PLACEMENT:
A CASE STUDY

By

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Abstract

Historically, consultants oversaw students on placements as part of 'firms'. More recently, however, new roles have emerged that have dedicated educational support functions. The overall aim of this thesis is to investigate the structure of support for University of Birmingham medical students on hospital placements using a social learning theory lens.

This in-depth, single site study begins with an investigation of how a newly introduced role of Senior Academy Tutor (SAT) supports students on hospital placement, followed by an exploration of the wider support matrix available to students.

The first phase used routinely collected evaluation data to gauge Year 5 student sentiment about the SAT role, and then explored key themes with student focus groups and interviews with SATs. The second phase used a questionnaire survey to investigate how different roles support Year 3 to 5 students during their hospital placements.

Key findings were that students' orientation to their learning and to the matrix of support roles changes as they progress through the MBChB programme. From being concerned with learning basic skills and passing exams, students become more interested in learning the role of a junior doctor and joining the hospital community of practice.

Dedication

I would like to dedicate this thesis to my family, and to the parents of Optimist dinghy sailors in the Midlands. My parents have always supported me in my endeavours and their belief in me has been very important. I am more grateful than I can possibly express in words for the support and encouragement of my wife, Sarah. Without her this thesis would not have been started or completed. My daughter, Ellen has been fantastic. She has been encouraging and has not complained at all that we have not had the time to do all the things we would have liked to have done. It would have been very much harder to have undertaken this thesis without the support of my daughter's sailing friends' parents. They have allowed me to sneak off and work on this thesis and have kept a watchful eye on Ellen. Particular thanks are due to the McDonnells, Rachel and Ivor, who have acted in loco parentis more times than I can remember. Writing this dedication really brings home just how lucky I am!

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List of Abbreviations

Term	In full / meaning
AIP	Acutely Ill Patient placement
CMGD	Consultant and Middle Grade Doctor
CoP	Community of Practice
CTF	Clinical Teaching Fellow
EPR	End of Placement Review
EWTD	European Working Time Directive
F1 (FY1)	Foundation Grade Doctor in the first year
F2 (FY2)	Foundation Grade Doctor in the second year
FGD	Foundation Grade Doctor
GEC	Graduate Entry Course
GMC	General Medical Council
HEE	Health Education England
HEFCE	Higher Education Funding Council England
HEI	Higher Education Institution
IPE	Inter-Professional Education
MBChB	Bachelor of Medicine and Bachelor of Surgery
MCQ	Multiple Choice Question
MDT	Multi-disciplinary Team
MSF	Multi-source feedback
OBC	Outcomes-Based Curriculum
OHP	Other Healthcare Professional
OSCE	Objective Structured Clinical Examination
PBA	Professional Behaviours and Attitudes
QAA	Quality Assurance Agency
SAT	Senior Academy Tutor
SJT	Situational Judgement Test
SPC	Surgery and Peri-operative Care placement
SPM	Specialty Medicine placement
TEF	Teaching Excellence Framework
UKFPO	United Kingdom Foundation Programme Office

1 INTRODUCTION

This chapter provides an overview of the historical and research context for this thesis which explores medical students' experiences of support on hospital placement as part of the MBChB programme at the University of Birmingham. It starts with a brief summary of the research journey undertaken by the author and outlines the overall structure of the thesis which presents the research as a single case study conducted in two phases. Background information about the nature of the hospital placements undertaken by MBChB students is then given along with an introduction to each of the six support roles investigated in this study. Regulatory and quality assurance aspects relevant to this research are then considered. To complete the picture, an account is given of how medical education has changed since the early 1900s and the impact this is likely to have had on the nature of clinical placements and on students' learning and preparation for life as a doctor.

1.1 Structure and historical context of thesis

This thesis is structured to take account of a research journey. The journey began with a review of the MBChB Curriculum culminating in 2014 with the introduction of a new role, the Senior Academy Tutor (SAT), to help provide students with support while on hospital placement.

Part 1 of this thesis covers research conducted in 2013-14. This research investigated how SATs were undertaking their new role and identified the nature of support provided to

students and what types of support students think are valuable. An important finding was that the role was being interpreted in very different ways by individual SATs and that the quantity and quality of support provided to students was variable. Furthermore, it also became apparent that the SAT was part of a wider matrix of support for students while on hospital placement.

Part 2 of this thesis covers the second phase of this research project which, based on the findings of the initial research, looked at the little reported wider support matrix in more detail. This research focused on which roles support students with different aspects of their professional development and whether there are any professional development goals that students feel less supported with.

Each research phase has its own methods, results and discussion section. An overarching literature review is provided at the beginning of the thesis, and the conclusion seeks to draw together the overall findings of the research project.

1.2 Case study

1.2.1 What is a case study?

Yin (2014) describes a case study as an “empirical enquiry which investigates a contemporary phenomenon in depth and within its real-world context”. To quote Simons (2009) in Thomas (2011) a “case study is an in-depth exploration from multiple perspectives of the complexity and uniqueness of a particular project, policy, institution programme or

system in a real-life context. The primary purpose is to generate an in-depth understanding of a specific topic.” Hammersley and Gomm (2000) (cited in Thomas, 2011) note that case studies exist in naturally occurring settings where the aim is not to control the variables. They go on to note that case studies can look at processes and relationships.

Cheek et al. (2018) suggest a good case study draws upon the wisdom and experience of participants and uses wider theory to create conceptual insights. They also note “that an assorted set of methods or data sources may align with the research question and the situation to provide a depth of understanding, illuminating features that might otherwise have remained latent”.

Baxter and Jack note that the philosophical underpinning of case study research is the constructivist paradigm. It allows the researcher to work closely with participants to understand their actions or thoughts, through the ‘stories’ they tell. The purpose of a case study is to be exploratory or evaluative (Yin, 2014).

1.2.2 What is the case in this instance?

The case being studied in this thesis is medical students’ experiences of support on hospital placement as part of the MBChB programme at a single institution, the University of Birmingham. It is a single case study with embedded (nested) units of analysis (Yin, 2014). These are the role of the SAT, the views of teachers about what it is important for students to learn on hospital placement, and the study of who students perceive support them on hospital placement and how. The three units of analysis were conducted in two broad

phases with the research into the role of the SAT being one phase and the research into the wider matrix of support on hospital placements being the second phase. The units of analysis contained in the second phase were conducted sequentially. First, an investigation into what teachers consider important for students to learn on hospital placement and second (using the information gained from finding out what the teachers perceived important) the study about student perceptions of support for their learning on hospital placement. As noted by Thomas (2011), this case study has many of the features of action research, in that the sequential phases were iteratively developed to enable continued exploration of the topic. Perhaps as Thomas (2011) explains, action research is the method, but the case provides the focus rather than the method.

1.2.3 Why use a case study?

A case study is used to explore 'what', 'how' and 'why' (Crowe et al., 2011), which tends to suggest a qualitative methodology. However, case studies do incorporate quantitative data if it helps understand the phenomenon in question (Baxter and Jack, 2008). Thomas (2011) says the case study can be thought of as a scrapbook, which contains anything that you choose to put in it, but that the best methods should be chosen to help illuminate a particular facet or aspect of the case. Thomas (2011, page 93) nicely summarises the various purposes and approaches to case studies suggested by various influential authors. Based on his method of categorising a case study, this thesis research can perhaps be described as summarised in Table 1.

Subject	Purpose	Approach
Local Case <i>The case is the hospital where Birmingham Medical students are placed</i>	Intrinsic <i>The author is interested in this phenomenon in its own right</i>	Building a theory <i>In that the findings are used to create a theoretical interpretation of support for students on hospital placement</i>
	Instrumental <i>In that any useful discoveries will be used to inform curriculum development.</i>	Interpretive <i>In that both the qualitative and quantitative data is analysed and interpreted.</i>
	Explanatory <i>In parts, in that it seeks to explain findings in routinely collected evaluation data</i>	
	Exploratory <i>In that it seeks to discover what support is being provided, by whom and how.</i>	

Table 1: Case study approach applied to this thesis

1.2.4 The utility of case studies

Thomas (2011) provides an interesting analogy using roses to illustrate the utility of case studies. He notes that by studying one rose (the case) it is not possible to derive an understanding of all other roses as they vary according to scent, thorniness, colour and habit. In this thesis, as the study is of Birmingham medical students' experience of support on hospital placement it may not be possible to generalise all aspects of the study to other contexts. The curriculum organisation is unique to Birmingham, and the roles available to support students may also be different elsewhere. There are however, likely to be sufficient commonalities for this case study to be of use to others, and it is hoped the development of a theory, based upon this case will be of more general interest. However, as Thomas (2011) notes case studies like other forms of social enquiry can only produce knowledge that is

provisional. That is the knowledge is useful, until such times as something new is discovered which provides a better explanation.

1.3 Research Context

To put this research in context, there are about 380 students in each year of the Birmingham Medical Degree (Bachelors of Medicine and Surgery - MBChB) programme. This comprises about 340 students on the five-year programme and about 40 students on the four-year graduate entry course. Students are supported while on their placement by various clinical roles and it is the relationships of these roles to the students that form the focus of this thesis.

1.3.1 Student placements

The last three years, Years 3 to 5, of the MBChB programme are largely spent on clinical placement. This includes time on General Practice placements, but the majority (about 80%) of the time is spent on hospital placements.

In the third year, students have two hospital placements each of 11 weeks. Students change hospital for their second placement. In the fourth year the students have two hospital placements, one 18-week placement which includes time in a range of medical specialties, and one nine-week placement spent in specialty surgery and anaesthetics. In addition to this, the students have a placement in psychiatry and neurology, but this is not looked at as part of this research project. In the fifth year the students have a 15-week placement during which the focus is on preparing to become a newly qualified Foundation Grade Doctor (FGD),

and two five-week placements, one in paediatrics and one in obstetrics and gynaecology. In each year the students are principally assessed for knowledge using Single Best Answer format Multiple Choice Questions and by Objective Structured Clinical Examinations (OSCEs).

The MBChB programme at Birmingham is subject to validation by the General Medical Council (GMC), as are all medical degrees offered in the UK. It therefore has to enable all students to graduate having mastered the learning outcomes specified in Outcomes for Graduates (GMC, 2018). This project has used the GMC's Outcomes for Graduates to formulate a questionnaire designed to develop an understanding of how students are supported in achieving professional development outcomes while on hospital placement. At the time of creating the survey instrument, this document was being updated. However, the latest version of a draft form was used as the basis for the survey as it was felt unlikely that any changes between this draft and the final version would be minimal. This has proven to be the case.

A brief description of the support roles students encounter and who support their learning while on hospital placement is below.

1.3.2 Senior Academy Tutors (SATs)

These are senior doctors who take on the role of supporting students during their clinical placements. Each SAT is usually allocated a group of between four and six students, and should meet them regularly to ensure the students are making good progress during their placement.

1.3.3 Consultant and Middle Grade Doctors (CMGDs)

These are relatively senior doctors who often contribute to time-tabled teaching activity, which may be classroom or lecture based. Students may also encounter them in clinical areas, particularly on ward rounds or in clinic.

1.3.4 Foundation Grade Doctors (FGDs)

These are doctors in their first two years of being a doctor, known as the Foundation Grades. First year Foundation doctors (FY1) within the first year after qualification are principally hospital based and often work on medical and surgical wards. Second Year Foundation doctors (FY2) may also work on medical and surgical wards but also work in other specialties, such as general practice, emergency medicine, paediatrics, psychiatry, obstetrics or pathology.

1.3.5 Clinical Teaching Fellows (CTFs)

These are junior doctors who are specifically employed by hospital trusts to teach and support medical students. Many have just completed the Foundation Grades, some are a little further into their careers.

1.3.6 Other Healthcare Professionals (OHPs)

This group includes nurses, dieticians, and pharmacists, among others. There are many non-medical healthcare professionals that a medical student is likely to encounter while on a hospital placement.

1.3.7 Students

These are fellow students who are either on the same placement as the student who completes the survey, or may be students at the same placement, but who are on a different component or in a different year.

1.4 Regulation and Quality Assurance of Higher Education

The quality of the education of medical students, including the Birmingham MBChB programme, is overseen and regulated by multiple agencies and organisations.

1.4.1 The Quality Assurance Agency

The Quality Assurance Agency (2018) is responsible for overseeing the Higher Education Sector. While it mostly focuses on the quality assurance processes in place in Higher Education Institutions, it sets out nine clear indicators to cover its expectations around teaching and learning. Indicators 3 and 4 require that those responsible for teaching keep up-to-date with their subject and seek to improve their practice, and are supported in this by the Higher Education Institution through the provision of developmental activities. There is also a requirement to provide students with opportunities to discuss their progress and development with teachers.

1.4.2 The Office for Students and the National Student Survey

The Office for Students provides potential students with information about the courses they may be thinking of joining through publishing the results of the National Student Survey. All students in the final year of an undergraduate programme are encouraged to complete this survey. Pertinent to this thesis, students are asked questions about the teaching on their course and also whether they feel part of a learning community. The results for the Birmingham MBChB are good in these aspects of the survey. However, since the survey is asking students to reflect back on their experience over five years of study, this lack of granularity may mask some issues. This research project may allow some insight into these areas and potentially lead to improvements.

1.4.3 The Teaching Excellence Framework

The results of the National Student Survey (The Office for Students, 2017) are used to inform the Teaching Excellence Framework (TEF). This is a quality assurance mechanism introduced by the Department for Education and implemented by the Higher Education Funding Council for England to ensure teaching is of the highest standard.

1.4.4 The Higher Education Academy

A metric being used to inform TEF is the proportion of teaching staff who are fellows of the Higher Education Academy (HEA), now named Advance HE. Fellowship of the HEA (Advance HE, 2018) requires teachers to provide evidence against the UK Professional Skills Framework that requires fellows to engage in a range of teaching related activities, acquire core knowledge about teaching and demonstrate appropriate professional values.

1.5 Professional Regulation and Quality Assurance

The GMC is the regulator of the medical profession and places requirements upon individuals and organisations to ensure the quality of teaching and the learning environment.

1.5.1 Promoting Excellence

In Promoting Excellence the GMC (2015) sets out the standards required for the training of doctors and medical students, with themes 3 and 4 specifically focusing on support provided to learners and educators. Learners should receive educational and pastoral support, both when at the medical school, but importantly for this thesis, while on placement. There is also a requirement to ensure students receive useful feedback. Educators are required to be appropriately selected and trained and should also have the time and resources to undertake their educational roles.

1.5.2 Clinical placements for medical students

The GMC (2011) clearly sets out its expectations about the supervision of medical students while on placement. There is an acknowledgement that medical staff at all grades can participate in the supervision of medical students providing they are appropriately trained and briefed. However, there is a clear requirement to provide a named supervisor, and this role is undertaken on the Birmingham MBChB by the SAT.

1.5.3 The Foundation Programme Curriculum

The Foundation Programme curriculum (UKFPO, 2016) requires FGDs to develop teaching and mentoring skills in a range of contexts, from teaching small groups to giving presentations and supervising medical students in a clinical setting.

1.6 History of medical education

Abraham Flexner's report of 1910 was responsible for significant change in how medical education was organised in America and Canada (cited in Beck, 2004), and for similar changes that occurred in Britain too. Prior to Flexner's report, medical education was largely run on apprenticeship lines (Dornan, 2005). Flexner recognised a need for more rigorous biomedical training and thus the more modern pattern of medical education was born, with a pre-clinical phase followed by a clinical phase – with most of this time spent on hospital placements.

However, while the students may have had a more organised range of placements to ensure some experience of different specialties, the placements remained apprenticeship-like with students joining in the activities of the firm they were attached to. Firms were the middle-grade and junior doctors working for a Consultant, and to whom the Consultant delegated responsibility for aspects of patients under the care of the firm (Sinclair, 1997). Learning might be termed experiential and medical students were often used as an extra pair of hands undertaking various clinical duties. The longer placements and the greater integration into clinical activities possible by being a member of a firm, allowed learning relationships to develop between students and other members of the team. There would potentially be people who could take a student under their wing, teach the student the skills needed by the

firm and show them the ropes - the tacit learning useful to work in the firm (Eraut, 2000; Timm, 2013). This set-up was responsible for students becoming proficient at a range of tasks, but perhaps limited in the breadth of their knowledge and skills depending on the clinical work predominantly done by the firm. The consequence of being attached to firms, with the students' learning largely determined by the firm, was that while students, if they were lucky, would have a good experience and become practical and proficient in a range of skills, they might still reach the point of graduation with gaps in their knowledge or ability (Sinclair, 1997). Unlucky students could have more serious holes in their knowledge.

The reaction to the perception that students could graduate with gaps in their knowledge was the development of Outcomes-Based Curricula (OBC). The GMC issued its first universal curriculum, *Tomorrow's Doctors*, in 1993 (GMC, 1993) and this has since been revised and become more detailed. In addition, Royal Colleges, specialty-based societies and others have all busily created their own sets of learning outcomes for undergraduate medical education. As a consequence, most Medical Schools have interpreted all this guidance to create very detailed programmes and module learning outcomes, and this is certainly true of Birmingham. The move to OBC inevitably has changed student behaviour as it is made very clear what needs to be learnt. This enables students to plan their learning, gauge what they can do and what they need to focus on. This is a positive development in some ways, as prior to OBC students would have had difficulty knowing what they needed to learn. Some guidance may have been available from others in the firm or from older students and this clearly would have benefited those with a greater range of contacts or perhaps family members in the medical profession.

In tandem with the move towards OBC there has been an associated focus on ensuring that assessment was reliable and objective evolved. This encompassed both a shift in assessment types used and also a greater focus on ensuring students know what they are going to be assessed on. One of the key concepts of reliability is to make assessment fair. The older system of being graded by a consultant for work on the firm is potentially unfair, as there are too many personality factors involved. A hawkish (hard marking) consultant or a clash of personality could result in a student failing. The 'long cases' exams became regarded as potentially unreliable because the focus and content of the assessment were not sufficiently controlled, and too greater a proportion of a student's mark would be reliant on one examiner. The Objective Structured Clinical Examination (OSCE), where students are assessed on a range of skills and each of these is assessed by a different examiner, was developed to try and reduce some of these issues. This is not the place to discuss how reliability is achieved; the point here is that students are now much less likely to be affected by the vagaries and idiosyncrasies that were once part of the assessments in undergraduate medicine. Through processes known as blueprinting, whereby assessments are specifically designed to cover as complete a range of module learning outcomes as possible, students are better able to predict what will be covered in an assessment, and how they will be assessed. This is likely to have changed student behaviour as they prioritise what they see as the most efficient way of achieving their learning outcomes. This may or may not involve time spent on clinical placement as it is now less important to demonstrate competence in the jobs undertaken by the firm and less necessary to demonstrate diligence and commitment, as these are not part of the more reliable assessments. Instead a more focused endeavour, looking for teaching and opportunities to practice the requirements of the assessments is likely. This reorientation of student priorities will have changed the

relationship with clinical staff as students will no longer be content with on the job learning as this, given it is inevitably opportunistic in nature, will not be guaranteed to cover all the required outcomes. This means students may spend less time on the ward and will therefore be less exposed to role modelling from a range of professions, and will potentially not pick up the professional wisdom or tacit learning in the ways they used to.

1.7 Changing work environment

Other developments in recent years have also changed the student experience of hospital medicine. The firm, structured round a single consultant is much less prevalent now as consultants are organised into teams and junior doctors are allocated to clinical areas rather than to individuals. The changes to postgraduate training mean that junior doctors (Foundation trainees) often rotate into three different placements a year, and while perhaps retaining one educational supervisor for the year are responsible to three different clinical supervisors.

The European Working Time Directive (BMA, 2018) along with the consequent changes to how postgraduate medical education is organised affected the working patterns of junior doctors, and this in part led to the demise of the firm (Rimmer, 2019). Junior doctors no longer work the very long hours that they used to. This may mean that the hours worked are more intensively filled with jobs needing to be done and this may leave less time for supervising and teaching medical students. The regularising of junior doctor hours may also create an expectation in medical students that they do not need to spend long hours in hospitals in order to acquire the required learning. The charging of student fees may also have kindled a view that important educational opportunities should be provided at

convenient times to the students rather than opportunistic times associated with enhanced clinical activity.

The Consultant contract (King's Fund, 2006) which came into being in 2003 changed how consultants' jobs were organised. A more timetabled approach to job planning became the norm with clinical activities and other professional activities identified. The pressures of running an efficient health service mean that consultants are under pressure to deliver the service, and other activities have to fit into their allocated sessions. This pressure makes it more difficult for consultants to spend time teaching medical students while on the job.

Other factors in how the NHS is now organised may have a bearing on the student experience and on students' perception of the utility of spending time in clinical areas. Patients do not stay in hospital for as long as they did. Those that remain in hospital for any length of time are generally very ill, and this can mean they are not the best patients for students to practise their clinical skills on.

To compensate for the possible lack of learning opportunities occurring naturally through exposure during time on clinical placement, more timetabled teaching is scheduled. This includes modalities such as simulation which enable students to participate in scenarios they are less likely to be able to experience now, and at a level of responsibility that they are now not able to formally assume. In former times medical students would, as part of a firm, have been involved in such cases as part of their normal duties.

1.8 Chapter summary

This chapter has set the scene for an account of research into the matrix of support available to students in years 3, 4 and 5 during hospital placements undertaken as part of the MBChB programme. The nature of student placements in hospitals for medical students and the expectations of those in a teaching role have been articulated. This information provides the necessary background about the case study contained within this thesis so that the findings and discussion can be understood in context.

2 FOCUSED LITERATURE REVIEW

This chapter provides a short review of some social theories of learning which are pertinent in describing both students relationships with those who support them, and which may help understand students' changing orientation to learning that occur between initial hospital experiences and the point of graduation. It then takes a brief look at theories of learning and development that are more grounded in the individual. The discussion looks at how these theories of learning may help explain the change in the students' orientation to learning.

The chapter then contains a short review of the relevant literature about the various types of support role, for example mentor and supervisor, in order to ascertain whether the literature can help explain the roles as they exist in the Birmingham hospital placement context. The chapter concludes with a short review of literature on topics that may help inform a discussion about student learning while on hospital placement.

2.1 Learning Theories

2.1.1 Situated Learning and Communities of Practice

The first theories to consider are those of situated learning (Lave and Wenger 1991) and Communities of Practice (CoP) (Wenger, 1999). These theories regard learning as something which is grounded in practice and suggest that CoP exist wherever there is a sustained

mutual engagement in a joint enterprise. Can hospital medicine be regarded as a CoP?

Wenger-Trainer (2011) argues that there is no real limit to the size of a CoP providing there is mutual engagement in shared endeavours. Therefore given the shared endeavour of providing patient care, it is legitimate to regard hospital medicine as one. Of course, people can be members of more than one CoP (Cruess, Cruess and Steinert, 2018), and so these may form around specialties or other groupings within a hospital.

A CoP develops a shared repertoire, comprising for example activities, discourses, stories or artefacts. The learning of and sharing in this repertoire is how new members identify with and become part of the community. The repertoire is learnt through the practice of the community.

Those at the edge of the community, who have not yet become full members but whose presence is accepted, are known as legitimate peripheral participants. Egan and Jaye (2009) argue that medical students are legitimate peripheral participants as other community members recognise that they need to be involved in practice in order to learn the repertoire required to become doctors and fuller members of the community, whilst not yet fully participating in the shared enterprise of the community. Hence, the students' role is in learning the repertoire rather than using it. Jaye, Egan and Smith-Han (2010) suggest that the legitimacy of students enables exposure to the community, but the peripherality ensures close supervision.

Hägg-Martinell et al. (2017) describe how students have to go through a process of gaining acceptance by a community each time they move to a new placement, and this is difficult on short placements. They also note how students need invitations to become involved in the work of the community and suggest the role of the student's supervisor is important in extending these invitations and involving students in practice. Lave and Wenger (1991) discuss the trajectory that can be taken by members of a CoP, from newcomer supported by Journeymen to becoming the Old timer at the centre of the community. Egan and Jaye (2009) also discuss Wenger's notion that participation in a CoP is identity forming and can therefore be regarded as part of the professional socialisation process through which students develop their own professional identities.

2.1.2 Social Constructivism – the zone of proximal development and the 'more knowledgeable other'

Vygotsky (1978) suggested that new learning is built on the foundations of prior learning and that it is done through interactions with others. He further suggested that there is a zone of proximal development where learning occurs. There are those things a learner can already do, and then there are those things that a learner cannot do. The place between these, where a learner can do things with support and guidance is what Vygotsky (1978) calls the Zone of Proximal Development (ZPD) (cited in Daniels, 2001). Lave and Wenger (1991) characterise the ZPD as being the distance between a learner's independent ability to solve problems and what they can do when supported by someone with more experience.

Hedegaard (1990) advises that Vygotsky perceived a difference between what is learnt formally (or in school) which he termed “scientific concepts” and those things learnt less formally “active everyday concepts”. Hedegaard cautions that learners may not always be able to see how to use their theoretical learning in everyday activity. This might be described in medical education as the theory practice gap (Corlett, 2000; Landers, 2000) and suggests that support with linking learning at medical school to experiences on placement may be needed.

This support and guidance is provided by someone that Vygotsky terms the ‘More Knowledgeable Other’. This role can be carried out by anyone who is able to support the student, from an expert to someone who knows or can do a little more than the learner. Therefore a More Knowledgeable Other can be a teacher, a near peer or a fellow student. For someone to be effective in the role of More Knowledgeable Other, a good understanding of the students’ competence and knowledge is useful. This perhaps occurs one of two ways; by having a good knowledge of the students’ curriculum, or by knowing the student well.

In medical education, Vygotsky’s theories have, among other things, been used to help think about how to construct scenarios for simulation (Kneebone and Baillie, 2008), practical skills teaching (Sadideen and Kneebone, 2012), peer support (Ten Cate and Durning, 2007) and problem-based learning (Harland 2003). These are situations where understanding a student’s current level of competence and hence what they can be expected to achieve is important, or where having a More Knowledgeable Other can help in guiding a student through a problem.

2.1.3 Experiential learning in undergraduate medical education

Kolb (1984) regards learning as a cyclical process through which learners have experiences, reflect on them, draw conclusions about what they have learnt from the experience and then experiment, based on their conclusions. The authentic experiences gained on hospital placements are seen to promote experiential learning (Yardley et al., 2012), and this learning is supported by reflection (Sandars, 2009). Reflective conversations with supervisors or mentors are seen to support the reflective process (Aronson, 2011; Stenfors-Hayes, Hult and Dahlgren, 2011)

2.1.4 Social cognition

Bandura (1986) suggested that humans have five cognitive capacities. These are symbolic, forethought, vicarious, self-regulatory and self-reflective. To put it another way, people can learn from representations of reality, they are able to think what may happen if they take a certain course of action, they are able to learn by seeing what happens to others, they can control and plan their learning and are able to reflect on their experiences. In looking at how students are supported in their learning during hospital placements, the vicarious capacity may be important. Being on placement and observing clinicians undertaking their roles has been a mainstay of medical education. It is also the foundation of role modelling which is often discussed in relation to professionalism (Byszewski et al., 2012), professional identity formation (Cruess, Cruess and Steinert, 2008; Kenny et al., 2003), and is seen as an important attribute of supervision and mentorship (Kilminster and Jolly, 2000). Role models are also seen to influence career choices (Wright et al., 1997).

Bandura (1977) also discusses the concept of self-efficacy. He describes this as “people’s beliefs about their capabilities to exercise control over their own level of functioning and over events that affect their lives.” From a medical education perspective, self-efficacy is perhaps the belief in one’s own ability to perform a task or to meet the learning outcomes (Artino, 2012). This confidence in ability stems from four sources. Previous positive experiences, observing others undertake activities, encouragement from others, and feedback from physiological and emotional states. In looking at the role of support in hospital medicine, the opportunities to practice, to observe others, including peers, and to receive useful feedback would seem to be critical.

2.1.5 Non formal and tacit learning

Placing students in hospitals is done so that they can learn in the workplace and it is perhaps appropriate to look briefly at Eraut’s ideas about informal (Eraut, 2004), non-formal and tacit learning (Eraut, 2000). Eraut suggests that there are two forms of knowledge which are not codified in the way academic knowledge is; cultural knowledge and personal knowledge. Cultural knowledge is social and Eraut acknowledges the links to social constructivist theory. This form of knowledge is acquired through social interaction, and interestingly, Eraut notes that people may not be aware that they have acquired it. Perhaps this can be linked to notions of the hidden curriculum in which the norms and behaviours of practice are absorbed by students often countering the messages of the planned curriculum, (Hafferty and O’Donnell, 2015; Lempp and Seale, 2004). Perhaps links can also be made here to learning in CoPs. There is a question as to how embedded in the community a learner needs to be to learn this way. However, as Eraut acknowledges, learning can take place through

participation or through observation and students who may be regarded as on the periphery of the community will observe the clinicians at work. Eraut also suggests that people learn from working on challenging tasks with the support of others. Perhaps this echoes the ideas of Vygotsky and the concepts of the ZPD and the More Knowledgeable Other. Eraut defines personal knowledge as both the codified knowledge and the non-codified knowledge of experiences, know-how and emotions. Perhaps this may link to ideas of self-efficacy and also phronesis (Dowie, 2000). The orientation of medical students may be towards learning the codified knowledge, expressed in learning outcomes, but some of their experience will allow them to acquire uncoded knowledge.

2.1.6 Self-authorship

Magolda (2008) defines self-authorship as “the ability to collect, interpret, and analyse information and reflect on one’s own beliefs in order to form judgments”. To become self-authored, an individual must take responsibility for defining their own identity. This creates internal authority which informs their view on learning and relationships. It is not just about ego, but about how one sees oneself in relation to diverse others. In essence, self-authorship involves a shift in meaning making from outside the self to inside (Kegan, 1994, cited in Magolda, 2008) as individuals develop their own beliefs which they can use to form judgements about new knowledge

Learners’ development of self-authorship takes place in three inter-related dimensions.

These are the cognitive domain which is about developing a more critical stance to knowledge and knowing, the intrapersonal domain which is about developing a conception

of self and values, and the interpersonal domain which is about relationships with others (Magolda, 2008; Sandars and Jackson, 2015). Self-authorship might be seen as a destination on a journey of self-development which can take place at different paces for different learners and at different paces in different contexts such as within the family, within the social sphere or in education or work (Johnson et al, 2016; Lewin et al., 2019; Magolda, 1998 and 2008). Learners begin their journey dependent on others to provide knowledge and direction which is unquestioningly accepted. They then move through a crossroads phase of increasing questioning and developing self-knowledge to a point where personal values and view points are developed, and in which individuals feel sufficiently secure to accept that others will hold differing perspectives, but that these are important. Appendix A provides details of these stages as described by various writers on the subject.

How learners react to experiences while in the crossroads phase are crucial to the development of self-authorship. Experiences while in the crossroads phase may lead to cognitive dissonance or a sense of disequilibrium when external factors are in conflict with internal values and knowledge (Stubbings et al., 2018). If these experiences are positive, they can support the development towards self-authorship). Negative experiences can prompt the learner to retreat to old certainties. Therefore, while it is important to provide and encourage students to engage in crossroads experiences, support for learners is vital (Magolda, 2008; Sandars and Jackson, 2015). The learning partnership model (Magolda and King, 2004) suggests that support for students should be calibrated to their developmental level and should involve validating the student's sense of self, while supporting critical reflection that enables new perspectives and knowledge to be evaluated and assimilated.

While elements of self-authorship theory are cognitive in nature, stemming back to Piaget (Muller et al., 2009), the theory acknowledges the influence and importance of others in developing self-authorship. In the context of medical education, this includes, but is not restricted to, educators providing suitable supportive crossroads experiences for students. Bergh et al. (2016) note the importance of collective learning partnerships between medical students and others outside the student group as a key process for self-authorship.

2.1.7 Transformative learning

Mezirow's (1997) theory of transformative learning relates to how individuals develop and change their view of the world by making new or revised meaning from life experiences. New experiences are interpreted through frames of reference which operate in two dimensions; 'habits of mind' which are durable and are already formed by adulthood, and 'points of view' which are more amenable to influence and change. Transformative learning occurs when an individual is exposed to a 'disorienting dilemma', an experience that cannot be explained by their current frame of reference, and are forced to question the assumptions which underpin their world view and adopt a new perspective. Integral to this process is a shift from an uncritical reliance on authority figures to reliance on self.

Habermas (1981), cited in Mezirow (1997), divides the purpose of learning into four categories. Instrumental learning is about meeting short term goals. Impressionistic learning is about learning how to ensure others have a good impression of you. Normative learning is about learning how to fit in, and communicative learning is about understanding meaning, and to do this discourse is required. Communicative learning is particularly relevant to an

understanding of transformative learning in the context of education as it is in the making of meaning that transformation occurs. Engaging in discourse with others allows an individual to test and validate what is being communicated, and to be open to the influence of others. Without discourse individuals are reliant on authority figures or their previously held values to interpret new information and this leads to trying to fit the new into old schema, rather than being open to 'transformation'. Important in this process is critical reflection.

Educators can support transformative learning through engaging students in critical reflection and providing opportunities for discourse. For discourse to be effective it must be undertaken in a supportive way that allows those engaged in the discourse to challenge others and be challenged on their own understandings. The search for common ground is an important component in transformation. Group projects, simulation, and case-based discussions are examples of how groups may engage in the discourse necessary for transformative learning. Mezirow (1997) also suggests that reflective portfolios are important in the critical reflective processes necessary for transformative learning.

2.1.8 Self-regulated learning

Self-regulated learning is a cyclical process consisting of three phases. Preparatory to a learning event learners consider the task and require motivation to initiate the learning activity, often based on perceptions of likely success (self-efficacy). During the learning episode learners attempt to control their thoughts and emotions and adapt their behaviours while thinking about (self-monitoring) their performance to increase chances of success. After the event learners reflect on the activity to understand how their performance led to

the outcome. This may help develop strategies for future learning episodes and build self-efficacy. Self-regulation is a metacognitive process as students play an active part in the learning process and attempt to monitor, control and regulate the cognitive, motivational and emotional aspects of their learning. Individual factors can help or hinder the self-regulatory process (Panadero, 2017; Sandars and Cleary, 2011).

An individual's self-regulatory behaviour is influenced by self-efficacy, in that those with the belief in their capacity to succeed are more likely to show the persistence necessary when facing challenges in the learning environment (Sandars and Cleary, 2011) and are likely to set themselves higher goals to achieve (Zimmerman, 1989). Students with poor self-regulation tend to attribute problems to external factors. If these are seen as outside of the student's control, then students may not develop the motivation necessary to persist in the face of challenges (Sandars and Cleary, 2011). Students have been found to exhibit different patterns of self-regulatory behaviour including different levels of persistence in attempting to achieve their goals, differing degrees of willingness to engage others in their learning and differing use of metacognitive strategies such as goal setting (Berkhout, 2015). Students who focus on adaptive behaviour such as metacognitive thinking, which encompasses mastery and understanding of skills and materials, are likely to perform better than students who focus more on how they perform relative to peers or who focus on trying not to create a poor impression (Artino et al., 2012). Those with external motivations who focus on achievement goals as opposed to learning oriented goals may not have good self-regulatory techniques (Berkhout (2018).

Wood et al. (2016) note that medical students are more likely to cognitively engage in planning (forethought) and during (volitional) parts of an activity, but are less likely to engage in reflection. It is also noted that students exhibit different levels of motivation. Some students are likely to acquiesce (give up) in the face of challenge or lack of obvious learning opportunities, others will try to engage support from staff, whereas others are able to create learning opportunities for themselves. The authors cite Bandura's (1986) idea of triadic reciprocity, in that these students may actively influence the learning environment through seeking to create a good impression, which then creates greater opportunities for learning as staff are more willing to support them.

Novice medical students, less familiar with the clinical environment, are more haphazard in their approach to learning and rely more on those closer to them in experience to provide support, whereas more experienced students look more to senior staff to support them and are more proactive and focused in their approach (Berkhout et al., 2017). Students who are more confident in their skills and with a more developed self-regulatory capacity are better able to engage others in their learning (co-regulation). Bransen et al. (2019) found that over time, medical students shift from engaging in co-regulated learning with other students to engaging with clinical staff. This corresponds to a change in activity focused on adapting to a new learning environment and learning discrete skills, to observing clinical staff (role modelling) and seeking feedback on performance. Longer clinical placements were mooted as a way of fostering co-regulated learning by allowing students to become more included in the CoP as they become familiar with the work and with community members.

Supporting students in monitoring their learning and developing predictive cues allows students to improve their diagnostic accuracy of their learning so that they can direct their efforts appropriately (De Bruin et al. 2017). Those in support roles can provide guidance by providing feedback on performance and supporting students in understanding how to generate cues to learning.

In order to engage in self-regulated learning, learners need to become familiar with, and comfortable in, their learning environment and able to engage members of the CoP in their learning (Berkhout, 2018). Longer clinical placements are recommended to help create appropriate learning environments. Workplace affordances, that is the welcome and opportunities presented within a learning environment, are also seen as important as these enable a learner to exercise agency in seeking those opportunities. Learners need autonomy, relatedness and a feeling of self-efficacy, and again these are affected by the learning environment and the relationships with others in the clinical CoP.

2.2 Roles

2.2.1 Mentor, facilitator, trainer and supervisor, and peer teacher

Several roles may serve to describe the relationships between support roles and students on placement in hospitals. These are not discreet roles and overlap in how they are conceptualised in the literature.

2.2.1.1 Mentoring

The literature on mentoring within health professions' education covers both undergraduate, postgraduate and academic mentoring. Clearly, mentoring roles may be differently realised in these different contexts, but some common themes emerge. For example, mentors are thought to provide support and advice on professional issues (Kalén et al., 2010; Chow and Suen, 2001) and also psychological support or motivation (Aargaard and Hauer, 2003; Neary, 2000; Hauer et al., 2005). Navigating bureaucracy or introduction to a new setting is thought to be another valuable function (Chow and Suen, 2001; Kilcullen, 2007; Straus, Chatur and Taylor, 2009; Feldman et al., 2010). Spouse (1998) suggests the role of a mentor is to sponsor legitimate peripheral participation at the edges of the CoP. Career guidance and support (Kalén et al, 2010, Aagaard and Hauer, 2003), and role modelling are regarded as other roles mentors engage in (Aagaard and Hauer, 2003; Bagramian et al., 2011; Spouse, 1998)

2.2.1.2 Mentors and assessors?

There are different views presented in the literature about whether the role of mentor and of assessor sit comfortably together. Bray and Nettleton (2007) and Kilcullen (2007) suggest the two roles are compatible and that the role of assessor works well as the students know who will be assessing them. However, there are reported conflicts. Firstly, mentors are sometimes unwilling to take on the role of assessor as they perceive it will affect their relationship with their mentees (Rhodes and Jinks, 2005). It is also reported that there may be an unwillingness on the part of mentors to fail their students (Dudek, Marks and Regehr,

2005). There may be conflicting loyalties for a mentor, in whether their primary responsibility is to the student or to the institution (Webb and Shakespeare, 2008).

2.2.1.3 The making of a mentor and factors affecting the relationship

The motivation and preparedness of a mentor may affect the success of the mentoring relationship. Straus (2009) notes the hobbyist mentor can be negatively perceived as they are not fully committed to the role. Some mentors may not be confident in their understanding of the requirements of the role, particularly where there are formal processes and expectations of an educational programme (Heale et al., 2009), and some may not have a good understanding of their students' learning outcomes (Chow and Suen, 2001). The importance of the seniority of the mentor is considered by some to be important. There is a suggestion in the literature that more senior mentors are able to provide better career guidance and role modelling (Allen, 2006). Those with more experience have also been thought to be more successful (Hayes 1998). A more senior mentor may be better able to secure opportunities for, and give insights to, their mentee (Straus, 2009). However, a counter argument is that mentors who are closer to their mentees have a better understanding of their needs (Webb and Shakespeare, 2008). Openness and friendliness are perceived as important personal characteristics (Bernier, Larose and Soucy, 2005). Some hurdles to a successful relationship are seen to exist. One of the most significant is organisational. Finding mutually convenient times to meet can present a problem (Kalén et al., 2010). While it is suggested that a greater frequency of meetings can positively impact the relationship (Kalén et al., 2010), this is not universally seen to be the case (Aargaard and Hauer, 2003). Despite evidence that training of mentors can improve their skills in

mentoring, particularly in giving negative feedback and dealing with difficult mentees, many undertaking mentor roles have not received training (Sheri et al., 2019). This is often due to lack of time, funding or an appreciation of the importance of training.

2.2.2 Facilitation

By definition this role is about making things easier, therefore much of the literature about mentors may be applied to the role of facilitator too. The term facilitation has become predominantly used in two main contexts; e-learning, for example online moderation of forums (Salmon, 2012; Sargeant et al., 2006), and problem-based learning (PBL) (Hmelo-Silver and Barrows, 2006). In PBL, facilitators work to ensure group processes run smoothly, and, perhaps controversially for PBL purists, to ensure that students cover important learning outcomes (Rees, 2004). Neither of these roles are particularly relevant to the study of student support in hospital placements. However, in terms of supporting group dynamics and processes, this role may apply to some activities undertaken in hospital placements, such as group case-based learning sessions (Curran et al., 2008), which are in some ways modelled on the PBL method, and simulation (McGaghie et al., 2010), where students undertake tasks in small groups. The focus here is on debriefing and feedback.

2.2.3 Coach (or trainer)

Coach is not a term widely used to describe educational roles in medical education, but it has been used to describe supporting deliberate practice in a particular activity, for example clinical skills practice (Gifford and Fall, 2014). Lovell (2018) describes coaching to require observation of performance, feedback and then observation of further performance. This is

perhaps somewhat akin to Self-Regulated Learning Micro Analytic Teaching (SRL-MAT) described by Durning et al. (2011) which has been used to good effect with medical students and junior doctors to help them develop core clinical skills (Cleary, Durning and Artino, 2016). Coaching is most often associated with technical skills but has also been used for non-technical skills such as reflection, and to promote well-being and resilience (Palamara, 2015; Stoddard and Borges, 2016).

Trainer is a term that has gone out of favour a little. Junior doctors are known as postgraduate 'trainees' and it used to be common to regard people with educational responsibility for them as trainers. However, of late it has become more common to talk of educational or clinical supervisors (West Midlands Deanery n.d.). The term trainer is still often used to describe nursing or other health professional staff who teach (or train) others in clinical procedural skills. These may actually be adopting some of the attributes of coaching as they focus on feedback, on observed practice and often repeated observation.

2.2.4 Supervisor

A primary aim of a supervisor is to ensure patient safety (Kilminster et al., 2007), which suggests an element of control and limitation as well as a role in the development of competence. To put this in Vygotskian terms, the role of supervisor is to provide support within the ZPD, and ensure students do not attempt activities outside it or activities on their own which they still need support with. In postgraduate medical education there are two supervisory roles. The clinical supervisor is responsible for the day to day clinical work of the junior doctor (or trainee). The Educational Supervisor is responsible for the trainees'

educational development (GMC, 2015a) and the two meet to discuss the trainee's progress and to check progress towards meeting the requirements to progress (Health Education England, 2019). Being approachable, keen to undertake the role and having a good knowledge of the curriculum are prerequisites for the role (Health Education England East Midlands, 2019). In postgraduate medicine trainees value direct supervision to help improve clinical skills and patient care, and report problems when supervisors take over too quickly or have agendas more focused on service provision than the trainees' needs (Cottrell et al., 2002). Supervisors may also act as role models, and should be expected to provide feedback on a trainee's progress (Hore, Lancashire and Fassett, 2009). In short the role of the supervisor shares many of the same functions as that of the mentor described above. Therefore, as relationships develop, there is the potential that supervisors may find it difficult to fail their trainees (Dudek, Marks and Regehr, 2005).

2.2.5 Teacher

This is a broadly conceived role. Harden and Cosby (2000) define twelve roles of a teacher which range from delivering teaching to materials development to course design and assessor, but also includes mentoring and role-modelling. This broad description can perhaps be seen as a catch-all for the roles so far described. The literature on teaching is too vast to review here, but it is worth looking at peer-teaching.

2.2.6 Peer teaching

Peer teaching, near-peer teaching or peer assisted learning is used in many areas of undergraduate medical education, with reports of it being used in anatomy teaching (Hall et

al., 2014), Problem-based learning (PBL) (Sobral, 1994) and life support teaching (Perkins, Hulme and Bion, 2002). Many reports are of the effect of peer teaching initiatives, often devised by faculty, but some semi-formal initiatives are run by students (Hill, Liuzzi and Giles, 2010). The positive effects reported are for student learning and for benefits to the peer-teachers, with the suggestion that teaching helps learning, (Peets et al, 2009; Nestel and Kidd, 2005) and develops other professional skills (Tai et al., 2016). Being involved in peer teaching can involve training in teaching and improve teaching skills (Field et al., 2007). A benefit of peer teaching over more hierarchical teaching relationships was identified by Tamachi et al. (2018) as “the cognitive and social congruence” between peer and tutor. This suggests that peer tutors know what the learners need to know, and the egalitarian nature of the relationship can create a sense of “camaraderie”. In a near-peer teaching initiative in neuroanatomy, the smaller the distance between student and peer was seen to provide better results in terms of learner appreciation of the sessions (Stephens et al., 2016). Peer teaching is also seen to foster a ‘safe’ learning environment and peer tutors can act as role models (Glynn et al., 2006). It is suggested by students that near-peer tutors can take on the roles of information provider, role model and facilitator, but perhaps less so the roles of resource developer and course planner (Bulte et al., 2007). Formalised peer assisted learning has also been reported to take place between Foundation Grade Doctors, and seen to have many of the benefits reported above (Thampy and Kersey, 2017).

2.3 Motivation, Disposition and Negative experiences

While Taylor (2003) may describe Medicine as having a culture of ‘no culture’, this in itself is a description of a culture. If culture is seen as the ideas, stories, behaviours and social

activities of a group of people then the idea of no culture is simply one of the ideas held by the group that define its culture. To understand how students perceive the support available on hospital placements, it is worth just thinking for a moment about the culture of medical education and in particular that of medical students and what motivates them.

2.3.1 Motivation

Vroom's Expectancy theory (cited in Shweiki, 2015) suggests that motivation is governed by three aspects; expectancy, or the expectation of success; instrumentality, that the effort involved will lead to the planned outcome; and valence, whether the desired outcome has value and is worth the effort. Assuming all three aspects are present, it is likely an individual will be motivated to undertake an activity. The idea of expectancy is clearly linked to Bandura's (1977) theory of self-efficacy, which suggests that confidence in being able to do something successfully is more likely to make someone undertake an activity. Increasing student confidence in undertaking an activity is linked to ideas of mentoring and coaching (Artino, 2012). As students progress through the MBChB programme, their expectations of success will change as they develop their skills and knowledge, as will the value they place on the outcomes of activities they undertake.

2.3.1.1 Dispositions

Sinclair (1997), an ethnographer writing about the mid-1990s experience of being a medical student, used the idea of dispositions to describe student behaviour. Sinclair developed the idea of dispositions from Bourdieu's (1977) idea of habitus, which he described as having "a system of lasting transposable dispositions which by integrating past experiences, functions

at every moment as a matrix of perceptions, appreciations and actions and makes possible the achievement of infinitely diversified tasks,” (Bourdieu, 1977, page 82). Sinclair outlined five dispositions: co-operation, idealism, status, knowledge and economy. Of these, the dispositions of co-operation and economy are most relevant to students’ experiences of support in hospital placements.

The disposition of economy is a reaction to the perception that there is a lot to learn on a medical course and never enough time. Students are therefore likely to prioritise high-value activities with guaranteed returns such as teaching or book work, over experiential learning or clinical work. The disposition of co-operation is perhaps linked to the disposition of economy. It is well known that medical students co-operate to share learning resources and even exam questions (Tonkin, 2015), but students also co-operate in other positive ways to improve their experiences. Peer teaching is perhaps an example of this, especially when it is undertaken informally. Perhaps if this teaching is focused on basic skills or examination technique, it may also be regarded as being influenced by the disposition of economy.

2.3.2 Bullying and Harassment

This study was not designed to research issues of bullying or harassment, but it is perhaps worth noting that both are still being described in the literature (Singh and Singh, 2018; Sklar, 2014) and internal questionnaires still reveal a small amount of poor behaviour. This behaviour, if it is experienced, may affect the students’ views of the support roles they encounter and colour how they view the CoP of hospital medicine, and perhaps make them

more reluctant to enter it more fully. It may also affect a student's 'disposition' of idealism (Sinclair, 1997) and be a negative part of the hidden curriculum (Lempp and Seale, 2004).

2.3.3 Professional Identity Formation

Professional Identity Formation, the process by which someone comes to "think, act and feel like a" doctor, (Merton, 1957) (cited in Cruess et al., 2014) is not a focus of this study, but the processes and stages of development may be relevant in how students interact with support roles. While students enter medical school with some of their identity already developed, they will be subject to a host of new influences at a particularly impressionable time. During their undergraduate years students will still be developing their sense of self, while at the same time developing a sense of themselves as a professional. Year 3 is a pivotal year in this development as the new environment and experiences of hospital medicine begin to influence the ongoing identity development of the student.

Erikson (1974), (cited in Goldie, 2012 and in Schwartz, 2001) suggests three dimensions to identity development; ego identity, personal identity and social identity. Ego identity is an extension of character and is a set of fundamental beliefs about oneself, some of which may not be consciously realised. Personal identity is more visible to others and often manifests itself in choices one makes, for example career choices. Social identity is about orientation to and congruence with elements of the groups to which one belongs. Ego identity is seen to lie along a continuum from identity synthesis to identity confusion. Times of transition will be moments which challenge identity synthesis, as an individual is forced to adapt to new circumstances and new influences (Slay and Smith, 2011; Crossley and Vivekananda-

Schmidt, 2009). Helmich et al. (2012) characterise the student experience of early hospital experience in four domains. These are feeling insecure, complying, developing and participating. These are not described as a continuum, but perhaps it is likely that many students may move from feelings of insecurity through ensuring compliance with requirements to feelings of development and will then more willingly engage in the enterprises of the community. For example, students in Year 3 may have feelings of insecurity in the hospital environment, but may be more likely to participate in clinical activities in Year 5. Monrouxe (2010) discusses how students whose personal identity is congruent with their developing professional identity will feel less identity dissonance than students whose personal identity is less congruent. It is at times of transition where this dissonance is likely to be most acute. Identity is seen as developed through relationships with others, and central to this is language. Talk and reflective conversations on events may be central to identity development.

Cohen et al. (2009) suggest that medical students can suffer from 'imposter syndrome' when they are regarded 'as if' they were doctors. If so, they may avoid situations such as clinical areas where they may be perceived as possessing more knowledge or experience than they do. Perhaps trying to acquire skills in non-clinical areas or in simulation labs allows students to develop a sense of confidence needed in clinical environments, and a feeling that they will not be caught out when asked to perform a procedure they may be expected to know by clinicians. Cohen et. al. (2009) also suggest that students may struggle with their perceptions of self after encounters with difficult patients or patients whose lifestyles are ones with which they disapprove. Perhaps as students evolve or learn to accommodate

these insults to how they see themselves, they may be more likely to pursue learning strategies which bring them into contact with patients in less controlled situations.

2.4 Chapter Summary

This chapter has provided information about various learning theories used in this thesis to explain students changing orientations to learning and to support roles. Background information on how support roles have been described in the literature has similarly been provided. The chapter has used published literature to give a brief insight into the student experience and further set the scene for the research undertaken for this thesis.

3 SCOPING REVIEW: HOW CAN SOCIAL THEORIES OF LEARNING EXPLAIN STUDENT EXPERIENCE ON HOSPITAL PLACEMENT? A SCOPING REVIEW

A scoping review was undertaken to determine how social theories of learning have been used in the literature to explain students' experiences on placements. This chapter provides information on the method used to locate and select useful studies. The findings are summarised and the themes emerging from the literature are presented and discussed.

3.1 Introduction

Scoping reviews are a relatively new research method which is being used with increasing frequency within healthcare education research. This is partly in response to the increase in primary research being undertaken and needing to be analysed to inform educational practice (Thomas et al., 2017).

Writers who outline the use and value of scoping reviews broadly agree on the purposes for which they can be used. These are to map areas of interest and identify the work already undertaken; to determine whether a systematic review would be worthwhile; to provide a synthesis of existing evidence for those who may lack the time to undertake their own research, and to determine whether there are gaps in the literature and draw conclusions about what further research may be valuable (Arksey and O'Malley, 2005; Colquhoun et al., 2014; Peters et al., 2015).

Thomas et al. (2017) note that scoping reviews were developed to provide a more flexible method to synthesise evidence than that provided by traditional but more rigid methods, such as a systematic review which uses pre-set protocols. This is not to say that scoping reviews lack rigour, because as Colquhoun et al. (2014) note, scoping reviews require the field to be systematically searched, the selecting of data to be undertaken systematically, and the existing knowledge to be synthesised to answer specific questions. The authors further note that scoping reviews can report on the type of evidence and the context in which the research was undertaken. However, unlike systematic reviews, scoping reviews are not used to report on the quality of studies included, but to provide a map of the topic under examination (Levac et al., 2010).

A scoping review was used in this instance to map what has been written about using social theories of learning to analyse students' experiences on clinical placement. The review looks at how the theories were employed, what conclusions were drawn, and which theories were most used. Of particular interest was whether social theories of learning have been used to describe the relationships between students and those who support them on placement. Furthermore, to find out whether these theories have been used to consider how students' orientation to learning, and to those who support them, changes over time.

This study employs Arskey and O'Malley's (2005) five-step method for undertaking a scoping review.

1. To identify the research question
2. To identify the relevant studies
3. To select the studies for review

4. To chart the data
5. To collate, summarise and report on the results

3.2 Step 1: Identifying the research question

This thesis explores students' experience on clinical placement in relation to how well they feel supported in their professional development by different roles, and whether this changes as they progress through the MBChB. The scoping review was in part designed to give a broad view or map of how social theories of learning have previously been used to describe students' experience on placement in different contexts. In so doing, it was hoped to identify whether there has been research in similar areas to this thesis, and to understand how my research adds to what is already written. Thus, the scoping review was used to identify any gaps in the literature.

Specifically, the questions asked in this scoping review were:

1. How have social learning theories been used to describe student experiences on placement?
2. Which social learning theories have been used?
3. Have the relationships with those who support student learning been described in this context?
4. Are there any accounts using social learning theories provided about how students' orientation to learning changes over time? (Across years not over the course of a single placement.)

3.3 Step 2: Identifying the relevant studies

The following databases were searched to identify appropriate studies; Ovid Medline, PsychInfo, Embase, Cinahl, ERIC and Web of Science. These were selected as they provide good coverage of healthcare education research which has a broad publication base. To ensure maximum coverage of the literature, two searches were conducted.

3.3.1 Primary search

After some experimental searching, it was decided to capture all studies which employed social theories of learning in their discussion or analysis. It was assumed that these would give a good overview of how the theories had been used and would include those which were about learning on hospital placement and the nature of supportive relationships.

While the focus was on medical student experiences, 'healthcare student' was also used as a search term to ensure full coverage, and where this identified studies looking at other professions these were retained.

The terms used to search the databases are shown in Table 2, and were appropriately formatted for each database. Searches were limited to full text articles in the English language and to articles published during or after 2000, to ensure only articles based on more current modes of placement-based learning were captured.

Terms relating to student groups	Terms relating to learning
Medical student Healthcare student Undergraduate medical education	Non-formal learning Informal learning Socio-cultural theory Community of practice Situated learning Legitimate peripheral participation Activity theory Social constructivist or social constructivism More knowledgeable other Zone of proximal development Social cognitivism or social cognivist

Table 2: Search terms employed in primary search

3.3.2 Secondary search

In order to ensure that all studies looking at placement learning were captured a second search was carried out with the following terms (Table 3). The terms for student groups were changed slightly to ensure capture of American studies.

Terms related to placement	Terms relating to student groups	Terms relating to learning
Placement Hospital Rotation Clinic	Medical students Undergraduate medicine Undergraduate medical education Clerk Clerkship	Non-formal learning Informal learning Socio-cultural theory Community of practice Situated learning Legitimate peripheral participation Activity theory Social constructivist or social constructivism More knowledgeable other Zone of proximal development Social cognitivism or social cognivist

Table 3: Search terms employed in secondary search

3.4 Step 3: Selecting the studies to be included in the review

The screening of the studies was done in End Note reference management software. From the primary search, a total of 393 studies were identified after duplicates had been removed. The title and abstracts were read to determine whether the study would be likely to contain useful information pertaining to the broad inclusion criteria relating to social theories of learning and students' experience on placement. Studies were excluded for using social theories of learning to consider student experiences in e-learning, online learning or problem-based learning. Eighteen studies were retained to be included in the review. These all concerned healthcare students' experience on clinical placements. A further eight studies were retained to inform the discussion as these were perspective or theory-based articles on social theories of learning in healthcare education, rather than directly reporting students' experience on placement (Figure 1). The secondary search identified a further 108 studies after removing duplicates from the first search. After reading the titles and abstracts, a further nine studies were included in the review (Figure 2). In total, from the combined primary and secondary searches, 27 studies were retained for Step 4.

3.5 Step 4: Charting the data

Data were extracted from the selected studies and summarised in Appendix B. This shows whether the study addressed the key review questions, the topics covered, the context of the study, and which social theories of learning were employed. Some studies used multiple social theories of learning in their discussion.

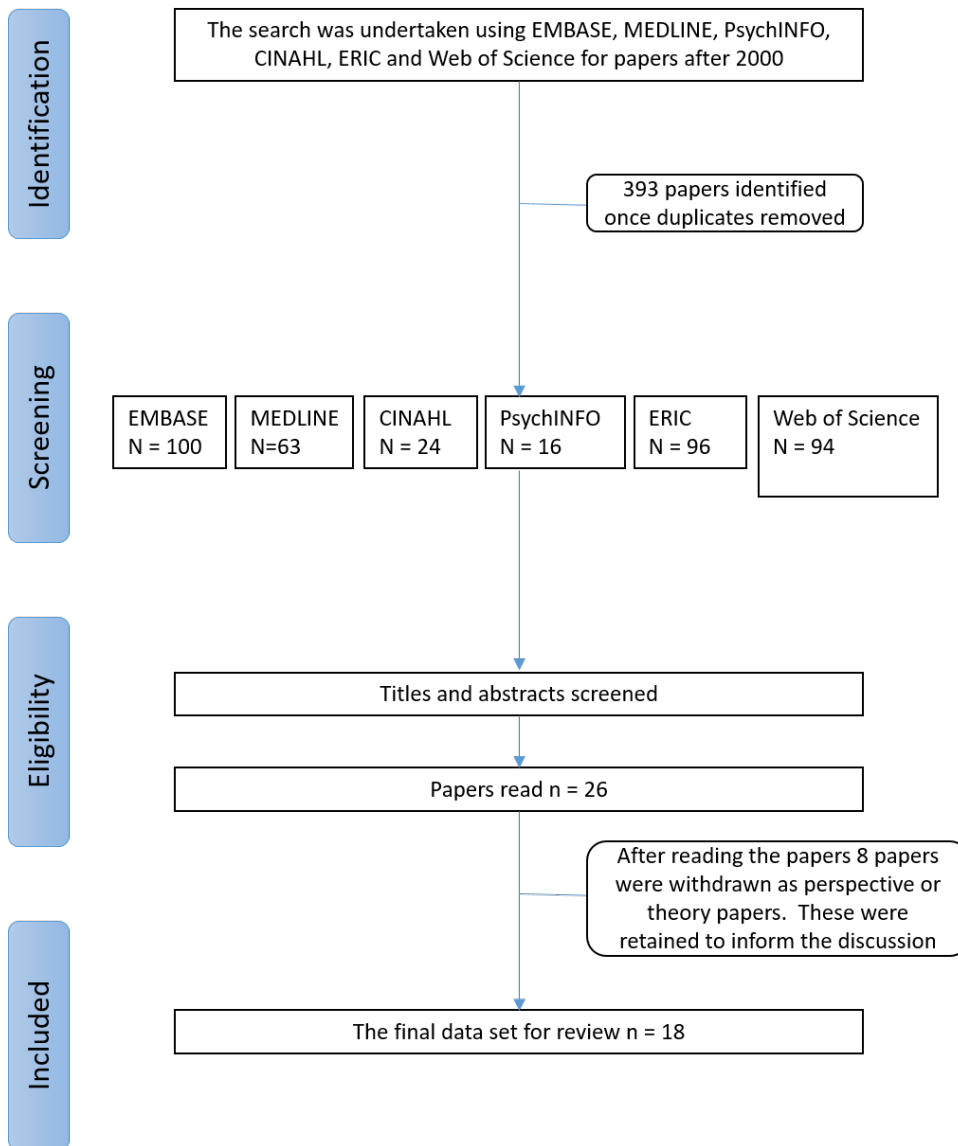


Figure 1: First Scoping Review Literature Identification

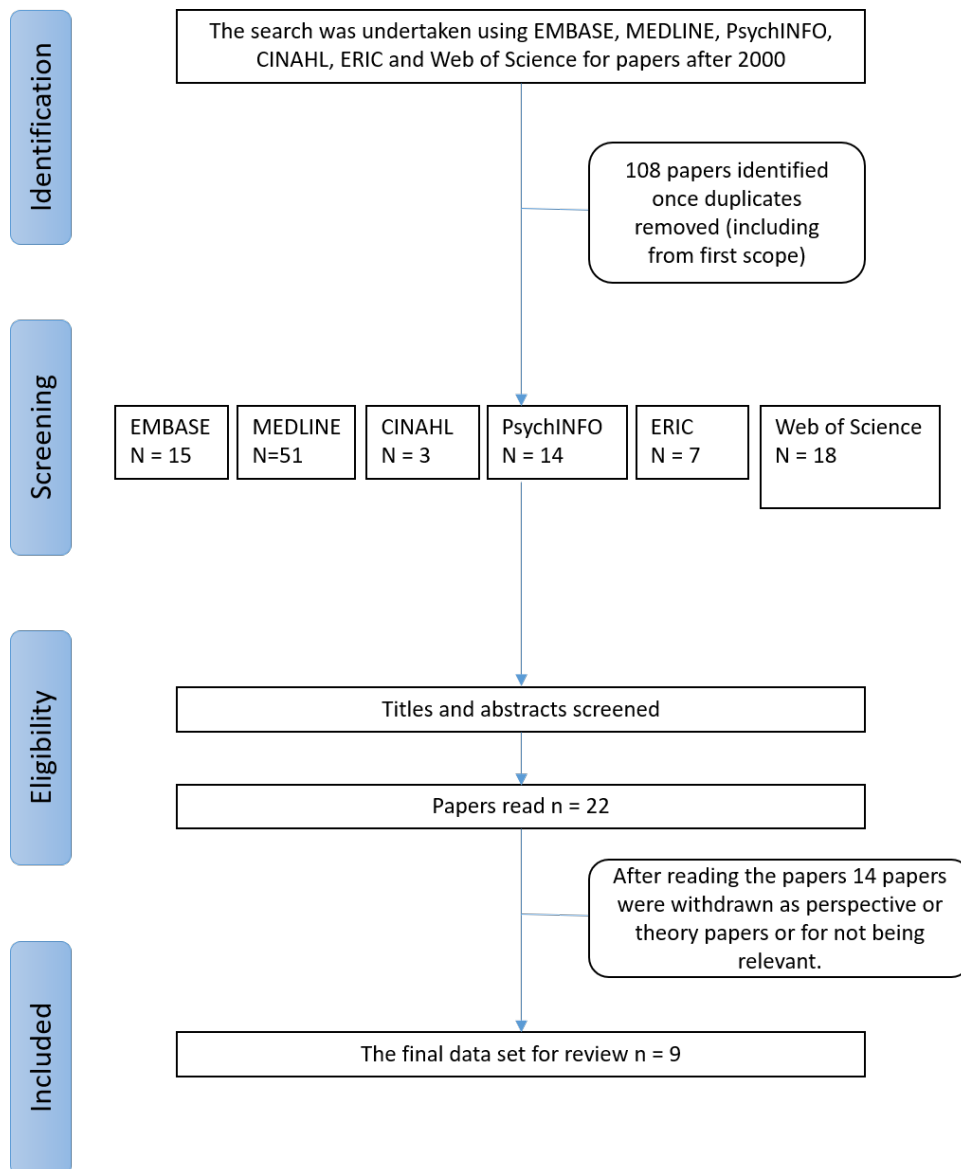


Figure 2: Supplementary Scoping Review Literature Identification

3.6 Step 5: Summarising the findings

With regard to the mapping reason for undertaking the scoping review, the majority of studies used social theories of learning developed by Lave and Wenger (1991) and Wenger (1999) and discussed student experience on placement using concepts such as Communities

of Practice (CoP), Situated Learning and Legitimate peripheral participation. However, there were some studies which employed social cognitive theories based on the work of Bandura, and some which used the ideas of Vygotsky and the Zone of Proximal Development (ZPD) and Social Constructivism.

The majority of studies were about medical students though some studies were retained which look at the experience of physiotherapy, nursing and occupational therapy students. While seven studies were UK based, three were from North America, two from Australia and two from New Zealand. Six were from Sweden, four from the Netherlands and one each from Ireland, Switzerland and South Africa.

Some studies did look at student experience on hospital placement, but a good number looked at students' experience of community placements, with Longitudinal Integrated Clerkships (LICs) being discussed. Almost all looked at student experiences on a single placement.

Given the nature of what is being studied, perhaps unsurprisingly nearly all the studies used a qualitative research method. Most employed interviews and focus groups, but some studies reported the use of a questionnaire, and a few used audio diaries. Ethnographic methods were also used.

In order to identify gaps in the literature the two main questions posed prior to undertaking the review were about how students are supported on placement, and whether students'

orientation to learning and to support, changes with experience. Neither of these receives significant attention in the studies identified.

3.6.1 Students' relationship with support roles

Much of how relationships between students and support roles are described in the studies is couched in terms of supervision (Chen et al., 2014; Dyar et al., 2019; Fredholm, 2019), role modelling (Abbey et al., 2010; Adema et al., 2019; Chen et al., 2014; Goldie et al., 2015; Naidoo, 2019), providing students with opportunities for engagement in activities, and in ensuring students feel welcome in the placement and have some sense of responsibility for care. This will be dealt with in more detail in later paragraphs. The literature identified contains some discussion of how a relationship with a supervisor can develop during longer placements, but there are not any discussions about how students' requirements of a supervisor may change either over time or from placement to placement. Different professions and grades within a profession can support students with different aspects of their learning (Goldie, 2015), with those in more junior grades seen as providing some of the advantages of near peer support (Beattie et al., 2019). Montacute et al. (2016) found that students valued junior doctors (residents) ability to create a safe learning environment above other attributes. Naidoo (2019) notes that supervisors need to know the level of their students in order to be best able to support them. Stalmeijer et al. (2009) use the cognitive apprenticeship model outline by Collins (1989) to look at students' perceptions of support. Some features of the cognitive apprenticeships model were perceived to be more employed than others, namely modelling and coaching. In contrast, exploration, scaffolding and reflection were perceived as useful but as aspects of the model that were only successfully

employed on longer placements where the relationship between supervisor and student had time to develop. Students felt more comfortable to engage in articulation once they had grown more comfortable with their supervisor. A good educational climate was seen as important in allowing cognitive apprenticeships to flourish, as was training for supervisors. Cope et al. (2000) also use the concept of the cognitive apprentice to examine the relationship between student and mentor. The authors note the mentor's role is often to contextualise theoretical learning and to provide scaffolding for student activities. They note that better mentors are skilful at 'fading' their support to allow students more autonomy and responsibility within the community. Steven et al. (2014) note that doctors can support students with learning outside of patient care and learning within patient care. These authors also note some behaviours that inhibit students' trajectory towards participation in patient care. These may, for example, be through humiliating students, poor treatment of patients, a preoccupation with their own specialist area, or by more junior doctors having too great a focus on teaching for examinations students would later sit. Steven et al. (2014) particularly look at learning as participation and highlight the use of 'talk' in learning. They see learning as participation rather than acquisition and note that with participation identity is formed. The longer relationship between students and supervisors on LICs allows some students to feel more comfortable in revealing their challenges and areas of weakness (Beattie et al., 2019).

3.6.2 Changes in orientation to learning

Students' orientation to learning over time is not dealt with by many of the studies. This is generally because the studies are about single placements. Where it is discussed is

sometimes in the context of LICs (Roberts et al., 2017) or other longer placements, where students' development over the duration of a placement is looked at. Students may become more engaged in providing care and develop better relationships with supervisors and other staff on the placement (Bartlett et al., 2018). Lindquist et al. (2006) identify how students change over time as their competence grows and they become more critical of their own and other's practice as they progress through the course. Students also look less for direct feedback and validation of activity from supervisors with time, and gain this more indirectly from patients and self-appraisal. Hagg-Martinell et al. (2017) note that students' situational understanding changes as they progress from nervousness to curiosity over the course of a short (one week) placement. Roberts et al. (2017) discuss students' developing appreciation about how to manage their well-being and stress in the context of rural community healthcare.

3.6.3 What themes can be seen in the studies?

3.6.3.1 Welcome and access

Perhaps not surprisingly the papers that discuss the importance of the learning environment are informed by Lave and Wenger's theories of CoP. Adema et al. (2019) describe how students were encouraged in their learning when invited to 'cross borders' or 'sit at the physicians' table'. Beattie et al. (2019) note how a friendly environment can promote learning, while Goldie et al. (2015) outline how welcoming supervisors can provide students with an entry to the CoP. Other authors note how the attitude or behaviour of a supervisor can actively discourage student participation and learning (Eggleton et al., 2019; Hägg-

Martinell et al., 2017). Being marginalised within a CoP can lead to student anxiety which in turn creates a further barrier to participation (Molesworth, 2016). Cope et al. (2000) draw a distinction between social and professional acceptance into a community, with the later occurring if the students have the appropriate skills to contribute to the shared endeavour of the community. Dolmans et al. (2002) propose a model for the learning environment in outpatient departments, and notes that this is affected by factors other than the quality of supervision, such as the patient mix seen, the space available for learning activity and indeed how many other students are present. Molesworth goes on to note that nursing students need to pull their weight in order to be accepted into the CoP, but that engagement in activity can enable the student to build up professional capital.

3.6.3.2 Role-modelling or observation

Role-modelling or observation is mentioned by studies employing a range of theories to help frame their findings. Naidoo et al. (2019) report students find observing role models supports the development of clinical reasoning skills. Adema et al. (2019) suggest that observing role models is important in developing professional identity and that students use 'imagination' to consider whether what they observe fits with their values. Similarly, Stalmeijer et al. (2009) outline how students would often think about whether they wanted to be like the clinician they were observing or not. Abbey et al. (2010) suggest that students are influenced by the positive attitudes they witness in role models and that role models can influence career choice. Interestingly, while Goldie et al. (2015) note that students recognise the importance of good role modelling in their teachers, and see this in junior as well as senior doctors, students are also capable of recognising and learning from poor role models.

Lindquist et al. (2006) report that students at the beginning of their studies are generally uncritical of role models, but become more discerning with experience and can identify both positive and negative attributes in the role models they observe. The importance of 'connectivity', a process where students endeavour to create and maintain social connections through engaging in the activities of the CoP, is raised by Roberts et al. (2017). The authors note that students value learning about their role models' life outside medicine, but that role models are often accessed through the process of connectivity. Jaye et al. (2010) using Foucault's ideas about bio-power and bio-politics, caution that observation of role models and the desire to 'fit in' can lead to the perpetuation of communities, hierarchies and ways of doing things and this may not always be desirable. Observation of more central members of a community can influence career intentions Lewis and Kelly (2018).

3.6.3.3 Engagement in activity

Adema et al. (2019) note that student engagement in clinical activity (the activity of the community) is more likely where they are welcomed, and once engaged in activity students develop a sense of belonging. Bartlett et al. (2018) describe the sense of belonging as stemming from being in a community placement where students get to know patients as they see them on multiple occasions and are involved in their care. This also develops students' confidence in their abilities, which is motivating. Students' desire for real or authentic situations is noted by several authors (Chen, 2014; Dyar et al., 2019; Fredholm et al., 2019). Chen (2014) describes how students value working in community clinics where they are engaged in real activity as opposed to the more 'contrived' experiences in a

teaching hospital. It is also noted, however, that while there is a desire for authentic experiences, students are also clear about the need for appropriate supervision, as this can provide a safety net for them (Stalmeijer et al., 2009). Fredholm et al. (2019) and Hagg-Martinell et al. (2014) note the value of the supervisory relationship to students and discuss how being granted some independence and responsibility is valued by the students. Fredholm et al. (2019) describe how this can change the relationship between students and supervisors to one that feels more like one between colleagues. Hagg-Martinell et al. (2017) note that some supervisors seem to involve students in clinical activity, whereas others choose not to. Other authors link the relationship with supervisors less to their role in providing students with opportunities and responsibility, but more to the provision of support and feedback that ensures student learning is more oriented towards helping students pass exams (Eggleton et al., 2019; Steven et al., 2014). Hagg-Martinell et al. (2014) suggest this may change over time as students move from simply wanting to be involved in activity that helps them pass exams to wanting to be involved in activity that promotes wider professional development. Hagg-Martinell et al. (2016) note that nursing students, who typically stay on wards for longer than medical students, become more engaged in the activities of the community whereas medical students are often seen as observers. The authors also describe the community as being ward-based but note it has a semi-permeable membrane and those who temporarily enter the community, for example visiting specialists, can be useful sources of learning, as can trips outside the community to other parts of the hospital. Whilst the members of the ward community change regularly, providing little continuity of supervision, the routines of practice within the community are thought to provide a sense of security for students.

3.6.3.4 Feedback

Hagg-Martinell et al. (2014) suggest that continuity of supervision is important so that students receive developmental feedback and aren't required to demonstrate the same things over and over again. Stalmeijer et al. (2009) describe how feedback is part of both the coaching and scaffolding roles within cognitive apprenticeships and note students value feedback that helps them reflect on their own performance. Dyar et al. (2019) suggests that as students progress, they are given increasing responsibility and increasingly 'frank feedback'.

Feedback is seen as an important part of the supervisory relationship and along with the supervisor's enthusiasm and ability to build relationships, helps students 'learn the profession' (Hagg-Martinell et al., 2014). Furthermore, feedback from someone perceived as a reliable role model can help increase students' confidence and motivation to participate in the activities of the community. Fredholm et al. (2019) suggest that when students receive feedback on actions or decisions taken this can help them feel more like they are becoming a doctor, thus supporting their trajectory into the community. Beck et al. (2018) note that in addition to feedback on observed tasks being important, students valued praise in feedback as it made them feel valued and particularly appreciated feedback that was focused on how they were interacting and working within the clinical team. Students realised that good feedback seeking behaviours contributed to their own learning. Lindquist et al. (2006) note that students' orientation changes as they progress, from wanting direct feedback on performance from peers and tutors to valuing feedback from patients and then engaging in

self-appraisal to see how they could adapt their performance in similar situations. Using the ZPD as a lens to analyse learning, Hunukumbure et al. (2017) note that peer feedback after simulation sessions is valued, but the utility is enhanced when there are senior faculty present to facilitate the process. Groot et al. (2020,) in a study where students were challenged to the 'frontiers of their zone of proximal development', noted that following challenging scenarios, students' motivation to learn could be enhanced with proper feedback and debrief.

3.6.3.5 Professional Identity Formation

Common themes that occur in papers which discuss professional identity formation are that this occurs when students are engaged in the activity of the community, are allowed some autonomy (supported by reflection) and feel valued. These lead to feelings of belonging which supports professional identity formation.

While perhaps identity development is implicit in studies using a CoP framework, it is not always a prominent part of the study. An exception to this is Adema et al. (2019) whose paper specifically uses CoP as a lens to view professional identity formation. They suggest three aspects to students' activity. Engagement, imagination and alignment. Engaging in activity is seen as an important component for developing identity but seems to be linked to the development of competences required in a profession. Interestingly in this study, alignment seems to involve alignment with the current role, that of medical student, rather than a more aspirational activity of alignment with members of the profession. It is not possible to discern at what stage of their clinical training these students were at, but

perhaps students later in their training may be more likely to align with, possibly more junior, members of the profession. Imagination did have a more aspirational component to it, but was not a common feature of student discourse. The authors interestingly hypothesise that this may be due to the influence of the dominant curriculum imperatives which emphasise competence. However, the authors also note a study in Taiwan that showed students to be more oriented towards goals of the imagination such as becoming a 'good doctor'.

Fredholm et al. (2019) discuss the relationship between the authenticity of experience, feeling like a doctor and professional identity formation and distinguish between internal and external authenticity. External authenticity is simply about engaging in the activities of the community whereas internal authenticity is about how the student feels about the situation, and whether they experience it as authentic. Feelings of belongingness for example suggest internal authenticity as does feeling valued, and having relationships with patients, staff and fellow students. Both internal and external authenticity are considered important in professional identity formation which is seen as a combination of task and place (context). The autonomy which stems from being in authentic situations, coupled with feedback which encourages reflection supports the development of professional identity formation.

Roberts et al. (2017) link professional identity formation to role modelling and to socialising with members of the community. The authors identify two themes; connectivity, discussed earlier, and preparing for practice. Connectivity largely involves informal learning whereas

preparedness for practice is more competence based. Both contribute to professional identity formation.

Naidoo et al. (2019) suggest that supervisors can support professional development through enabling reflection designed to promote student autonomy. The autonomous engagement in clinical tasks contributes to developing sense of professional identity.

3.6.3.6 Peer Learning

A number of themes related to peer learning emerge from the studies included in the review. These are, providing access to opportunities and experience in both formal and informal learning situations, learning formal curriculum from one another, providing support and together constructing a shared identity.

Steven et al. (2014) suggest that more senior peers (more experienced students) may be able to provide access to situations or patients as they know how things work or are organised.

Bennett et al. (2015) use activity theory to analyse peer learning. In their study, while this takes place on clinical placement, these peer learning sessions are formally constructed groups that take place away from clinical areas in classroom situations. The authors suggest that younger, direct entry students found it less easy to see the point in these peer learning sessions than their graduate entry peers, and were more likely to look for exam focused teaching from experts. Formal opportunities for peer learning in a clinical context can be

successful, as reported by Dyer et al. (2019) who looked at peer learning in the specially set up environment of a student ward. This seemed to provide space for peer learning to take place in situ and was fostered when it was supported by supervisors trained in supporting peer learning.

Naidoo et al. (2019) look at peer learning using social constructivist theory, and note that students can learn from observing each other and reflecting on their own practice, and what they might do differently. These authors also note the importance of debriefing with peers, and perhaps this informal activity suggests the use of imagination as described by Adema et al. (2019) to think about their future roles as doctors. Adema et al. (2019) outline how students may be in competition with each other for clinical experience, but through sharing stories about their experiences they are able to learn from each other. They note that through conversations about careers, students use imagination to co-construct ideas of what it is like to be a doctor and to support each other in reflecting upon experiences and discussing how these experiences fit with their perceptions of what it is to be a doctor. However, students align with their images of what it is to be a clerk, and this can tend to reinforce notions of hierarchy and potentially discourage students from stepping out of place. Perhaps this suggests a conflict between using imagination to think about the trajectory into the CoP, while restraining movement along the trajectory in practice. The notions of hierarchy are also linked to ideas of unwritten rules and suggest the influence of a hidden curriculum.

Near peers are seen to be valuable to students by Beattie et al. (2019), who note the proximity in experience between students and registrars, as opposed to with GPs, helps foster a sense of collegiality that creates a good learning environment.

3.6.3.7 Management and organisation of learning (learning environment)

A theme evident in a number of studies is that of fairness. This suggests that while students may be interested in engaging in activity, there remains the concern of passing exams.

Students also note how supervisors can be distracted by clinical activity and may have different expectations of students and how they would like supervisors to help orient them to their placements. The studies reveal a desire for students for clarity about what they are expected to do or get out of a placement.

Bartlett et al. (2018) suggest that if students are not provided with the same resources as their peers this can lead to a sense of injustice and disadvantage. Students acknowledged that the experience of a rural community placement had provided them with really good learning experiences and perhaps would even shape career aspirations. The injustice felt may (although not directly stated in the paper) be related to assessment and feelings of disadvantage relative to peers as a result of lacking some of the learning resources available elsewhere. Beattie et al. (2019) note similar attitudes from students placed in small rural practices who check with students at other practices to compare learning opportunities and who would still welcome some formal didactic teaching.

Naidoo et al. (2019) note that students perceive that supervisors have different expectations of students, and that this can vary from curriculum expectations. Interestingly, the students suggest this is an issue of academic staff poorly communicating the curriculum to clinical supervisors. (Perhaps this also suggests alignment with practising clinicians rather than academic staff, but also suggests that examination success remains a preoccupation of students.) This might be seen in the requirement for clear expectations about what is required of staff and students and for clear information about the curriculum to be available. It was noted that time needs to be created for supervisors to work with students, including orienting them to their new environment. This feeling was echoed in the Hagg-Martinell et al. study (2014) where students were concerned about supervisors not having the time to properly supervise as they are distracted by clinical duties. These authors also note how students want to understand how and why their placement is organised in the way it is and how this enables them to learn the syllabus. Beattie et al. (2019) report that students want better guidance about what the learning outcomes are for their placement. Students are concerned by the haphazard nature of learning experiences as students will all be learning different things. This perhaps suggests a conflict between providing authentic learning environments, but within a curriculum where students are learning to pass standardised exams.

Beck et al. (2018) discuss student clinical electives, so perhaps are describing slightly different experiences but there are common themes. Students revealed a desire for better preparation for placement, and better induction as many felt slightly at a loss as to how they fitted in and what they were supposed to achieve. Perhaps, while coming from a slightly

different perspective, this links to the importance noted earlier of being welcomed into the community. Interestingly, students seem to rely on peers more than official routes to find out what to do and how to behave.

Dyar et al. (2019), in discussing the establishment of a student ward, note clinical environments can be organised where student learning is the primary objective. This seems to create the time and space for student learning and supervisory relationships to develop. While the student ward may be a controlled facsimile of a real ward, it can perhaps function as scaffolding for later experiences.

3.7 Discussion

Many of the studies selected for this review are less than five years old, which suggests an upsurge in the use of social theories of learning to investigate undergraduate medical student experiences.

Quite a few of the studies reported on community placements, perhaps because the hospital placements are often short as students have many specialties they need to experience. This, along with the specialised nature of care, makes it difficult for students to participate significantly in the care of patients. Therefore the focus of the placement is more for students on acquiring the learning and undertaking the practice in skills necessary to prepare for assessments.

A recurring theme throughout the studies is the requirement for authenticity with students needing to be responsible (and accountable) for the care of patients. This activity moves students from being 'knowledge leeches' who feel in the way as they seek learning opportunities, to feel more like a legitimate member participating in the activities of the team. While students may wish to engage in legitimate activity, by its very nature this can be unpredictable. The desire for experiences and teaching that allows students to feel that they are being prepared for assessments they may face remains. This is coupled with a desire for fairness or equal opportunities so that all students have similar preparation for assessment. There is therefore a described tension between engaging in learning the repertoire of the community and joining in with its shared endeavours and the need to ensure coverage of the formal, imposed, curriculum.

Those studies which use a CoP framework to explain their findings do not really try to explain or define what the COP is, and when they do, have a narrow definition based around the single placement or clinical experience of the student. This means that it becomes more difficult to look at students' trajectory towards the centre of the community.

Two things are seen as important in providing a good learning environment. The first is to provide students with a welcome and encouraging supervision. The second is to provide students with adequate guidance about what is expected of them and what they are permitted to do. These together are seen as providing students with the confidence and sense of legitimacy that enables them to participate in patient care with some degree of

autonomy. It is this degree of autonomy and responsibility that gives students a sense of belonging and is important in fostering professional identity formation.

It is noted that students become more confident with supervisors and other members of the community with time, and there is acknowledgement that students can move towards perceiving staff as colleagues over the course of a placement. However, there is little discussion about how the relationship develops over the course of a student's clinical learning. Some studies particularly focus on the students' relationships with patients, and while perhaps not specifically referring to patients as part of the CoP, do suggest that students feel their role in the community is legitimised by their experiences with patients.

The studies, while noting the student desire for teaching for the test, do not really study the relationship between formal and informal experiential teaching, other than to note that students still want formal teaching. Formal teaching as preparation for participation in clinical activity or as preparation for legitimate activity is not discussed.

The selected studies do not discuss what inhibits students from participating in the activities of the community other than looking at the learning environment. There is limited discussion about whether students need to feel confident in their skills before they participate in the community, although it is noted that students are more easily accepted into the community if they have the necessary professional skills. The relationship between students and peers is looked at by several studies, and it is noted that more experienced peers can provide opportunities for learning due to their greater understanding of the

learning environment and can also provide teaching. Students are also seen to provide each other with support. A key feature of several of the studies is the tension between the formal curriculum and its assessments, and the opportunistic and less comprehensive coverage afforded through experiential learning on clinical placements.

3.8 Conclusion

Seven themes seen in these studies can help inform the nature of the matrix of support for students on hospital placement. Five of these themes, Welcome and access, Role modelling and observation, Engagement in activity, Feedback, and Professional identity are framed within a CoP. The Management and organisation of learning theme provides a useful perspective on the importance of the educational environment, while further insight into peer learning is of clear interest given the potential for worthwhile learning interactions between students on hospital placement.

The studies in this review use social theories of learning to examine students' experience on placement and examine the nature of the relationship between students and those who support them, and also look at student development within a single placement. They do not look at how students' orientations to learning changes as they progress through their programme of study. There is little information about whether students' requirements of those who support them in their learning on placement changes as they become near the end of their programme or whether students have different relationships with different grades or professions within the groups of staff who support them. This is a clear gap in the published literature.

3.9 Chapter summary

This scoping review has identified themes relevant to this thesis in the existing literature.

These are returned to in the discussion chapter of this thesis. The literature does not contain information about how students' orientations to learning over time can be explained using social theories of learning other than in longer single placements. The relationships between students and support roles are discussed, but again this is usually only done within a single placement.

4 AN OUTLINE OF THE RESEARCH PROCESS AND METHODOLOGY, INCLUDING THE ROLE OF THE RESEARCHER

This short chapter provides information about the methodology of this research project. It provides an outline of what action research is and explains how research contained in this thesis can be viewed as action research. The chapter then looks at the role of the researcher in the research process and how the author's orientation to research has affected the design and undertaking of this research project. This information informs the discussion chapter of this thesis.

As discussed in section 1.2, the nature of this research undertaken as part of the Doctorate of Education, is a two-phase case study, where the case being studied concerns hospital placements undertaken by medical students at the University of Birmingham. The research is cross-sectional in nature in that each phase of the research looks only at the situation at the time the research was undertaken, and shares characteristics with action research.

4.1 The research context

In brief, the two broad phases of the research each encompassed a number of distinct parts or stages. The first phase, an investigation of the role of the Senior Academy Tutor (SAT), largely used qualitative methodologies. The second phase was a questionnaire study which sought to discover how well supported students feel in different areas of the curriculum

covered on hospital placements and how this support is provided. This phase was a mixed methods study as it used Likert scales which were examined numerically.

The curriculum review undertaken between 2007 and 2014 by Birmingham University Medical School culminated with the first students completing the new curriculum. One of the main aims of the review had been to create longer hospital placements which would allow students to get to know the hospital better and hence have greater opportunities to engage in learning. It was thought/hoped that a longer placement would also foster the development of supportive, developmental relationships between students and staff at the hospital placements. The role of SAT was created to provide students with a named tutor who they would meet regularly, and who would provide them with support for their learning in the hospital placement. At the time Phase 1 of this research was started, anecdotal feedback from students and from the comments provided on routinely collected end of placement evaluation questionnaires, had revealed that the SAT role was not always undertaken in a way students found useful and indeed there was perhaps some confusion among SATs as to how they should undertake the role. Phase 2 arose naturally from Phase 1. The initial practical enquiry about how one role, the SAT, can best support students led to the consideration of two, wider linked issues. The first, concerned how well supported students feel while on hospital placement by a range of support roles, and the second how well the student experience prepared them to meet the updated Outcomes for Graduates (GMC, 2018).

My role during the curriculum review process and throughout the time of the research undertaken for this doctorate was as an Education Development Specialist. This involved working closely with both the central MBChB programme management team and with hospital placements on designing and then implementing the curriculum review. In this role I was aware of the reasons for the curriculum review and, through liaison with hospital trusts, some of the issues involved in implementing the review. In my role I also had access to end of placement student evaluation data and was able to see how the students were reporting their experiences.

This access and personal involvement in the process, along with a desire from those involved to foster improvements, suggest this may be framed as action research. However, some exploration of what action research is, along with some discussion of where I, the researcher, sit in this process is worth providing to frame and contextualise the research process.

4.2 Action research

Bradbury (2015) describes action research as a “participative orientation to knowledge creation”, which involves both “action and reflection, theory and practice” to generate solutions to practical problems. Sandars et al. (2012) note that action research can develop generalisable theories as well as practical results. Action research involves participants in research focused on how to improve their own practice (Meyer, 2000). Lingard et al. (2008) suggest that action research is directed at researching a ‘situated’ problem’ that is best investigated through collaboration between the participants. This is sometimes described as

participant action research. Action research is dynamic in nature with one phase of research informing subsequent research (Sandars et al., 2012), as is the case here.

4.2.1 Phase 1

Phase 1 of this research which looked at the role of the SAT, can in one sense be considered an example of participant action research from the perspective of the SATs. Although not involved in designing the research project, the SATs were willing participants in considering how the role could be undertaken. But what about me, the researcher? Can I be described as a participant? Corbin, Dwyer and Buckle (2009) describe a range of participant roles from complete member participants, through active member participants to peripheral member participants. As I am not an SAT, I cannot be said to be a complete member, and as I am not engaged in the work of the 'community' in supervising students I cannot be said to be an active member. However, as someone with insight into the role and the context, and as part of the programme management team, I could perhaps be described as a peripheral participant. Perhaps echoing a phrase from Lave and Wenger, I might be seen as a peripheral participant, with a legitimate interest. This legitimate interest, and my being known from visits to Trusts, perhaps enabled me to assume at least partial insider status, and helped encourage people to become participants in the research project (Corbin, Dwyer and Buckle, 2009). It is certainly true that none of the SATs I contacted to interview refused my request, and from the small group of students available to be part of a focus group, a good number did participate.

The Phase 1 research was essentially practical, involving SATs in a collaboratively deliberative process (Berry, 2001 cited in Newton and Burgess, 2016) aimed at providing a better insight into how the role of the SAT could be undertaken rather than a technical scientific process, or a process which could be described as emancipatory. A guide for SATs was produced following this phase of the research which is perhaps a demonstration of this.

4.2.2 Phase 2

The iterative nature of the research that led to Phase 2 arising naturally from Phase 1, is a typical feature of action research.

This second research phase involved three stages; an expert panel to select the questions for a questionnaire, a pilot group to road test the survey and finally the administration of the survey itself. The involvement of many people in the expert group, many of whom undertake the roles under investigation is another example of action research, this time allowing participants to help design the research instrument.

4.3 Role of the researcher

McNiff (2013) regards critical self-reflection as essential to action research, therefore it is worth giving some further consideration to the role of the researcher. There has been much written about how close the researcher should be to the subject being investigated. This is sometimes described as the insider / outsider debate (Breen, 2007; Corbin Dwyer and Buckle, 2009; Gair, 2012; Hellowell, 2006). Some advantages of being an insider are thought to be those of having an understanding of the culture of the group being studied, an ability

to interact with group members naturally (Breen, 2007) and being accepted by the participants (Corbin Dwyer and Buckle, 2009). There are however, some disadvantages. Insider status may lead to a loss of objectivity and to making erroneous assumptions based on what the researcher believes they already know about the situation (Breen, 2007). Gair (2012) notes that experience of the research context does not necessarily equate to critical awareness, while Bonner and Tolhurst (2002) and McNiff (2013) argue that reflection is needed to critically examine data and assumptions. Insiders may also fail to notice the ordinary occurrences which may be essential to understanding a situation (Boulton, 2000 cited in Gair, 2012). For example, they may not probe in interviews as they have made assumptions about what is being said (Coghlan, 2019).

It has been argued that the dichotomy between being an insider and an outsider is too simplistic, and that there is in fact a continuum (Breen, 2007). Rowlings (1999, cited in Gair, 2012), argues it is possible to neither be “detached or enmeshed” but can rather just be with or alongside the group being researched.

So where do I perceive myself to sit on this continuum? To some extent the position I hold has already been explained in the context of action researcher. I am not a full insider, in that I don't hold any of the roles being studied and I do not provide support to students on hospital placement. I am not a complete outsider, as I do have knowledge of the context of hospital placements, and the curriculum that shapes them. Through personal contact with the holders of many of the roles, through committees and faculty development activities, I have some idea of how some of the holders of the roles perceive they should undertake

their role. Through contact with students as a teacher, a personal tutor, through sitting on staff student committees and reading student evaluations of placements, I have some understanding of the student perceptions of hospital placements. Perhaps therefore I occupy what Corbin, Dwyer and Buckle (2009) describe as the space 'between' or possibly I am what Breen (2007) calls the 'researcher in the middle'.

It is perhaps also important to position myself within the various research paradigms. This is sometimes conceptualised as a dichotomy between interpretivist and positivist paradigms (Bryman, 2008). Positivists seek to find truths from experience or data which can be generalisable, whereas interpretivists seek to explore incidents and cases to understand (interpret) what is seen. For interpretivists, meaning is seen to be socially constructed but they make fewer claims to the generalisability of their findings (Holloway, and Galvin 2016). Bunniss and Kelly (2010) suggest a further refinement with four major paradigms in the context of medical education research. These are positivism, post positivism, interpretivist and critical theory. My orientation to research and indeed the way this research has been undertaken suggest an approach characteristic of interpretivism, but despite using predominantly qualitative methods it does have a mixed methods approach.

4.4 Chapter summary

In this chapter I have outlined how the research undertaken for this thesis can be characterised as action research in that it has involved the participants in investigating a practical issue pertinent to them and particularly in phase 1 led to some practical

suggestions for improvement. I have sought to explain my role and orientation as the researcher within this research project and suggested I am a 'researcher in the middle'.

5 PHASE 1: THE ROLE OF THE SENIOR ACADEMY TUTOR

This chapter contains some context for the role of the Senior Academy Tutor (SAT) and outlines how the role was introduced as part of a review of the MBChB curriculum at Birmingham Medical School. Mixed methods were used to gather the data that informs the discussion at the end of the chapter, these methods were analysing the student routine placement evaluation returns, conducting focus groups with students and interviews with SATs. A number of themes are identified in the relationships between students and their SATs, and there are a number of recommendations made for how SATs could conduct their interactions with students which would be useful to students.

5.1 Introduction

The role of the SAT was established in 2013 as part of a review of the Birmingham MBChB curriculum. The SAT was conceived as someone who could support groups of between four to six students on hospital placement, and through regular meetings would be able to give students feedback on their progress. Students would have a SAT in each placement. The curriculum review deliberately created, where possible, longer placements in single hospitals to allow students to get to know the hospital better, and also to allow a more productive relationship to form between students and their SAT.

Feedback is known to be important to medical students (Archer, 2010; Ende, 1983; Hattie and Timperley, 2007), and, in common with most Medical Schools, Birmingham students

believe they do not receive enough (National Student Survey, 2014). The SAT role is similar in some ways to the clinical supervisor or educational supervisor role which consultants undertake for their postgraduate trainee doctors, and should therefore be easily understood by SATs (Kilminster, et al. 2007; Kilminster and Jolly, 2000).

The SAT role, which is normally undertaken by a consultant is voluntary, though some need to be 'encouraged' to undertake the role. SATs are provided with very basic guidance about the role by their Head of Academy, making it is likely that SATs will develop their own individual ideas about how the role should be undertaken. It is possible, in keeping with similar roles described in the literature, that some will engage with the role more enthusiastically than others (Webb and Shakespeare, 2008; Braine and Parnell, 2011). This may affect the rewards the SATs derive from undertaking the role and for students' experiences of the role (Aagaard and Hauer, 2003; Gray and Smith, 2000; Hauer, et al., 2005). Hayes (1998) suggests the lack of student choice in their mentor may also have an impact on the relationship, and it should be noted that although it is more supervisory in nature, students do not have a choice about who should be their SAT.

This research study, carried out in 2014, was conceived as a pilot project to generate ideas for future discussion about different medical student support roles at Birmingham. The aims were explorative. First, to investigate how the SAT role was currently implemented and second, potentially how it might develop in future. Both the SAT and student perspectives were considered. A third aim questioned whether the SAT role could be expanded to include a role in student assessment. If we accept that assessment drives learning

(McLachlan, 2006) and students are focused on passing their exams, they may lose sight of the need to learn those things that will contribute to their development as a doctor. Formal exams can be used to assess a sample of a student's competence and knowledge, but it is difficult to assess actual performance or those behaviours that might be described as under the umbrella term of professionalism. Could SATs help assess this, and importantly without affecting the relationship between the SAT and their students (Bray and Nettleton, 2007; Neary, 2000)? This question was of particular interest at the time, in view of a potential greater emphasis on workplace-based assessment in future curriculum renewal plans.

5.2 Methodology

This research was conducted with the approval of the University of Birmingham Humanities and Social Sciences Ethical Review Committee (ERN_14-0545A).

5.2.1 Introduction

This section outlines the chosen study design and methodology. The research context for the study is described and the methods for sample selection, data collection and data analysis are reviewed and justified. The validity and reliability of the data is discussed alongside any limitations of the researcher.

5.2.2 Research setting/context

The research setting is the Birmingham MBChB. The study focuses on students in Year 5 and on SATs who support them during their hospital placements in Year 5.

5.2.3 Research questions

- What do students and SATs regard as good practice for a SAT undertaking the role?
- Should the SAT role change as students progress through the MBChB programme?
- How would undertaking a role in assessing students affect the relationship between SATs and students?

5.2.4 Rationale for research approach

It is not appropriate or feasible to conduct an educational trial to investigate the effects SATs may be having on students' progress. Myriad other factors can affect students' progress and establishing appropriate controls would be difficult (Sullivan, 2011), as would identifying exactly what it is that the SAT might do to foster progress (Cook, 2012). There would be ethical considerations if some students were provided with, and others denied SAT support as part of a trial (Egan and Mainous, 2012).

A qualitative methodology was employed to enable those with experience of the SAT role, either as a tutor or as a student, to discuss their perceptions of the role. Semi-structured interviews were conducted. Students were interviewed in focus groups (Stalmeijer et al., 2014), and most tutors were interviewed individually, but one interview was conducted with a small group of four.

A two-stage approach to the research was designed. First, in order to get a broad sense of the student perception of the SAT role, the routinely completed end of module evaluations were analysed as this survey contained a question of relevance. Responses to this question

were thematically analysed. The second stage of the research explored in greater depth themes that arose in the evaluation surveys and also some themes that interested the researcher about the potential of the SAT role. This stage, as outlined above, involved focus groups with students and interviews with SATs who support fifth year students.

Peim (2009) suggests researchers should recognise their work should contain an 'essential ethic of improvement'. This research was designed to enable better guidance to be provided to SATs to inform their practice.

5.2.5 Research sample and data sources

5.2.5.1 Students

Students complete an online evaluation of each clinical placement and in the 2013/14 Academic Year the Acutely Ill Patient (AIP) block taken by Year 5 students was evaluated. In this, students were asked to comment on their relationship with their SAT. The question was written before this research project was planned, and was part of a quality assurance process more oriented to ensuring that students' experiences were meeting expectations.

Focus groups were also conducted with 18 Year 5 students. This was a convenience sample as they were engaged in activity at the Medical School after their final examinations.

Students were split into two focus groups of equal size.

5.2.5.2 Senior Academy Tutors

Eight SATs were selected to be interviewed and form a purposive sample (Tavakol and Sandars, 2014). They were selected because students had specifically named them as being good SATs. When the interviewees were contacted, they were sent information about the purpose of the research project and a brief guide to the questions that would be asked (Appendix A). All SATs contacted agreed to be interviewed.

5.2.6 Data collection methods

5.2.6.1 Student clinical placement evaluation

The Quality Office at the Medical School provided the Year 5 online evaluation data, which was reformatted before being imported into NVivo Version 9.

5.2.6.2 Student focus groups

Both student focus groups were audio recorded to allow a more effective analysis (Sandelowski, 1994). The transcripts were entered into Nvivo and coded. A coding framework was established prior to analysis, but was revised and extended during the analysis.

The focus groups were structured around a framework of question prompts with subsidiary probes (Appendix B). To avoid participants just complaining about already known issues (Watts and Ebbutt, 1987), the interviewer acknowledged the data gathered during the

module evaluations, and asked the group to move beyond this to consider how things might be done differently.

5.2.6.3 The transcription process

To transcribe group interviews accurately is difficult (DiCicco-Bloom and Crabtree, 2006). Some key decisions were therefore taken. Other than audible items such as laughter, emotions were not recorded. Comments were not attributed to individual participants. A review of the audio file reminded the researcher, who was also the interviewer, of any issues with dominant students and whether recurring themes were attributable to individuals. All focus group and interview transcripts were entered into Nvivo.

5.2.6.4 SAT Interviews

Five interviews were conducted; four with individual SATs and one with a group of four SATs who all work at the same hospital. Two interviews took place at the Medical School, the other three interviews took place at the hospital where the interviewee was a SAT. Only two of the SATs were not previously known to the interviewer from work on the Birmingham MBChB.

The interviews used a framework of questions that allowed the SATs to talk freely about their role, but which ensured coverage of key topics (Appendix C). Individual interviews lasted for about thirty minutes whereas the group interview was about forty-five minutes long. The interviews all drew to a natural conclusion. All interviews were audio recorded and then transcribed. The transcripts were then entered into Nvivo.

5.2.7 Data analysis methods

5.2.7.1 Module Evaluation Questionnaires

The data imported into NVivo was coded on a generative basis with new coding nodes being created as novel themes were seen in the evaluation data (Pope, Ziebland and Mays, 2006).

5.2.7.2 Student Focus Groups and SAT Interviews

Familiarity with the material, through conducting and transcribing the interviews, meant that once the data was in Nvivo a basic coding framework could be created. During the subsequent analysis these coding themes were revised and extended as greater familiarity with the material was achieved (Kennedy and Lingard, 2006).

5.2.8 Issues of trustworthiness

There are approximately 380 students in the fifth year and the overall evaluation response rates were about 80%. However, the numbers choosing to provide a written response to the particular question of interest here are a little less at about 72%. This is still a good response rate which is likely to be representative of the cohort as a whole.

It was intended that the two student groups would interact with each other to explore the ideas put forward for discussion and therefore have the characteristics of a focus group.

However, given the semi-structured nature of the sessions, it is likely there was some constraining of the themes that emerged. Known difficulties with focus groups, or group interviews, include a reluctance of some participants to reveal things or discuss particular

topics in the group (Morgan, 1997) and the danger that some interviewees may dominate the discussion at the expense of quieter participants (Keegan and Powney, 1987). In the focus groups the interviewer adopted a facilitative role, and attempted to involve all the students, but it is possible that this may not have been entirely successful. Practically, it was only possible to have one interviewer at the group sessions. While the interviewer was not able to take many field notes during the interviews, this has not impeded the analysis. Indeed, Watts and Ebbutt (1987) suggest that two interviewers may even inhibit the group discussion.

5.2.9 Limitations and delimitations

This study only involved Year 5 students and was reliant on their considerations of how the SAT role is or could be different in each of the three clinical years. However, a greater capacity to recruit students and SATs from each year, and to look at all Module evaluations may have revealed other useful information.

5.2.10 Position of the researcher

Where possible, independent observers should be employed in a research study (Mays and Pope, 2000). In this study, this was not possible. The researcher's close involvement with the establishment of the SAT programme, good knowledge of the curriculum, and being known to the interviewees may all have introduced bias into the study.

The interviews may have been structured to discover only those things the researcher already thought were important, and follow up questioning served to reinforce this. Being

known by the interviewees may have affected how the interviewees responded to the researcher's questions. The researcher may have interpreted the data in a way that fits a preconceived view of the subject under investigation. An awareness of the issues, coupled with the researcher's genuine interest in and knowledge of the subject may help in part to mitigate these potential issues. Conversely the researchers knowledge and background could perhaps be seen as a strength of the study as they may have helped ensure interviewees were more forthcoming and perhaps helped promote useful discussions as the researcher was able to direct the interviews towards useful areas. The triangulation of data received from the online evaluations, the focus groups with students and the interviews with SATs provide rigour and help promote validity in the findings (Mays and Pope, 2000).

5.3 Results

5.3.1 Student evaluation

The question from the 2013/14 Acutely Ill Patient (AIP) block relevant to this research relates to SAT supervision. This was:

“Please comment on your supervision. For example, how often did you meet your SAT, what did you discuss in your meetings, were the meetings useful, etc”

5.3.1.1 SAT supervision

Feedback on the type and quality of supervision provided by SATs clustered around four main topics. See Table 4.

Fifty-nine percent of students (152/281) said their relationship with their SAT was useful, while 10% (29/281) said it wasn't. Recurring themes from the latter group were the lack of contact with their SAT, or their SAT's lack of understanding of the learning requirements. Some students unfavourably contrasted their relationship with their SAT to a good relationship they had established with the Clinical Teaching Fellows (CTFs).

Topic	Theme	Number of responses
Focus of meeting	Careers	5
	Case discussion	41
	Discuss module	22
	Discuss portfolio	14
	Discuss progress	44
	Guide learning	6
	Informal discussion	14
	Provide support	45
	Situational Judgement Test	6
	Teaching	99
Issue with SAT	Lack of teaching	11
	Lack of tutor awareness of role	14
	Tutor availability	5
Meeting Frequency	Flexible	1
	Fortnight	42
	Less than monthly	35
	Monthly	19
	Weekly	99
Opinion on utility of SAT	Not useful	29
	Useful	152

Table 4: Student comments on supervision

Analysing the 99 responses that mentioned teaching as one of the foci of their meetings, it is apparent that some students saw this as an added bonus. There is a suggestion that some SATs were in a good position to provide teaching in the AIP module as they were Emergency Department doctors, or worked in ITU, and these placements form an important component of the AIP module.

The more frequent the meeting between SAT and students the more positive the students' impression of the experience, with nearly all those who reported weekly meetings having a positive opinion. Interestingly, many comments suggested that teaching was part of these weekly meetings.

Where students mentioned issues with the role, three themes were evident; the SAT's lack of knowledge about the course, the SAT being unavailable, and a lack of teaching by the SAT. Those students who reported case discussions as being part of their meeting with their SAT also appear to have had quite a positive experience. Not many students report that pastoral or welfare issues were covered in meetings. Perhaps students did not want to reveal even on anonymous evaluation forms that they had turned to their SAT for pastoral support.

5.3.2 Interviews with SATs

The interviews with SATs revealed a number of important themes.

5.3.2.1 Contact with students

All SATs reported meeting students in groups, rather than individually, except at the end of the rotation to go through the Professional Behaviour and Attitudes (PBA) form sign-off process. In one instance a SAT reported that she had met the students individually at the mid-point of the placement, as this mirrors the experience that the students will have during their postgraduate foundation training. One SAT, who would identify with the role of 'fixer' (see pg. 94), suggested that he met his students regularly at the beginning of the rotation, but once the students were settled he did not really see them again.

While the majority of their contact with students was face-to-face, some SATs said that they required their students to email them cases to look at in between meetings or occasionally as a substitute for a meeting. Most tried to meet their students weekly, but acknowledged that due to other commitments this was not always possible. One interviewee suggested that if a rule were brought in imposing weekly meetings this would alienate some SATs and reduce the number willing to undertake the role.

SATs who saw the students in other contexts, such as during a programme of scenario-based simulation exercises, or while the students were attached to the same clinical area as the SAT, suggested that this enabled them to form a better picture of the student, and therefore helped in their SAT role too.

5.3.2.2 Establishing a rapport

One SAT reported how she was keen to break the ice and get to know her students a bit better, as she thought this helped the group work better together.

I mean it's partly an icebreaker but it actually gives me a real context for getting to know them and we oftenumn we may refer back to things that were said. And it often starts conversations in the group in that they often will come up with something that the rest of the group don't know about them.And then they'll...as I leave the first session you can sometimes hear them talking....So some of it is about them.... Cos they've got to gel as a group and I want to know them as people as well as students and stuff."

5.3.2.3 Feedback

SATs had different viewpoints about feedback. Some thought that it would be difficult to give feedback about things that were directly observed, e.g. clinical performance. Others thought there were two possible roles for the SAT in giving feedback. Firstly, on how a student performs in the group and interacts with the other students and the tutor, and secondly around clinical cases which were discussed or presented.

SATS who required students to send them accounts of and reflection on cases by email would respond by email. One SAT suggested that because the email feedback was individual and private this allowed a different approach.

“I usually read them and then... while it’s in my mind I just email them some comments back. And those can be quite good because they’re one-to-ones so you’re not feeding back in front of everybody else. So you can say... you know... ‘Well this is fine but actually it needs to be in more detail and at your level you ought to be able to explain this rather better.’ Or whatever. So you can be a bit... umn... more specific and perhaps a bit firmer...”

Others suggested that feedback on specifics was taken on board by students and led to improved performance, for example in becoming slicker in presenting cases.

“there was very good students who would really respond and really take on board and then go the extra mile to improve and use the cases to actually help them learn.”

However, this is not always the case.

“Jumping through hoops..... for those students it was like a brick wall because you know you’d give them feedback - nothing would change, you’d give them feedback - nothing would change..”

Some SATs were able to incorporate information from others into their feedback such as from CTFs who see the students regularly, and others were able to build up a better idea of the students’ abilities and needs through seeing students undertake simulations. Feedback could also be informal, and sometimes designed to motivate the students to continue working hard.

“You do see them grow in those 16 weeks that they’re there. So I’ll feedback to them that, you know, you’re doing very well... look at where you were when you started...”

5.3.2.4 Assessment

In general, the proposal that SATs should play a greater role in assessing students was not greeted with enthusiasm. Several reasons were put forward as to why it would be difficult or not desirable for a SAT to be involved in assessment.

It would change the relationship between student and SAT and might prevent students from approaching their SAT with a problem or learning difficulty.

“...you can really help people to develop. And they can open up to you about how they’re really feeling and what they’re really struggling with. If they thought you were gonna grade them at the end maybe they wouldn’t ... that would bother me cos I think actually where students have come to me with those concerns I think I have been able to help them. So I don’t know where else they would go”

It might lead to a loss of objectivity.

“I think objectivity would probably be completely lost. Because you know how that student is. You know if it’s an excellent student who’s missed out something pretty obvious in their case you’d be like ‘oh but I know that they know that because I’ve talked to them about that before.”

It would be hard to assess students on some things as they did not see the students enough. Not seeing students on the ward practising the skills they will need as a doctor makes it impossible to form an objective judgement about their progress.

Some reluctance was shown by two of the SATs to assess students because they felt they lacked the necessary subject knowledge. Due to the increasing specialisation within the medical profession, it can be long time since a senior doctor has undertaken some of the tasks or used some of the knowledge expected of a medical student.

“the SAT could be from any background. Umm Now the surgical SAT and the medical SAT I think it would be very difficult for them to to... assess someone on the set competencies which could be either medical or surgical. If it’s surgical then you

know me being a medical person... I have no idea about how they performed how they.... you know in the surgical wards.”

Undertaking an assessment outside the SATs specialty would involve making time-consuming, special arrangements. It was further suggested that adding an assessment burden of any sort to the role would increase the time pressures on SATs and could lead to student dissatisfaction if the assessment component of the role were not undertaken in a similar way by all SATs.

“I think it might be very individual on how much time people have had. And I think some of the students don’t get that much contact with their SATs and I think that would put them at a disadvantage compared to someone who does meet them regularly, who gets to know them.”

SATs seemed slightly more comfortable with being able to provide students with some formative feedback on how they had participated during meetings, and had reflected on topics or presented cases. There was agreement that more could be made of the PBA sign-off as a way of engaging with the students and providing feedback at the end of the block. There was also some willingness to entertain the idea that SATs could be the reviewer of Multi-Source Feedback, which while not used with undergraduate medical students is a commonly used postgraduate tool (Davies and Archer, 2005; Foundation Programme, 2018).

5.3.3 What role do the Senior Academy Tutors see themselves adopting?

Four main roles or themes for the SAT emerged from the SAT interviews; the teacher, the fixer or champion, the facilitator and the provider of pastoral care.

5.3.3.1 The teacher

In general, teaching was not seen by those interviewed as the primary reason for the role.

One SAT expressed reluctance to teach because it suggested that the programme provided by the Trust was not working properly and that this should be fixed rather than providing teaching to just a few students to remedy this deficit. Others generally agreed that teaching did form part of the role at times and occasionally gave teaching in their specialty if the students requested it, but would find it hard to teach outside their specialty.

5.3.3.2 The fixer

This role is based around the idea that the SAT is the students' champion, who helps ensure they get teaching in the areas they need, and sorts out any practical issues. Two SATs suggested that this was one of their responsibilities, and both had liaised with colleagues on their students' behalf to arrange teaching. Others argued that it is better to foster self-reliance and help students to sort out their problems themselves. One SAT described herself not as a fixer, but as a 'point you in the right directioner'.

I am a 'point you in the directioner'... but...unless there's a major problem I'm not going to fix. I will reflect back to them how they might go about fixing something and if they still can't sort it ... then I might intervene... but on the whole I think in fifth year

they need to really be developing the skills to sort these sorts of things out for themselves. So I would tend to point them in the direction or....give examples of how they might deal with something.”

5.3.3.3 Facilitator

For many of the SATs a facilitator role was perhaps what they saw as their primary function. This involved discussing cases with students to help them appreciate where their learning needs lay and perhaps guiding students towards meeting these. This may be regarded as one of the roles of a teacher (Harden and Crosby, 2000), but in this case is viewed as being different because it does not involve an intention to specifically provide students with content-based sessions.

5.3.3.4 Pastoral Care

Only one of the SATs regarded providing support to students with personal difficulties as being a primary function of the role. However, all thought it was an important component, with each being able to provide examples of when they had helped a student in difficulty. Sometimes this would be practical for example, helping a student catch up with their studies if they had been unwell, but more serious issues were alluded to. One SAT noted that there was a role in discussing difficult experiences that occur in hospitals, his example being that his students had witnessed a death in the Emergency Department which was the result of a murder.

These were not the only roles the SATs discussed undertaking. Some described providing career advice to students, either about their own specialty, or about different options available in Foundation Training (Straus, Chatur and Taylor, 2009; Hauer et al., 2005). One described how she asked her students to send her their CVs as a way of getting to know them, and provided feedback to help improve them. Another suggested that part of providing support to students was in role modelling how to behave.

5.3.4 Difference in the SAT role for different student years

Although all the interviewees were SATs for fifth year students, all were asked about whether they thought the role might be differently undertaken for Years 3 to 5. There was some consensus, particularly about third year students who seem in need of more direction.

But a lot I think of the third year, having spoken to the SATs who do third year, is more direct teaching and is more..... umn coping with being in hospital kind of thing and clinical exams, clinical learning.”

“Third years - they want to be directed they don’t want anything self-directed, they want they want spoon-feeding and they haven’t they don’t have the confidence to know that that does actually work and that does get you where you need to be”

“So... Third years I always think are like a herd of sheep I mean coming to hospital - 50 of them in a room.”

In the fourth year SATs expect students to begin to really get to grips with independent learning.

“What I definitely see in the fourth year is.... they startas group learners. They.... roam in packs, they never do anything on their own. By the end of the fourth year they... if you’ve done your job right, they should be confident, lone learners.”

“Well I don’t know it just seems like.. .they seem to have a bit more.... Maybe a bit less guidance and they’re a bit more self-directed in fourth year. And once they’ve managed to get themselves through a year of that and passed the exam at the end I think the maturity level increases a hell of a lot”

In the fifth year the emphasis moves away from direct teaching towards preparing students for the role they will undertake the following year as a doctor.

“I think in fifth year as well they see the bigger picture, and they see the fact that ‘oh in less than a year I’m going to be a junior doctor on the wards.’ ”

“To me, as a fifth year they’re getting ready to be FY doctors and I teach them what I’d expect of them as an FY doctor but that level of teaching isn’t right for a fourth year.”

“But we talk..... quite a bit throughout the sessions on ... not just what you need now to get through this module, to get through this exam, but how will this apply to when you’re working. So when we talk about the on-calls, I talk about... you know, well ...

how did you work out when you were sleeping? How did you work out ... how you were eating? How did you.... How do you think that will be once you are working?"

5.3.5 Other factors

The SATs also revealed what they thought made the SAT role work. It was important to have enough time to devote to the role, and to be diligent in undertaking it (Heale et al., 2009).

Flexibility was important, to be able to adapt to students' needs. One SAT said it was important the local Trust valued the role of SAT and ensured that SATs had time in their job plans to do this. It was evident that enthusiasm for the role was vital. One SAT mentioned how she really enjoyed it as it allowed her to properly engage in the multiple roles of a teacher, rather than simply be the person who delivers a session. Seeing students develop and progress was important, with one SAT suggesting that seeing students come back as trainee doctors later in their careers was rewarding.

5.4 Student Focus Groups

Students reported their experiences with their fifth year SATs and remembered back to their previous experiences. The student responses suggest that SATs interpreted their roles in very different ways, both across and within years. Students' experiences ranged from poor to very good. This variation in experiences prompted one student to ask whether SATs received any training in the role, and another to ask how they were selected.

5.4.1 Meeting frequency

Students reported having SATs who were hard to get hold of and who they only saw infrequently, perhaps two or three times during the placement, to SATs who they saw at least weekly. The perceived utility of the sessions had a bearing upon whether students minded not meeting their SAT on a frequent basis; one student reported not seeing his SAT very often, but did not appear to mind because,

“...we didn’t have any major problems or concerns that we felt needed addressing so we didn’t push for it that much.”

Sometimes the lack of meetings was attributed to the SAT being unavailable, ill or too busy, but sometimes it was felt that the SAT was not really all that keen to meet or only managed to fit in meetings that were rushed.

“...as an SAT he would only meet us while he was having lunch on his lunch break. It would be a very quick “how is everything?” “is everything okay?” “Are you guys coping okay?” ... but it was very rushed....”

There was some consensus that those SATs who hardly see their students are not in a good position to sign off a student’s PBA form.

Many students reported that having weekly meetings with their SAT was very helpful.

However, a few noted that having weekly meetings could get in the way of other learning

opportunities, and students mentioned having to leave useful clinics for not very useful meetings with their SAT.

“But then I guess sometimes it was a bit difficult because we had the same time every week didn’t we? For meeting him and sometimes you’d just go there for sort of 5 or 10 minutes and that could have interrupted you could have left clinic to go and do that and sometimes that was a bit frustrating.”

5.4.2 Meeting format

This was variable. Many students reported either discussing cases or presenting them and this was mostly considered a useful activity. Some students described how the SAT would discuss how they were getting on during the placement and would check their progress. Others reported that their SAT would take a flexible approach to the meetings and would respond to student requests, such as discussing an interesting patient a student had seen or simply having a ‘chat’ about things. Other students reported that the SAT would teach them and this was generally well received, particularly when it was on areas requested by the students. Some SATs would include discussion about what the students could expect in their first jobs, and others would initiate discussions on issues such as patient safety or safeguarding.

Most students reported the meetings with their SAT were in a group, but some mentioned having individual meetings. One of the student focus groups suggested it would be nice to have individual meetings once every five weeks or so to allow SATs to discuss individual progress and perhaps allow the SAT to provide guidance on professional issues.

“Yes we had that that point as well cos it’s quite awkward... or if they like keep you aside as an individual at the end of a meeting, everyone is like ‘ooooh! - what’s going on?’”

5.4.3 Feedback

Students noted that they did not receive very much feedback from their SATs, and that this was because the SAT did not really see enough of them to provide feedback.

“I would think it would be nice to have an SAT that you’re in daily contact with because one session, once a week for an hour - you’re never really going to pick up the trend in how you’re doing with regards to I think clinically or academically.”

Where students did receive feedback it was usually about their contribution to their group or on their ability to present cases. The most positive response to this question was about a SAT who asked her students to email their cases to her, and provided detailed written feedback.

5.4.4 Assessment

Students did not have much enthusiasm for the suggestion that SATs would be able to assess them. The main issues suggested were that it would change the focus of the students’ activity, to ensuring they passed whatever the hurdle was, and this might militate against learning more important things. It was also thought that the SATs don’t really know the

students well enough. Another source of concern was the variability between the SATs (see below) as this could lead to variability in the way that they assess.

5.4.5 Other issues students experienced with SATs

Students were concerned about the variability in how SATs interpret their role.

“I think the problem is there seems to be quite a disparity between what people get. So some people get loads of teaching from their SAT and others go and they’re like “Hello, how are you doing? Come on, okay, good” and he’s like gone and you’ve done nothing during your session.”

This may be linked to the problem that some SATs did not seem to know what their role was supposed to be.

“It’s not all that clear. I don’t think they know, especially in fifth year...what they’re meant to be doing and we don’t really know whether they’re meant to be providing us with the welfare side of things or whether the teaching, so...then... it just kind of depends on...the person as to what they end up doing with you.”

Students commented that some SATs seemed unenthusiastic in their role, while others would bring their own agenda to the meetings or simply focus discussions or teaching on their own specialty, rather than look at the full range of learning outcomes that students need to cover.

Another criticism of SATs was their lack of knowledge in some areas.

“Then it depends if the tutor is able to do it without having to prepare for the case, whatever you bring cos if you bring something and they’re like.. “I don’t know anything about that” then it’s a bit of a meaningless conversation.”

This may be linked to the desire expressed by some students to want to be taught, rather than to have facilitated discussions about cases or clinical issues.

5.4.6 Students’ ideas of what a SAT could do

The same basic themes emerged from the student focus groups as had during those with the SATs.

5.4.6.1 Teacher

A very popular idea of what a SAT should do was to teach. However this was qualified by some students who suggested it was the role of others such as CTFs or specialist consultants to do this. Others thought a SAT could provide teaching that filled in the gaps in the students’ knowledge. However, it was recognised that SATs were often not the best person to provide teaching, and if the focus of all meetings was teaching this might detract from other useful functions the SAT could perform.

5.4.6.2 Pastoral Support

The students thought that it would be nice to have someone to turn to if they felt the need, but did not think a pastoral role should be the primary function of a SAT. The personality and/or sex of the SAT might also determine whether they would feel comfortable enough to consider approaching a SAT about a welfare issue. Other students suggested that they did not really know their SATs well enough and that there were other people they might prefer to turn to for support. A student did suggest they would be more likely to approach a SAT if there was regular contact.

“If you get regular teaching from someone you do know you may feel more comfortable in speaking to them cos they know you.”

One student reported that the rushed nature of meetings meant she would be unlikely to consider trying to talk to her SAT about pastoral issues.

5.4.6.3 Fixer or champion

Students would welcome a SAT in a ‘fixer’ role, if necessary. The students mentioned this role as being more a feature of SATs in the fourth year rather than the fifth year.

5.4.6.4 Facilitator

The idea of the SAT as a facilitator seemed to be popular.

“That’s the handy thing about seeing the same person regularly cos then you can do like that and say “okay next week, we’ll have some sort of discussion about chest pain - a couple of you will get a chance to present cases and we’ll talk about that”

“I think the case based discussion thing is really useful. And I think like most people are happy to do peer group presentations in teaching and I guess SATs are normally happy to facilitate”

5.4.7 Differences in the SAT role in different years

This was not especially well covered in the focus groups. Students suggested that in Year 3 they need more direction and more teaching on the basics of examination and history taking, and it was thought that a SAT could do this, as it did not require specialty specific knowledge. It was also suggested that it is useful to have someone who can provide guidance and reassurance.

In Year 4 the ‘fixer’ role was mentioned as being potentially important, and some suggested that it would be good if the SAT were able to teach. Some SATs were reported to help students with other aspects of the MBChB programme, such as identifying an audit for the student to do.

In the fifth year, it was suggested that a harsher critic is needed,

“...although it’s terrifying to have an MRCP examiner who is like really critical of everything I think it’s definitely something that is...that can be quite positive in your

final year once you've got everything nailed. You kinda know the basics, you just need to fine tune everything."

Students suggested their orientations had changed by the fifth year as they are more capable self-directed learners, and better able to read up on things themselves. A SAT then becomes useful for the things not easily found in books, such as how things work in hospitals, and what you do in particular cases.

5.5 Discussion

5.5.1 What do students and SATs regard as good practice for a SAT undertaking the role?

It is important to remember that the students are in Year 5, and the SATs interviewed for this study support students in Year 5. Both students and SATs suggested this meant that students were more capable of finding things out for themselves and understanding what they need to do to progress. In short, both groups suggested that Year 5 students are becoming self-regulated learners (Sandars and Cleary, 2011). This perhaps explains why neither group suggested a major role for SATs in teaching, although it was acknowledged that SATs could usefully fill any gaps in knowledge and skills perceived by students - as was the case here with SATs in specialties related to the AIP block. However, both groups acknowledged that in general SATs, being senior doctors, had often specialised in areas with little relevance to the needs of the students. This distance from the MBChB curriculum combined with the fact that SATs do not regularly see students practising their skills in a

clinical environment would make it difficult to pitch teaching at the right level for the students or to provide students with feedback on how development of their clinical skills is progressing. Year 5 students suggest that others, perhaps CTFs, would be better able to provide teaching, perhaps as they are near peers and have a better appreciation of student needs (Stephens et al., 2016). To couch this in terms of social learning theory, students do not seem to think that SATs are well suited to act as the 'More Knowledgeable Other' (Vygotsky, 1978), in terms of the learning required for the MBChB curriculum for the AIP placement. This is because the lack of understanding that some SATs have of the students curriculum learning needs, their inability to spend time with students to understand their levels of competence and their diminished skills in these areas as a result of specialisation make them unsuitable to identify a student's zone of proximal development and to support the students in their development within it. The suggestions that others such as CTFs may be better placed to do this, suggests that the students feel the CTFs have a better grasp of a student's needs within the outcomes set by the MBChB programme and have more opportunity to work with students to develop their skills.

There was little enthusiasm amongst SATs or students for the SAT to adopt a role primarily oriented towards pastoral care, but both suggested there were times where a SAT could be useful in this area. One specific example given was a SAT who provided support for students after a difficult incident on placement, while students noted that it could be useful to have someone to discuss problems with, for example how ill health may affect their ability to work effectively on placement. There was general agreement about the barriers to undertaking a pastoral role. Some barriers hinder students getting to know the SAT well

enough. Placements are too short and timetable constraints limit the opportunities for meeting to allow for pastoral relationships to develop (Kalén et al., 2010). Furthermore, most interactions between SATs and students are group meetings, meaning that an individual relationship is unlikely to flourish, and opportunities to discuss issues of a pastoral nature are not easily afforded. There are also personality and gender barriers, with some students indicating that they would be less likely to approach a SAT of a different gender for support with pastoral issues. All agreed that having a SAT who is approachable and open to providing support is important, even though students thought that most students do not need pastoral care. This relatively low regard for the pastoral aspect of a supervisory role was also reported by Chow and Suen (2001). This does pose a question, if pastoral care is required on placement, but the SAT is not the person students turn to, where do they go?

Having looked at what both SATs and students regard as roles of less relevance to fifth year students, what do they perceive to be important? Again, there is a great deal of agreement. When SATs are available to meet regularly, check on students' progress and perhaps facilitate learning opportunities, this is seen as useful, and is what SATs in Year 5 report they do. While students do not report any enthusiasm for 'supervision', this aspect of how the SAT role is undertaken is perhaps somewhat similar to how the supervisor role is described by Kilminster (2007), and Stenfors-Hayes et al (2010).

Students value the opportunity to discuss interesting cases with SATs, and also to present cases. While some of the discussion of the cases will build students' knowledge around the learning outcomes for the AIP placement, it also revolves around how patients are managed

in hospitals, the patient's journey and the role of the various team members. This suggests that SATs are providing the students with tacit knowledge and an insight into the routines and shared repertoire of the hospital community of practice (CoP) (Wenger, 1999). SATs suggested they were able to provide feedback to students on how they present cases and how they interact with others in the group. Perhaps these 'non-technical' skills are those needed to work in the CoP, where a junior doctor's role is often to present cases they have been responsible for to their seniors and where staff work in teams to provide patient care. These are not skills that are explicitly assessed as part of the MBChB curriculum. One role of the SAT might therefore be in supporting students to play a fuller part in the CoP once they become junior doctors.

Students and SATs suggest that where the SAT works in a clinical area relevant to the placement, for example Emergency Medicine for AIP, then if the SAT is prepared to allow students to accompany them while they are at work, this can be useful. This may lead to teaching in relevant skills, but perhaps also allows the students to observe the SAT at work, to see how the SAT models their role (Bandura 1986), and this may afford useful opportunities for later reflection.

5.5.2 Should the SAT role change as students progress through the MBChB programme?

Both students and SATs thought that there should be a change in orientation. Both recognised that third year students are focused on acquiring basic skills and knowledge. This means that the SAT could undertake a more overtly teaching role in the third year where it is

easier for them to pitch teaching at the right level. SATs suggested that in Year 4 they would expect a student to become more self-directed, and so perhaps the role of a SAT would be to support a students in Years 4 and 5 in developing their self-regulatory capacity (Sandars and Cleary, 2011).

5.5.3 How would undertaking a role in assessing students affect the relationship between SATs and students?

Neither group perceived assessment as a role that SATs should undertake. There were four main reasons suggested for this. First, that SATs do not know the students well enough to assess them. Weekly meetings and limited observation of students in the clinical environment makes it difficult for SATs to provide informed judgements about student progress on the placement. Second, students are aware that not all SATs are the same, with some likely to be more generous in their assessments of students than others. This was perceived as being unfair. It was also thought that some SATs might find it hard to provide their students with a poor assessment (Dudek, Marks and Regehr, 2005). Third, SATs were worried about the nature of the assessments, feeling that they would not be sufficiently competent to provide an assessment in a skill or clinical area that they had not had much to do with since being a student themselves. The fourth reason, and perhaps the most important, suggested by both students and SATs, is that being involved in assessment would change the nature of the relationship between SAT and students. Both groups suggested that a supportive relationship built on the students' learning needs was what was wanted, and assessment could come in the way of this.

5.6 Phase 1 Conclusion

The data show that SATs can play a valuable role in helping students think about their learning and to put it into the context of hospital medicine. Furthermore, SATs pass on valuable practical knowledge that helps students think about their future practice as doctors. By helping students make the most of their placements and supporting the students in thinking about how to get the opportunities and experiences necessary to make the most of their learning, SATs are promoting self-regulated learning. These activities are seen by both students and practising SATs to be useful to fifth year students.

Both groups thought a more directive, teaching focused approach would work better in the third year. This suggests that both students and staff see differing needs as students progress, and that in Year 5, much of the support thought important is directed towards supporting students enter the hospital CoP. Further work looking at which other roles provide support to students, particularly in areas where SATs have no direct influence, such as in the clinical area or with specific skill or knowledge-based teaching, would be required to more fully understand how students are supported on hospital placements.

5.7 Chapter summary

This chapter has analysed the perceptions of the SAT role from both a student and SAT perspective. It has described how the role can be of value to students and identified some ways that SATs have undertaken the role that are less helpful. It is clear however, that a SAT cannot provide all the support students need. This is the catalyst for the research into the

wider matrix of support for students on hospital placements that is described in the following chapters.

6 THE MATRIX OF SUPPORT ON HOSPITAL PLACEMENTS

This short chapter acts as a bridge between the two phases of the research project described in this thesis. It outlines the main finding from phase 1 about the support provided by Senior Academy Tutors (SATs) to students on hospital placement and provides some contextualisation for the subsequent chapters that investigate the wider matrix of support that students on hospital placement can access. Six key roles that form the matrix of support are described.

The aim of hospital placements in an undergraduate medical degree is to ensure that by the time of graduation medical students are able to function as safe and effective junior doctors. To do this, students need to learn a range of clinical skills and supporting knowledge to allow them to undertake the tasks of the job. In addition, students are expected to learn and internalise the values expected of medical professionals that will lead them to practice in an ethical way. All of these requirements are specified in the Outcomes for Graduates (GMC, 2018). Medical students need to both be taught the skills and knowledge necessary and have the opportunities to practice these in clinical settings. By allowing students to interact with clinical roles *in situ*, hospital placements enable students to gain valuable experience that should equip them with the values required for practice.

Students need to be supported in their learning to develop the skills, values and knowledge required to become junior doctors. Phase 1 of this research project characterised the support that was provided by SATs, particularly for students in Year 5, but to some extent

also for Years 3 and 4 of the MBChB. It became apparent, however, that while SATs have an important part to play in supporting student development, there appears to be a wider matrix of support for students on hospital placement to which other clinical roles contribute. Student feedback in Phase 1 had suggested that the SAT role might change its focus of support for students as they progress through the MBChB, and in line with students' changing orientation to their learning needs. If this is indeed the case, then it was thought likely that this would be true for other support roles too. The matrix then can perhaps be conceived as being three dimensional, with the three axes being time, role, and outcome that the students require support with.

Phase 2 of this research study seeks to build on and extend the findings from Phase 1. The overarching aim was to explore, in greater depth, the matrix of support provided to students on hospital placement. Subsidiary aims were to learn more about the way in which students' learning needs evolve, to more closely define the support provided in terms of type, provider role and required outcome, and to discover if, and how, this support changes over the course of the MBChB.

The six roles identified for inclusion in the Phase 2 research were those known to contribute to student development in some form. SATs and Clinical Teaching Fellows (CTFs) are roles which are specifically employed to support students; Foundation Grade Doctors (FGDs), Other Healthcare Professionals (OHPs), and Consultant and Middle Grade Doctors (CMGDs) are roles that students spend time with in clinical areas; and finally students (STU) were included as peer support is known to be important. The outcomes chosen for the questionnaire were adapted from the GMC Outcomes for Graduates.

7 PHASE 2 METHODOLOGY

7.1 Introduction

This chapter outlines the rationale for and the development of the Phase 2 research instrument. An expert panel of those involved in the education of medical students supported the development of a questionnaire survey, and this was further refined with the assistance of student pilot groups. The chapter then outlines the data analysis methods for both the Likert scale type questions and the free text comments. Issues of reliability of the results are also discussed. Finally, consideration is given to how the position of the researcher may have impacted the phase 2 research.

This research was also conducted with the approval of the University of Birmingham Humanities and Social Sciences Ethical Review Committee (ERN_14-0545A).

7.2 Research setting/context

The research setting is the Birmingham MBChB. The study focuses on the experience of students in Years 3, 4 and 5 while on hospital placement. Students have two hospital placements in Years 3 and 4, and three in Year 5.

7.3 Rationale for research approach

Students' experiences on hospital placement are inevitably very individualised. Teaching is done in small groups of generally fewer than six students, and much takes place

independently on the wards where students encounter different people who provide them with support. This support is received in a range of clinical environments within a hospital and students therefore see different patients and encounter different local work practices.

In this context, a questionnaire survey was thought most appropriate to achieve the aims of this study as it has the potential to gather data from the greatest range of participants (Gillham, 2008). In enabling a much greater proportion of the student cohort to participate, it can also represent a much greater range of perceptions and allows for greater generalisability of findings. More individualised approaches such as interviews and focus groups would perhaps have painted a richer picture, but may not have given such a broad understanding of those who provide support for different aspects of a student's learning. The chosen approach combined Likert-type questions, which are commonly used in medical education research (Sullivan and Artino, 2013) with free text, open-ended questions.

In the first part of the survey a 4-point Likert-type scale (Artino et al., 2014) was used to investigate how well students feel they are supported in a defined range of outcomes, by different clinical roles. The outcomes in this case were adapted from the GMC's (2018) Outcomes for Graduates which allowed areas of the curriculum where students feel more or less supported to be identified and to map this perceived support per outcome to the clinical role or roles providing the support. Some limited demographic data was also requested. The research questions were as follows.

1. How much support do students perceive they receive from each role included in the survey for each of the outcomes listed?

2. Are there any outcomes where there may not be sufficient support perceived by students?
3. Are there any differences in how students of differing ability or of different genders report being supported?

In the second part of the survey, free text fields were used to capture comments about how students feel they were supported by the different clinical roles. Students could choose which roles to discuss, and what to say about 'how' they felt they were supported. The research questions were as follows.

1. How do the support roles identified in this study help students?
2. What do students cite as examples of helpful attributes and useful activities?
3. Does the perceived support change as students progress in the MBChB?

7.4 Research sample and data sources

All students in Years 3, 4 and 5 of the MBChB course were eligible to take part in the study.

Thus the whole study population could choose to take part in the research; an advantage of using a questionnaire.

7.5 Data collection methods

Since at the end of each academic year students are routinely asked to complete an online survey reflecting on their experiences, it was felt that any request to complete an additional online survey could lead to a poor response rate. The paper questionnaires were therefore administered during plenary sessions held at the end of term at the Medical School. These

sessions were important sessions, and an estimate at each session suggested almost full cohort attendance. A short explanation about the questionnaire, how to complete it and why it was being undertaken were given. Arguably being able to do this in a lecture theatre generated more interest than a link to an online survey would have done. The time-bound nature of needing to complete the survey before it was collected perhaps worked to encourage greater completion rates than an online survey, which even with the best intentions to come back to can easily be forgotten.

7.6 Survey Development

The survey was developed with the assistance of both expert panels and student pilot groups.

7.6.1 Expert Panel

7.6.1.1 Purpose and composition of the expert panel

The use of expert panels to advise on the development of questionnaires is recommended in order to assist with the development and selection of items, and to help with their wording (Artino et al, 2014; Gillham, 2008). Since the questionnaire used in this study sought an understanding of how students are supported in various aspects of their professional development, the expert panel was drawn from people with good knowledge of the MBChB programme, the nature of hospital placements and a knowledge of the professional development expected of medical students.

7.6.1.2 Methods for reaching consensus

Several methods are described as being suitable for use when attempting to reach consensus among a group of experts. Perhaps two of the most well-known and most widely used are the Delphi technique and the Nominal Group Technique (NGT). Both methods, along with Q-Methodology, a ranking method, were considered for helping decide upon items to include in the survey. However, after evaluation none were found fit for the purpose required, see discussion below. For this reason, a novel method was developed.

7.6.1.3 The Delphi Technique

The Delphi technique was originally developed during the cold war as a way to understand expert opinion about the most likely nuclear targets the Soviet Union would attempt to strike (Foth et al., 2016). It has since been used in a variety of disciplines, including education, where developing a consensus between experts, and perhaps stakeholders (Keeley et al., 2016) is important, for example in developing agreement about curriculum outcomes (Burke et al., 2009).

The Delphi technique is used to prioritise a pre-existing list of items for consideration and usually follows the procedure outlined below.

1. The research problem is defined.
2. A literature review is undertaken.
3. A questionnaire containing the list of statements/options to be considered is developed. A Likert scale is provided for each item so expert reviewers can indicate their degree of agreement or importance they attach to the item. This is done independently.

4. The results are analysed and then fed back to the group and further round(s) of review are undertaken.
5. A consensus is gradually achieved.
6. A summary of findings is produced.

Advantages to using this method include the use of a large panel of experts, the panel does not have to convene in one place (De Villiers, De Villiers and Kent, 2005), dominant members are unable to influence others and it is amenable to statistical analysis. There are, however, important critiques; the process promotes conformity rather than consensus, and the lack of discussion prevents the generation of new ideas (Williams and Webb, 1994). There is also no opportunity to explore why panel members think the way they do (Foth et al., 2016).

The Delphi technique was discounted since while there was a long list of items to be prioritised, these items would possibly require further refinement. This is something that this method does not easily allow. Furthermore, the Delphi technique can be a lengthy process, and this made it difficult to consider given the tight time frames of this study.

7.6.1.4 The Nominal Group Technique

The NGT is a highly structured group meeting which is designed to produce a range of answers or thoughts on a particular question or topic, and then to achieve some consensus about the best way to answer the question. The NGT often takes the following course (Foth et al., 2016).

1. The question is formulated.
2. The group assembles and the participants write down their ideas in private.

3. The facilitator elicits and records each participant's ideas on to a board where they can be seen by the whole group.
4. Each item is discussed in turn.
5. The panel votes on items in private.
6. The results of the vote are discussed by the group.
7. Further rounds of voting can occur.

The benefit of this method is that it can lead to the generation of useful ideas. However, of necessity group sizes are quite small, and may not be representative of wider opinion. There is a further danger in face-to-face group activities that some individuals may dominate.

This method was discounted as the items for inclusion in the questionnaire already existed and the need was to prioritise them. Generation of ideas, rather than the prioritising of them is the main feature of the NGT.

7.6.1.5 Q-Methodology

Sometimes known as the Q-sort method, this allows participants to rank pre-prepared items (Alderson et al., 2018). Participants are asked to complete the task individually, by sorting the items according to how much they agree with them. A sorting frame with spaces for the participant to place their answers in is provided, and represents a normal distribution with the spaces for responses decreasing towards the ends of the spectrum (Donner, 2001). The purpose of Q-methodology is not to rank items but, by using factor analysis, to look for similarity between participants.

This method was discounted since looking for similarities between participants was not necessary. However, the concept of using a frame that participants use to classify items is a useful tool and was adapted for this research.

7.6.1.6 Method used

The function of the expert panel was to identify the most important learning outcomes for students to achieve while on hospital placements. The GMC specify the outcomes graduate must have achieved by graduation and these are interpreted for the MBChB in programme and module outcomes. There was therefore no requirement for the expert panel to create professional development outcomes to include on the survey, rather, its function was to rank pre-existing outcomes for inclusion. For the purposes of this exercise the outcomes were drawn from the consultation document recently released by the GMC on an update to Outcomes for Graduates. The final version has been published since this exercise took place and is similar to the draft version (GMC, 2018). Outcomes for Graduates contains almost 200 outcomes grouped under 25 higher level outcomes, representative of three domains; skills, values and knowledge. To ensure the task was manageable and meaningful, only the higher level outcomes, supplemented with important sub-outcomes, were used. A list of 37 outcomes were therefore selected for the expert panel to work with. See Appendix D.

To guard against panel members influencing one another, the panel sessions were structured so that choices about which outcomes were most important to include were made individually, but there was a group discussion at the end. This discussion focused on issues with wording of the outcomes and on suggestions for additional outcomes that should

be considered for the survey. Before the expert panel began the members were given a participant information sheet (Appendix E)

At the start of each expert panel a short PowerPoint presentation was shown to inform the members about how the panel would be conducted. See Appendix F.

Panel members were asked to divide the outcome statements into four categories and to ensure that each category contained a minimum of six statements. This ensured that members were forced to make ranking choices. The categories used to classify the outcomes were:

- Most important
- Important
- Of lesser importance
- Least important.

In practice, panel members were each provided with an envelope containing the 37 statements as individual laminated pieces and an A3 sheet with four sections representing the four outcome categories which could be used to place the statements onto. Four cups, each of which represented a category were distributed as receptacles for statements once they had been ranked. The purpose was to make the ranking exercise involving and easy to do.

To record their choices, the panel members were provided with a further sheet of A4 and were asked to transcribe the numbers of the statements into the spaces provided. The

sheet was designed to ensure that candidates had allocated the required amount of statements to each category. See Appendix F for images of the items provided to the expert panel. Once these record sheets had been collected a short discussion followed. This focused on suggestions for changing the wording of outcomes, and suggestions for other outcomes which were not included in the original list of 37 outcomes provided to the panel.

7.6.1.7 Results

Participants

Five expert panels were held, and a total of 70 people took part (Table 5). A range of professions and specialties were represented (Table 6).

Date	Panel members	Number of participants
20/12/2017	Heads of Academy	11
05/01/2018	Clinical Teaching Fellows	39
18/01/2018	Senior Clinical Examiner	6
19/01/2018	Senior Clinical Examiner	6
22/01/2018	Senior Clinical Examiner	8

Table 5: Expert panel participant numbers

Royal College or profession	Number
Anaesthetists	8
Emergency Medicine	3
General Practitioners	13
Obstetrics & Gynaecology	3
Ophthalmologists	1
Paediatrics & Child Health	2
Pathologists	1
Physicians	22
Public Health	1
Psychiatrists	1
Radiologists	2
Surgeons	8
Nurse	3

Table 6: Participant specialty background

The panels were held at times where they could piggy back onto other activities that were taking place. The first meeting was held during a break in a Head of Academy Meeting, the second was held during a Postgraduate Certificate in Education Course for Clinical Teaching Fellows. For the latter, two sessions were run given the numbers willing to take part. The other three sessions were held after training sessions for Senior Clinical Examiners to become OSCE examiners.

The method worked well and participants appeared to enjoy the experience and kinaesthetic, practical method of sorting the outcomes. A few panel members did not report a category for all 37 outcomes. The omissions were likely to have occurred during the process of transcribing the data onto the recording sheet. In total 23 data points of a possible 2590 were lost (0.9%) (Table 7).

No. of outcomes categorised	No. of panel members
37	47
36	13
35	6
34	1
33	1
32	1
31	0
30	1

Table 7: Number of outcomes categorised by each panel member

7.6.1.8 Outcome ranking order

To determine a ranking order for the outcomes the average score per item was calculated using the average from the available points, not the average of the total possible, in order

to reduce the effect missing mark points might have had. Table 8 shows how missing data had almost no effect on the selection of items for the questionnaire.

Data points lost	No. of questions	No. of questions included in the survey (n, %)
0	11	4 (36)
1	15	8 (53)
2	5	2 (40)
3	5	2 (40)
4	1	1 (100)

Table 8: Data loss in the selection process and question selection

7.6.1.9 Selecting the items for the survey

The data from the expert panel activity was entered into SPSS and correlations were calculated between all 37 items the panel were asked to rank. The correlation data was then reimported to Excel to allow manipulation, and those data seen to be significant were tabulated (Appendix G). The correlations between the statements were examined to see if this pointed to any duplication or similarity in a statement's coverage that could be useful in deciding which items to select or omit. This did not reveal anything not already noted by the expert panel, but helped reinforce these decisions. For example the statements with the highest correlation coefficient (0.439) were to 'to record patient information correctly', and 'to communicate in writing'. The expert panel had already advised that to communicate in writing was not necessary as it would be interpreted as being about recording patient information.

The expert panel members ranked statement in the skills domain (average of 2.32/3 or 77.3%) above those from the values and behaviours domain (average of 1.65/3 or 55%), which is above that for the knowledge domain (average of 0.83/3 or 27.7%). See Appendix H.

It was decided that to abide by a strict ranking order would skew the survey in favour of skills domain outcomes. Therefore based on the proportion of the numbers of statements from each domain included in the ranking exercise, it was decided to include seven skills, seven values and behaviours and three knowledge domain statements. The maximum number of statements that would fit on the survey was 17. See Appendix I.

The question of whether different specialties or grades of panel member prioritised the outcome statements differently was addressed to determine any bias effects.

By Grade

Panel members were placed into one of two groups according to their grade; seniors, that is those at consultant or GP level (n=25), or Clinical Teaching Fellows (CTFs) (n=39), who are doctors in training. While the ranking results of these two groups were broadly similar for all three domains, there were some interesting differences (Appendix J). In the knowledge domain, the seniors placed more emphasis on learning underpinning science, population health and psychological principles, whereas the CTFs placed more emphasis on immediate practical knowledge such as understanding the career and working pattern of a doctor, and understanding how hospitals are organised to deliver care. Within the skills domain, the seniors prioritised the ability to interpret investigations and test results, patient

communication and practical skills such as recording patient information correctly and communicating in writing. These priorities may reflect the seniors' perception that these are tasks which junior doctors do not perform well. In contrast, the CTFs prioritised other more practical outcomes such as performing clinical skills and using medical devices, perhaps because these are what cause junior doctors some anxiety. In the values and behaviour domain, the seniors placed more emphasis on learning the principles of quality assurance than the CTFs, whereas the CTFs placed more emphasis on understanding the clinical roles and responsibilities of a doctor. Perhaps this is because junior doctors remember more clearly not really knowing what they were supposed to do.

By specialty

Although doctors from a range of specialties took part in the expert panels only four specialties had sufficient representation to warrant investigation into potential differences between them; Anaesthetists (8), General Practitioners (13) Physicians (22) and Surgeons (8). Analysis of the emphasis placed on different outcomes by each role relative to the other roles is shown in Table 9 and potentially shows the professional background and concerns of panel members did influence outcome selection and provides some confirmation that involving as many people as possible from a broad range of backgrounds has helped produce a survey which is not unduly affected by the contributions of any particular group or individuals opinions. See also Appendix K for more detailed information.

Domain	Outcome	Anaesthetist	GP	Physician	Surgeon
Skills	Communicate professionally with colleagues	Strong			
	Synthesise information to inform differential diagnoses		Strong		
	Interpret investigations and diagnostic tests		Strong	Weak	
	Use medical devices safely		Weak		
	Provide immediate care in medical emergencies			Strong	
	Perform clinical procedural skills safely and effectively				Strong
	Communicate verbally with patients				Strong
Values	Maintain workplace health and safety	Strong			
	Understand how errors can happen in practice	Strong			
	Understand the need to adapt management proposals and strategies for patients with complex needs, multiple morbidities and long-term conditions		Strong		
	Apply principles of quality assurance, clinical governance and risk management		Weak		
	Importance of teamwork in clinical practice			Strong	Weak
	Understand and apply ethical and professional principles			Strong	
	Supporting terminally ill patients and their carers			Strong	
	Deal with uncertainty through reflection, debriefing or asking for help				Weak
	Being an effective learner				Strong
Knowledge	Learning biomedical principles	Strong			
	Relationship between hospital care and primary and social care	Weak	Strong		
	Hospital organisation		Weak	Strong	
	Psychological principles				Weak
	The career and working pattern of a doctor				Strong

Table 9: Expert Panel Emphasis by specialty

7.6.2 Pilot group

A pilot was conducted to help ensure the survey was acceptable to students. The response rates (Section 8.1) would suggest that this was the case. Six students participated in the pilot which was spread over three sessions. The survey was not changed between sessions. At the start of each session the participating students were provided with a participation information sheet (Appendix L)

Date	Student year	Time taken to complete (Minutes : Seconds)
19 th March, 2018	3	12:40
19 th March, 2018	4	7:51
19 th March, 2018	4	11:35
19 th March, 2018	5	6:43
26 th March, 2018	4	11:45
27 th March, 2018	5	14:20

Table 10: Pilot group sessions

Each student was timed to see how long it took them to complete the survey (Table 10). The completion time was a little longer than expected for some students, but it may be that they were, because this was a pilot and they were observed, being more thoughtful and therefore slower than they would be ordinarily. Students were observed while they completed the survey and notes taken where interesting issues arose.

Following survey completion a standard set of questions was used to prompt discussion with the students (Table 11). The discussions were recorded to allow the interviewer (me) to concentrate on the discussion rather than noting what was said. The recordings were subsequently used to remind the interviewer of what was said. It was not thought necessary to transcribe the recordings.

1	Were there any questions you found difficult to understand or to answer? Please say which number and why.
2	On page 1 we ask for demographic information and for your decile. Do you think students will object to providing any of this information?
3	Look at the roles described. Is it clear to you what the roles are?
4	Look at the back page, would a different way of laying this out yield better information, or be acceptable to students?
5	Overall, do you think students will tolerate the questionnaire and complete it?
6	Are there any other comments and suggestions for the survey? For example questions not asked or questions not required.

Table 11: Pilot group discussion prompts

7.6.2.1 Points arising from the discussions with the students

Clarity

The survey was found to be easy to understand, however one student did ask what the acronym for Russells Hall (one of the teaching hospital sites used on the survey) was. Therefore a key, or fuller title for the placements was provided on the final version.

The roles as described were clear, and it was agreed that it was appropriate to put Middle Grade Doctors and Consultants as one category.

The back page of the survey where students are asked to provide free text comments was not thought to be particularly easy to use. An alternative was shown to the students, which asked students to write a short comment about each role. This was thought to be easier to use, but with the caveat that students were requested to choose only three support roles to write a comment about. This amended version was used in the final survey.

The students understood what each role was but made the following two suggestions about nomenclature. First, that Senior Academy Tutor should also include the acronym SAT as this is what the students know. Second, that 'Member of other profession', would be better titled 'Other Healthcare Professional' (OHP), although all the pilot students understood this to mean nurses, Operating Department Practitioners etc. These changes were made for the final version of the survey.

There were not any comments about the rating scale devised for this survey.

There was some discussion about students' experiences being different on different placements, for example in Year 5, the experience of students in Obstetrics and Gynaecology will be significantly different to their experience on the Acutely Ill Patient placement. It was thought that perhaps students could be given a space to explain such differences on the back page. This was done.

Acceptability

The students thought that their peers would tolerate the survey and complete it, as it promotes interesting reflection and is not something that students have been asked about before. Similarly, and provided it was made clear that the surveys were anonymous, students would be prepared to share their decile. A paper survey administered at the start of a lecture was thought to be the best way to encourage completion.

It was acknowledged that the survey was quite long. One thought expressed by the pilot group was that shading the 'blobs' for the Likert-scale type questions was quite time consuming and the survey would be quicker to complete if a single line could be shaded, as in MCQ exams. Unfortunately, I was advised by the college data analyst with experience of scanning that since the final questionnaires were to be scanned by an optical recognition system, a line could not be used. However, smaller 'blobs' were used in the final version of the survey.

The pilot group were unable to make many suggestions about how to reduce the survey length as the questions seemed appropriate. It was suggested that the Year 3 survey could omit the question about prescribing as this is not really taught in Year 3. For the sake of comparison across years this was not done.

7.6.2.2 Personal reflections from observing the students complete the survey

Watching the students complete the survey had shown that students were taking a while to shade the blobs, so the comments noted above came as no surprise.

The students folded the A3 survey in half, this suggested that putting the rating scale on both pages might be necessary.

7.6.2.3 Reflections from looking at the completed surveys

Reading the free text comments did not provide any particularly useful information, so a more directed request for a comment about each role was added instead, as noted above.

The 'not relevant' option seemed to have been used for two purposes. One, where the outcome was regarded as not relevant (prescribing skills in Year 3) and two, where the support role was not evident/available on placement, for example CTFs in Year 4. The student in the fifth year suggested fellow students were not relevant, as there weren't any older more experienced students around.

Students also made quite a number of alterations to questionnaire sheets when they changed their minds about how to rank an item. While it was thought that this would inevitably slow down the scanning process it was difficult to know how this could be avoided. See Appendix M for the final questionnaire survey that was administered to all students.

7.7 Data analysis methods

7.7.1 Quantitative data: closed option Likert-type scale questions

The Likert-type scale data were subject to initial analysis using MS Excel. The data was then subject to secondary analysis using SPSS.

The scale provided to the students was a five-point scale, one option was 'not relevant'. The four options which could be ranked were:

- Very helpful
- Reasonably helpful
- Slightly helpful

- Not helpful

The data from the questionnaire was scanned using Speedwell software. The data files were then scrutinised and where the participants had changed their mind, or otherwise caused the software to introduce an alert, the respondent's completed questionnaire was examined to determine what the participant had intended. Once the results were 'clean', they were exported to Microsoft Excel for formatting and analysis. This was done separately for each year cohort completing the questionnaire survey.

In Microsoft Excel the demographic aspects to survey completion were first analysed to determine how many questions each participant had answered and also to look at whether there were any appreciable differences in completion rates by different demographic groups.

All Likert scale data were cleaned and ordered prior to statistical analysis.

Each student was asked to provide a score for 17 questions for each of six support roles. Therefore a student that provided all the requested information provided 102 individual data points.

Mean scores were calculated for each of the 102 separate data points. This data was then tabulated so that a matrix of the 17 questions and six roles was created. The results were

then re-tabulated to display by the three domains of skills, values and behaviours (subsequently listed as 'values') and knowledge.

Mean scores for each question for different groups within the cohort were calculated and similar tables were created to investigate intra cohort differences. The numbers in most groups were too small to be able to draw any conclusions, so two dichotomous groups were analysed. One of these was gender the other was 'half' by previous exam performance. Each half was created by pooling students in the top 5 deciles or bottom 5 deciles, as declared by the student on the questionnaire.

It is accepted that the data, because it is based on perceptions of helpfulness is ordinal rather than interval. There is much cautioning against using means to represent ordinal data as, for example in this survey, one 'very helpful' is not one point more than, or twice as much as 'reasonably helpful' (Jamieson, 2004). However, the choice of means was made as the scale range is small and so median or mode would not be particularly informative. Sullivan and Artino (2013) cite Norman (2010) who argues that using parametric tests with nearly normally distributed Likert scale data is appropriate providing the sample size is adequate.

For each year the Not Relevant (NR) and blank data points were tabulated and analysed.

For statistical analysis the data was ordered and then imported into SPSS Statistics 24, where it was analysed using repeated measures analyses of variance.

7.7.2 Qualitative data - free text comments

The final page of the questionnaire provided students with space to write up to three comments, each about a different role. The students were able to choose which of the six identified support roles they chose to write about. The free text comments were typed into MS Excel, then exported to NVivo 11, where they were coded and then analysed by the researcher, giving good immersion in the data.

The approach to analysing the data was informed by a grounded approach (Watling and Lingard, 2012). Originally grounded theory was based on the positivist assumption that the truth was waiting to be discovered, in this case by careful and dispassionate analysis. Later constructivist theorists suggested that grounded theory needed to accommodate the relationship of the researcher to the participants in research as part of the process of constructing new knowledge (Mills, Bonner and Francis, 2006). Thematic analysts like Maguire and Delahunt (2017) describe the researcher as the “...research instrument insofar as his or her ability to understand, describe and interpret experiences and perceptions is key to uncovering meaning in particular circumstances and contexts”. For this study, Braun and Clarke’s (2006) six-point framework for the thematic analysis of qualitative data, which involves the identification of patterns, or common themes, was used. This method is widely regarded as a reliable, qualitative approach to analysis, able to provide a comprehensive and finely graded interpretation of the data (Braun and Clarke, 2006; Vaismoradi, Turunen and Bondas, 2013). It is further regarded as useful for identifying common themes across related

data sets (DeSantis and Ugarriza, 2000). An inductive, 'bottom-up' thematic analysis was used to identify themes in the free text comments collected.

One way to arrive at reliable interpretations of the data is to have two or more researchers looking at the material to be analysed, each developing a coding frame and then comparing their analyses (Pope, Ziebland and Mays, 2006). For this research that was not possible, and although this is not considered essential (Maguire and Delahunt, 2017) it is important to recognise the position of the researcher, see section 5.10, and to be aware that perceptions may affect judgement (Braun and Clarke, 2006). As, the coding step in the analysis mostly involved categorising student statements into nodes depending upon the type of support they were describing, this did not require significant amount of interpretation as these did not involve emotion or feeling. Rather, they were short statements written on the questionnaire, not longer discourses from interviews or focus groups, which are more difficult to code.

No assumptions were made about what themes would emerge and so no coding framework was developed prior to the start of the analysis. The first step was that the researcher typed all the hand-written comments, and so gained a sense of the data. Once typed the data was tabulated prior to input into Nvivo, to allow comments to remain associated with support roles. This allowed the subsequent analysis to see if different themes emerge for different roles or to identify similarities between them. After data import into Nvivo, the process of generating initial codes began. The entirety of each comment was coded iteratively 'bottom up' and as a new aspect was seen a new coding node was created. This was done through a

process of constant comparison between new data, and that which had already been coded. After a while, new coding nodes were created only infrequently. Year 3 was coded first. This coding frame was then used for Year 5, as after typing the comments it was anticipated that the same codes would be applicable, and then for Year 4. Although there were 1369 comments in total, a very high degree of duplication, as students tended to say the same thing, meant that the range of the coded data set was relatively small. Three new themes and five sub-themes were added to the initial frame to ensure complete coverage of the data. This made a total of 34 themes and closely related sub-themes. At this point the themes were organised into three categories; Characteristic, Interaction type and Teaching content. Only one theme, a 'catch-all' for negative student comments remained outside this grouping.

Two further opportunities were included on the questionnaire for the students to provide comment. One asked students to comment if there were any differences between placements they thought worth mentioning. The other was to ask students if there was anything else they wanted to comment on about the roles. These sections attracted comments about the differences between the support students felt they received in different placements, with many comments on the perceived qualities of the Clinical Teaching Fellows (CTFs). Rarely, did students provide any additional comments about how they were supported by the roles included in the survey. It was therefore decided not to code these two sections as they did not add to the overarching question of 'how' different roles contribute to student support.

7.8 Issues of trustworthiness

The survey was administered to the entire cohort, about 380 students, in each of the three years. In Year 3 and Year 5, the response rate was over 50% and in year 4, it was only slightly less than 50%. This means the number of responses was large. The questionnaire was completed anonymously. It would not be possible to trace a respondent and this may have encouraged respondents to be honest in their descriptions of support.

7.9 Limitations and delimitations

The study can only report on student perceptions of support, rather on the actual amounts of support received. However, given the number of students involved the data can provide a useful insight into patterns of support received. This research deliberately focuses only on the support received by students on hospital placements. It was decided to keep this focus rather than investigate the support students receive on other placements, such as in Community-Based Medicine (CBM) or in psychiatry placements as these would be better researched individually. There is a need to keep questionnaires manageable for respondents to encourage completion, and 17 questions and six roles was as much as could be accommodated in the space available, and which would scan accurately to allow data extraction.

7.10 Position of the researcher

I have worked at Birmingham Medical School for nearly 14 years. I am an Education Development Specialist, and in my role I participate in curriculum design, innovation and implementation and engage in communication with many of those who can be regarded as

stakeholders in the curriculum. In addition to this, I am a module lead in both the first and second years of the MBChB, and also a Personal Mentor. I teach and contribute to the running of a postgraduate certificate in education which is run exclusively for CTFs. I contribute to faculty development initiatives, including sessions designed specifically for SATs. I also visit hospitals regularly to attend their undergraduate teaching academy meetings, and at one local Trust provide inductions to the MBChB for all newly appointed Consultants on a regular basis. Back at the Medical School, I am a member of the Interprofessional education (IPE) committee, working with academic staff from other professions to introduce aspects of IPE to medical students. I also coordinate a network of Clinical Skills Trainers, which brings together hospital-based staff who support students with their clinical procedural skills.

Clearly this closeness to the curriculum 'as planned' has both advantages and disadvantages from a research perspective. The closeness to the curriculum may provide me with insight that allows me to interpret the data from the research. However this needs to be balanced against the possibility that I may project my expectations onto the results, based on my work on the curriculum and my relationships with many people holding many of the support roles covered in the research into the findings. With the data generated from the perceived helpfulness rating scales, the issue will be one of interpretation at the discussion stage. With the data generated from the free text comments, there is a potential danger that the item coding may have been influenced by what I expected to see. As Braun and Clarke (2006) note "*...researchers cannot free themselves of their theoretical and epistemological commitments, and data are not coded in an epistemological vacuum.*"

7.11 Summary

A questionnaire survey was used for the Phase 2 research to maximise the data gathered and increase the likelihood that it would represent the whole study population. A combination of Likert-type questions and free text questions enabled a broad picture of the nature of the support matrix available to students on hospital placement to be visualised.

A novel method was developed to select items for the student survey, since published methodologies for reaching consensus among a group of experts were not thought fit for this research purpose. By including as many people with suitable experience as possible in the development of the survey it is suggested that the survey is likely to include questions which were important to ask in order to gain an understanding of those who provide support for different aspects of a student's learning on hospital placement. Analysis and comparison of students' responses from each year group provided an insight into student's changing orientation to learning and to the roles who support them, as they progress through the MBChB programme.

7.12 Chapter Summary

This chapter has explained the rationale behind the mixed methods approach to the Phase 2 study design which allowed the capture of both semi-quantitative and qualitative data. The methodology used was described at some length and the use of mixed quantitative and qualitative methods explained as enabling an investigation into which roles support students with which outcomes, as well as the nature of that support. It was suggested that the survey

completion rate in all year groups allowed the results concerning the students' perceptions of support on placement to be viewed with reasonable confidence. Considerations of trustworthiness, data limitations and potential sources of bias were discussed. The researcher's closeness to the subject under investigations allowed insight, but care was taken to avoid any bias in data interpretation.

8 RESULTS

This chapter begins with providing some detail about completion rates and some limited demographic detail of respondents. The first part of the chapter provides an analysis of the Likert scale questions. There is an explanation of the data scales used and the overall mean helpfulness rating per role is provided. The perceived mean helpfulness rating is provided for each domain derived from Outcomes for Graduates (GMC, 2018). The data is then analysed by year, and also by combinations of factors such as domain, gender, and half by previous academic performance. For the free text comments, an explanation of the themes that emerged from the data is given. These themes are used in the analysis of the free text comments for students in year 3, 4 and 5. Overall themes are then identified. The final part of the chapter seeks to bring together the Likert scale data and the thematic analysis of the free text comments to generate an overall picture of the students' perceptions of each role.

8.1 Completion Rates

Year	No. of students	Completed surveys	Completion Rate (%)
3	368	233	63
4	382	144	38
5	370	213	58
Overall	1120	590	53

Table 12: Completion rates by year and overall

The questionnaires were all administered during lectures at the medical school. It is not possible to tell if the whole cohort was present as a register is not taken, but the lecture hall seemed reasonably full on all occasions, suggesting that the greater part of the cohort was present. The questionnaire was administered to the Year 3 and Year 5 students at the end of the 2017 academic year, and to the Year 4 students once they had returned from their summer break and had just started Year 5. Perhaps this explains the poorer response rate in Year 4 (Table 12).

8.2 Analysis of the Likert scales

8.2.1 The data scales

The students were asked to rate the helpfulness of each role for each question on a scale as follows.

Not relevant

Not helpful/no impact

Slightly helpful

Reasonably helpful

Very helpful

All responses were scanned and converted into a four point scale as follows.

Not helpful/no impact	0
Slightly helpful	1
Reasonably helpful	2
Very helpful	3

Where respondents had indicated that a role was not relevant, the responses were coded NR in order to ensure they were not included in the numerical data analysis. Where respondents had neglected to provide a response to a question, these were coded BLANK.

8.2.2 Blanks

The percentage of BLANK responses was relatively low (Table 13). This is particularly true in Year 4, where only 1.5% of all possible data points in the returned surveys were blank.

	Year 3	Year 4	Year 5
Surveys completed	233	144	213
Total number of data points	23766	11628	21726
Data points completed	21928	14469	20306
Data points BLANK	1838	219	1522
% Data points BLANK	7.7	1.5	7.0

Table 13: Blanks per year

Table 14 shows the percentage of blank responses per question. It is noticeable that the percentage of blanks increases towards the end of the survey, with a noticeable jump in the percentage of blank response from question 9 onwards. Question 9 is the first question on the second page of the survey.

Domain	Outcome	BLANK responses %		
		Year 3 %	Year 4 %	Year 5 %
Skills	1 To elicit clinical information from patients through taking a history and performing a physical examination	2.29	0.69	2.88
Skills	2 To perform clinical procedural skills safely and effectively	1.86	1.16	4.56
Skills	3 To prescribe safely and effectively	4.01	0.58	4.73
Skills	4 To synthesise information to define the likely differential diagnoses	3.43	1.16	4.99
Skills	5 To interpret findings from investigations and diagnostic tests	3.86	1.27	5.77
Skills	6 To formulate plans for treatment, management and discharge	4.08	0.81	7.00
Skills	7 To record patient information correctly	4.86	1.39	6.56
Values	8 To understand the clinical roles and responsibilities of a doctor	5.22	0.69	6.56
Values	9 To understand the importance of teamwork in clinical practice	8.51	1.39	8.45
Values	10 To understand and apply ethical and professional principles	9.16	1.62	9.56
Values	11 To understand the importance of raising and escalating concerns	9.94	1.97	9.09
Values	12 To deal with uncertainty through reflection, debriefing or asking for help	10.44	1.39	9.65
Values	13 To recognise patient vulnerability and know how to respond, including safeguarding	11.87	2.31	9.74
Values	14 To support and facilitate patients to make decisions about their care	12.30	1.39	10.21
Knowledge	15 To apply biomedical scientific principles and knowledge to medical practice	13.16	2.31	9.46
Knowledge	16 To understand the relationship between hospital care and primary and social care	13.23	2.78	9.56
Knowledge	17 To understand how hospitals are organised to deliver care	13.23	2.43	9.46

Table 14: Blanks as a percentages of responses per outcome

1. The colours identify percentage of BLANK responses, with green showing the lowest percentage of BLANK ratings and red the highest.

It was important to check whether the proportion of blank responses affected the overall data, particularly with reference to the relative support perceived for skills versus values and knowledge. To this end, the mean response for each question by role in the Year 3 data was calculated and then grouped according to domain, in order to calculate the overall domain mean response. This was done twice; once including the blanks and once after having excluding all data for those respondents who had left page 2 blank. Removing the data was not seen to have an appreciable affect (Table 15), so the data from these respondents were retained.

Domain	Overall mean response	
	Data removed (n=202)	Data not removed (n=233)
Skills	1.56	1.57
Values	1.50	1.50
Knowledge	1.45	1.45

Table 15: The effect of blanks on overall mean response

8.3 Demographic Data

Table 16 shows the response rates by gender in each year. The gender distribution on the MBChB is approximately 37% male across the programme (Year 3, 36%; Year 4, 37%; Year 5, 39%) therefore males were less likely than females to complete the survey.

Gender	Respondents					
	Year 3		Year 4		Year 5	
	No.	%	No.	%	No.	%
Male	71	31	41	28	71	34
Female	157	69	103	72	139	66
BLANK	5	-	2	-	0	-

Table 16: Responses by gender

Table 17 shows the response rate by programme. There are about 12% Graduate Entry Course (GEC) students on the MBChB in Years 3 – 5 (Year 3, 11%; Year 4, 12%; Year 5, 14%). GEC students responded to the survey roughly in proportion with their numbers on the programme.

Course	Respondents					
	Year 3		Year 4		Year 5	
	No.	%	No.	%	No.	%
Main	202	89	131	92	182	87
GEC	26	11	12	8	28	13
BLANK	5	-	3	-	0	-

Table 17: Responses by course

Overseas students (OS) also responded roughly in proportion to their numbers on the MBChB programme (Table 18). The proportion of OS students in Year 3 is 7%, and is 5% in Years 4 and 5.

Domicile	Respondents					
	Year 3		Year 4		Year 5	
	No.	%	No.	%	No.	%
Home	203	92	130	93	196	95
OS	16	7	9	6	11	5
EEC*	2	<1	1	<1	0	0
BLANK	12	-	6	-	3	-

Table 18: Response by domicile

* European Economic Community

The respondents also provided information about their age at the time of completing the survey (Table 19). It is not known whether this represents the cohort as a whole as age data is not held locally, however, there is no reason to suppose the data is not representative.

Age	Respondents					
	Year 3		Year 4		Year 5	
	No.	%	No.	%	No.	%
<21	170	74	0	0	2	1
22-25	53	23	131	94	182	87
26-30	6	3	8	6	26	12
BLANK	4	-	7	-	0	-

Table 19: Responses by age

The students were asked to provide information about which decile they are in based on their previous exam performance (Table 20). This shows that students in the upper deciles are more likely to have completed the survey.

Decile	Respondents		
	Year 3 (No.)	Year 4 (No.)	Year 5 (No.)
1	22	27	27
2	34	12	21
3	26	14	21
4	19	16	29
5	23	14	23
6	22	13	14
7	20	5	16
8	13	12	12
9	8	10	11
10	5	7	10
BLANK	41	16	26

Table 20: Responses by decile

Respondents in the upper five deciles were grouped together as were those in the bottom five deciles to form two 'halves' (Table 21). Blanks are a notable proportion of the response.

Decile	Respondents					
	Year 3		Year 4		Year 5	
	No.	%	No.	%	No.	%
Top	124	53	83	57	121	58
Bottom	68	29	47	32	63	30
BLANK	41	18	16	11	26	12

Table 21: Responses by half

8.4 Roles

Table 22 shows the mean four-point scale rating of helpfulness (0, 1, 2, 3) (See 6.2.1) per role in each year, calculated from the responses for all 17 questions. This gives an impression of how much support respondents perceive they receive from each role. It can be seen that in Year 4, CTFs and FGDs are not perceived to provide as much support as they are in Years 3 and 5, while the reverse is true of CMGDs. OHPs are perceived to provide a little more support in Year 3. The support that participants perceive they receive from SATs decreases from Year 3, to 4 to 5. Students are seen as slightly less supportive in Year 4, than in the other two years.

Role	Mean		
	Year 3	Year 4	Year 5
Clinical Teaching Fellows (CTFs)	1.90	1.38	2.04
Foundation Grade Doctors (FGDs)	1.79	1.56	1.83
Other Healthcare Professionals (OHPs)	1.28	1.12	1.14
Consultants and middle grade doctors (CMGDs)	1.58	1.73	1.58
Senior Academy Tutors (SATs)	1.45	1.25	1.14
Students (STUs)	1.12	0.94	1.06
<i>Total</i>	1.52	1.33	1.46

Table 22: Mean four-point scale rating by role and year

A one-way Analysis of Variance (ANOVA) was conducted to compare the effect of support role on helpfulness perceived by students. This revealed a highly significant effect of role on perceived helpfulness, Wilkes' Lambda=.34, $F(5,514) = 196.60$, $p < .001$, multivariate partial eta squared = .66).

A two-way ANOVA was conducted to examine the effect of role and year on helpfulness perceived by students. This revealed a highly significant interaction between the effects of role and year on perceived helpfulness, Wilkes' Lambda=.73, $F(10,1026) = 17.25$, $p < .001$, multivariate partial eta squared = .144). Table 86 (Appendix S) shows that overall, CTFs, FGDs and CMGDs are perceived to provide more support than SATs, OHPs and STUs.

When we look at the role by year interaction based on the estimated marginal means (Figure 3), the significant interaction identified appears to be because in Year 4 CTFs, FGDs and students are not perceived to provide as much support as they are in Years 3 and 5, whereas CMGDs are seen to provide more support in Year 4. The perceived support by SATs decreases as the students progress from Year 3 to Year 5.

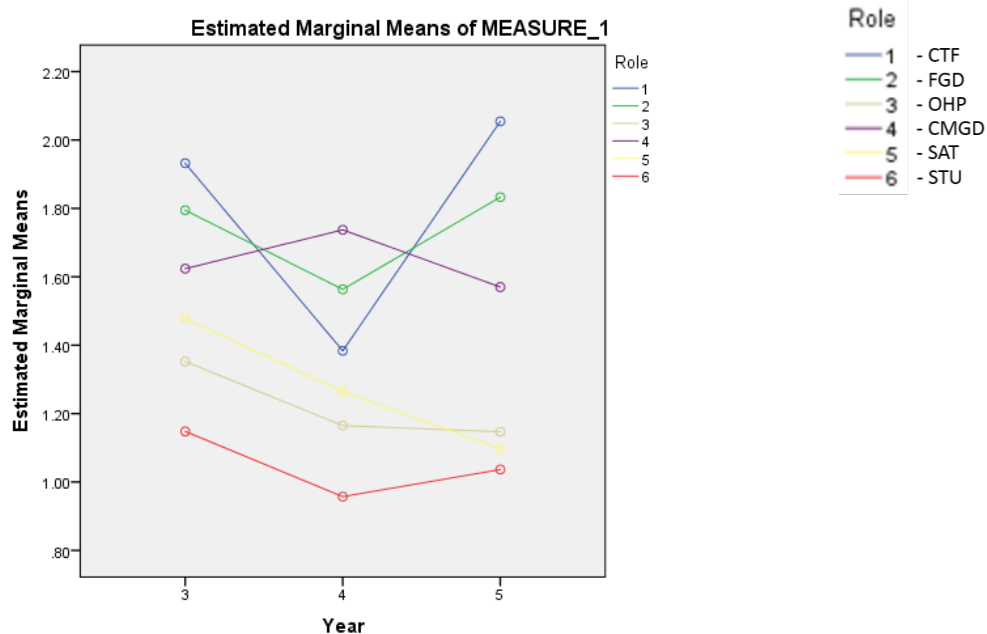


Figure 3: Comparing the effect of role and year on perceived helpfulness - estimated marginal means

In Table 23 the percentage of responses which indicated a role was not relevant (NR) are shown. This is also calculated from the total number of NR responses for all 17 questions included in the questionnaire. The percentage of NR responses for CTFs is much higher in Year 4, than in either Year 3 or Year 5. Although generally low in all years, respondents in Year 5, were a little less likely to regard an FGD as not relevant in providing support for any areas covered by the questions in the survey. The view about the relevance of OHPs is reasonable similar in each year, while respondents in Year 3 were slightly more likely to perceive CMGDs as not relevant in some areas. There was broad agreement across years about how relevant SATs are, although respondents in Year 4, were slightly more likely to think that SATs were not relevant in some areas. In general, there was agreement about the degree to which STUs are not relevant.

Role	NR response (%)		
	Year 3	Year 4	Year 5
CTF	4.77	22.63	1.89
FGD	5.98	6.89	2.42
OHP	15.78	13.58	16.44
CMGD	7.68	4.58	4.14
SAT	12.73	15.19	13.30
STU	23.80	24.08	22.36

Table 23: Proportion of responses 'not relevant' by role and year

8.5 Questions

The possibility that the perception of support for each role, or degree of relevance, is due to the influence of particular survey questions was investigated.

Table 24 shows the mean four-point scale rating of helpfulness (See 6.2.1) for each survey question. With the exception of question 2, students in Year 4 perceive they are less well supported than students in Years 3 or 5. Students in all years perceive themselves to be reasonably well supported in outcomes associated with the skills domain with the exception of outcomes 3 and 7. However, students feel well supported in only two of the values domain outcomes. The three outcomes associated with the knowledge domain show a mixed picture of perceived support.

Domain	Outcome	Mean rating of helpfulness		
		Year 3	Year 4	Year 5
Skills	1 To elicit clinical information from patients through taking a history and performing a physical examination	1.80	1.51	1.62
Skills	2 To perform clinical procedural skills safely and effectively	1.49	1.51	1.48
Skills	3 To prescribe safely and effectively	1.12	0.96	1.33
Skills	4 To synthesise information to define the likely differential diagnoses	1.81	1.53	1.68
Skills	5 To interpret findings from investigations and diagnostic tests	1.81	1.56	1.64
Skills	6 To formulate plans for treatment, management and discharge	1.64	1.50	1.61
Skills	7 To record patient information correctly	1.30	1.13	1.39
Values	8 To understand the clinical roles and responsibilities of a doctor	1.72	1.45	1.59
Values	9 To understand the importance of teamwork in clinical practice	1.77	1.50	1.64
Values	10 To understand and apply ethical and professional principles	1.49	1.27	1.30
Values	11 To understand the importance of raising and escalating concerns	1.42	1.24	1.53
Values	12 To deal with uncertainty through reflection, debriefing or asking for help	1.36	1.18	1.34
Values	13 To recognise patient vulnerability and know how to respond, including safeguarding	1.34	1.14	1.34
Values	14 To support and facilitate patients to make decisions about their care	1.43	1.25	1.36
Knowledge	15 To apply biomedical scientific principles and knowledge to medical practice	1.60	1.44	1.39
Knowledge	16 To understand the relationship between hospital care and primary and social care	1.21	1.10	1.23
Knowledge	17 To understand how hospitals are organised to deliver care	1.53	1.33	1.42

Table 24: Students' rating of helpfulness per question

1. The colours identify the mean rating score, with green being more highly rated and red the least highly rated

The outcomes where a greater proportion of students indicate that some roles are not

relevant correlates to some extent with the outcomes where students report less support

(Table 25). Year 4 shows a higher proportion of NR responses. This may in part be due to the

greater number of NR responses about CTFs in Year 4.

Domain	Outcome	Not relevant (NR) by year %		
		Year 3	Year 4	Year 5
Skills	1 To elicit clinical information from patients through taking a history and performing a physical examination	6	11	8
Skills	2 To perform clinical procedural skills safely and effectively	16	15	12
Skills	3 To prescribe safely and effectively	37	27	14
Skills	4 To synthesise information to define the likely differential diagnoses	8	11	9
Skills	5 To interpret findings from investigations and diagnostic tests	8	12	8
Skills	6 To formulate plans for treatment, management and discharge	13	12	9
Skills	7 To record patient information correctly	19	19	13
Values	8 To understand the clinical roles and responsibilities of a doctor	10	15	11
Values	9 To understand the importance of teamwork in clinical practice	6	11	7
Values	10 To understand and apply ethical and professional principles	9	13	11
Values	11 To understand the importance of raising and escalating concerns	9	14	8
Values	12 To deal with uncertainty through reflection, debriefing or asking for help	10	15	10
Values	13 To recognise patient vulnerability and know how to respond, including safeguarding	11	15	9
Values	14 To support and facilitate patients to make decisions about their care	10	14	12
Knowledge	15 To apply biomedical scientific principles and knowledge to medical practice	7	14	10
Knowledge	16 To understand the relationship between hospital care and primary and social care	11	15	11
Knowledge	17 To understand how hospitals are organised to deliver care	8	14	8

Table 25: Proportion of NR responses per question expressed as a percentage

1. The colours identify percentage not relevant (NR), with green showing the lowest percentage of NR ratings and red the highest.

8.6 Domains

Table 26 condenses the survey data into the three General Medical Council (GMC) outcome domains of professional skills (skills), professional values (values) and professional knowledge (knowledge). There are two clear trends. In general, Year 3 students feel more supported in all domains, and Year 4 students feel least supported. Furthermore, students feel more supported with learning skills, and least supported with learning knowledge.

Domain	Overall perceived helpfulness by students (Mean 4-point scale)		
	Year 3	Year 4	Year 5
Skills	1.57	1.39	1.54
Values	1.50	1.29	1.44
Knowledge	1.45	1.29	1.35

Table 26: Overall mean perceived helpfulness values per domain and year

8.6.1 Year 3

Table 81 (Appendix Q) shows the mean four-point score per outcome for each role included in the questionnaire and highlights similarities and differences in the perceived support for the six roles. CTFs and FGDs are perceived as being the most helpful. However, there are differences. While CTFs are perceived to provide support for most questions, and particularly for those related to skills, FGDs are seen as more supportive with skills domain outcome 7, recording patient information, and with outcomes 8 and 9 in the values domain which respectively cover understanding the roles and responsibilities of a doctor and the importance of teamwork. Like all roles, the perceived helpfulness of both CTFs and FGDs fall below 1.5 for outcomes 3, prescribing, and 16, about understanding the links between hospital, primary and social care. CTFs also are not perceived to be helpful with outcome 7 recording patient information or for outcome 14, helping patients make decisions about

their care, whereas FGDs are not perceived as particularly helpful for outcome 12 about dealing with uncertainty and reflection. CMGDs share some similarities with CTFs and FGDs, also being regarded as helpful with the skills domain, with the exception of outcome 2, and seen as providing support for outcomes associated with clinical processes, such as diagnosis, treatment and management. SATs are regarded most helpful with outcome 4, synthesising information to inform differential diagnosis, but along with CMGDs they are perceived not to be very supportive with the practical tasks covered by outcomes 2, 3 and 7. OHPs have a different profile in that only four outcomes, 2, 9, 13 and 17 receive a helpfulness rating above 1.5. With the exception of outcome 2, clinical procedural skills, OHPs are not perceived as helpful for the skills domain outcomes. In short, OHPs are not seen as helpful for the more medically oriented, or science oriented outcomes. STUs are perceived as being supportive with only a few outcomes where older students are able to pass on learning to younger students. These are outcomes, 1, 5 and 15 which respectively cover, history taking and examination, interpreting investigations and test results and applying biomedical scientific principles and knowledge to medical practice. Figure 4 summarises these perceptions graphically. CTFs and FGDs are perceived as being supportive with most outcomes while OHPs and students are supportive with only a few outcomes. CMGDs and SATs are perceived as providing moderate amounts of support for a reasonable range of outcomes.

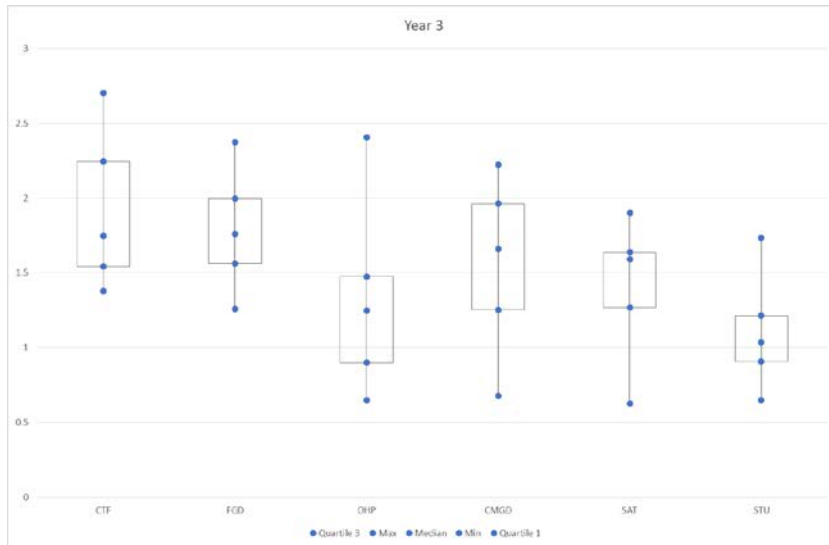


Figure 4: Year 3 student perceptions of support role: Box and Whisker based on means

The relevance of each outcome according to role is shown Table 84 (Appendix R). There is some association between this table and Table 81 (Appendix Q). For example, a high number of respondents indicated that all roles are not relevant (NR) for outcome 3, OHPs are not seen as relevant by some respondents for the more medically oriented tasks, and STUs are not seen as relevant for most of the outcomes.

8.6.2 Year 4

The pattern of perceived support is broadly similar in Year 4 for all roles, though there are some notable exceptions. See Table 82 (Appendix Q). While their contribution is noted to be in similar areas, CTFs are not perceived to provide as much support in Year 4 as they do in Year 3. OHPs are perceived to be helpful with only two of the four outcomes mentioned by Year 3; these are outcome 2 performing clinical procedural skills, and outcome 9 understanding the importance of teamwork. A big change between the years is that CMGDs are perceived to be helpful with nearly all outcomes. Although the overall pattern of support from CMGDs is similar to Year 3, more support is reported with clinical process

outcomes. SATs are now perceived to provide support with outcomes 11 and 12 respectively about raising and escalating concerns, and dealing with uncertainty. STUs are not perceived to be very helpful with many outcomes, but are still perceived to provide some support with outcome 1 covering history taking and examination.

Figure 5 is a graphical representation of these perceptions and highlights how both CTFs and CGMDs are regarded differently by students in Year 4 compared to Year 3. For the other roles, respondents perceive a similar pattern of support to Year 3.

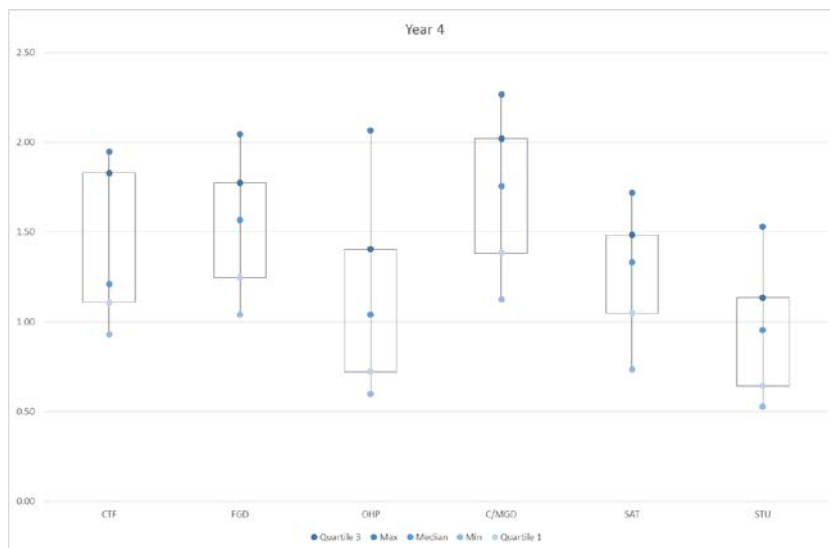


Figure 5: Year 4 student perceptions of support role: Box and Whisker based on means

Table 85 (Appendix R) reveals a similar pattern in the outcomes students perceive roles not to be relevant for as was seen with Year 3. The most noticeable thing is that there are more respondents regarding CTFs as not being relevant, and a reduction in respondents regarding CMGDs as not being relevant.

8.6.3 Year 5

In Year 5, CTFs and FGDs are again perceived to be the most helpful and STUs the least across the range of outcomes. CTFs have high ratings for all outcomes, with the exception of outcome 16, which relates to hospital care and primary and social care. A notable difference from previous years is a marked increase in the perception of support with outcome 3, about prescribing (Table 83, Appendix Q). There are four outcomes, where the perceived support for FGDs is less than 1.5. These are outcomes 10, 13, 15 and 16. Students' perceptions of support by CMGDs is broadly similar to that of Year 3 students, being generally supportive with skills domain outcomes and also supportive with clinical processes (outcome 5), patients care decisions (outcome 14) and learning scientific knowledge (outcome 15). SATs are not perceived to support the learning in many of the outcomes, and in none do SATs have mean four-point scale rating above 1.5. The pattern of support perceived to be received from OHPs mirrors that of other years, support being confined to outcome 2, which relates to clinical procedural skills and to outcome 9 about the importance of teamwork in clinical practice. A graphical summary is provided in Figure 6 and which highlights the decline in the perceived support received from SATs in Year 5.

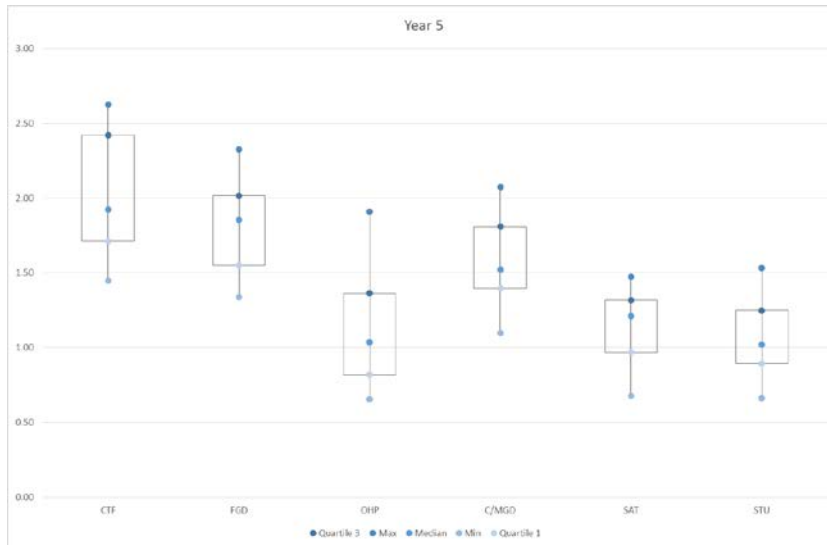


Figure 6: Year 5 student perceptions of support role: Box and Whisker based on means

The relevance of each outcome according to role is shown in Table 86 (Appendix R). Where students perceive that roles are not relevant, these roles are also in general not perceived to provide much support by students who say they are relevant. For example, there are very few respondents who regard CTFs or FGDs as not relevant for any of the outcomes. Similarly, CMGDs are seldom reported as not relevant except for outcomes 2 and 3. OHPs, SATs and STUs receive a number of not relevant response for all outcomes.

8.7 Halves and Gender

8.7.1 Halves / Domain

Grouping students into the top five deciles and the bottom five deciles according to prior performance in MBChB examinations, allowed the data to be interrogated to see whether students who perform better in assessments perceive the support they receive differently to those who do not perform quite so well. Proportionally this means that there are about 1.85

students in the top half of the year responding to the survey across the 3 years, for every student in the bottom half (Table 27).

Decile half	Respondents					
	Year 3		Year 4		Year 5	
	No.	%	No.	%	No.	%
Top	124	65	83	64	123	66
Bottom	68	35	47	36	63	34
BLANK	41	-	14	-	27	-

Table 27: Response rate by half

There are a significant number of blanks, where students did not declare which decile they were in. However, even if it were theorised that those in the lower deciles would be least likely to declare their decile, this does not even the proportions.

A two-way ANOVA test was conducted to examine the effect of domain and halves on perceived helpfulness by students. The means and standard deviations are presented in Table 88 (Appendix S) and do not reveal a significant interaction between the effects of halves on perceived helpfulness, Wilkes' Lambda=.99, $F(2,475) = .135$, $p=.873$, multivariate partial eta squared = .001)

Figure 7 below suggests that when all years data is pooled, both halves have similar perceptions about the domains, with most support perceived for the skills domain and least support for the knowledge domain, and that there is a non-significant trend for students in the bottom half of the cohort to perceive more support than those in the top.

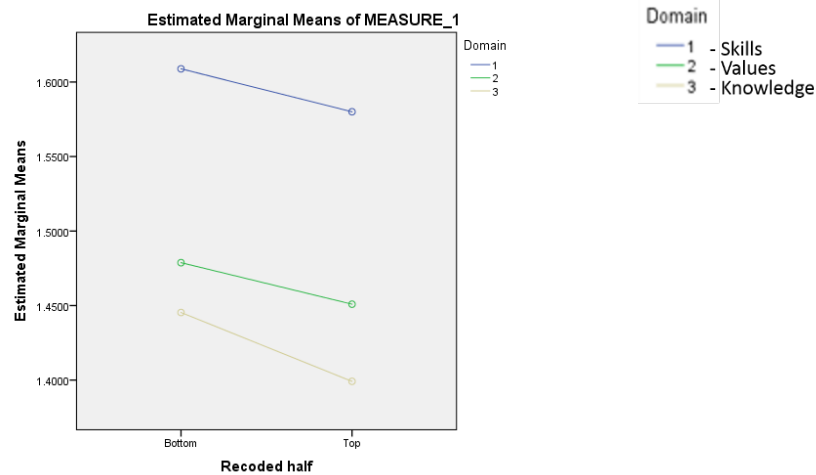


Figure 7: Comparing the effect of domain and half on perceived helpfulness - estimated marginal means

However, when we look at the data per year the differences are more nuanced. In Figure 8, the left hand column compares how respondents in the different halves of the year rated the support they received in the domains of skills, values and knowledge. The right hand column compares how the different domains were rated by the halves in the year. In both cases ‘All’ students are shown too. There are some interesting observations. Overall:

- In Years 3 and 4, students in the top half perceived more support in all three domains than did those in the bottom half; in Year 5 this was reversed.
- In Years 3 and 5, students in both halves perceived more support for skills and least for knowledge; in Year 4 both halves perceived most help with skills.
- In Year 4, the top half perceived more help with knowledge than values, whereas it was the reverse for the students in the bottom half.
- Students in Year 4, regardless of prior performance on the MBChB, perceive less support across all three domains than do students in Years 3 and 5.

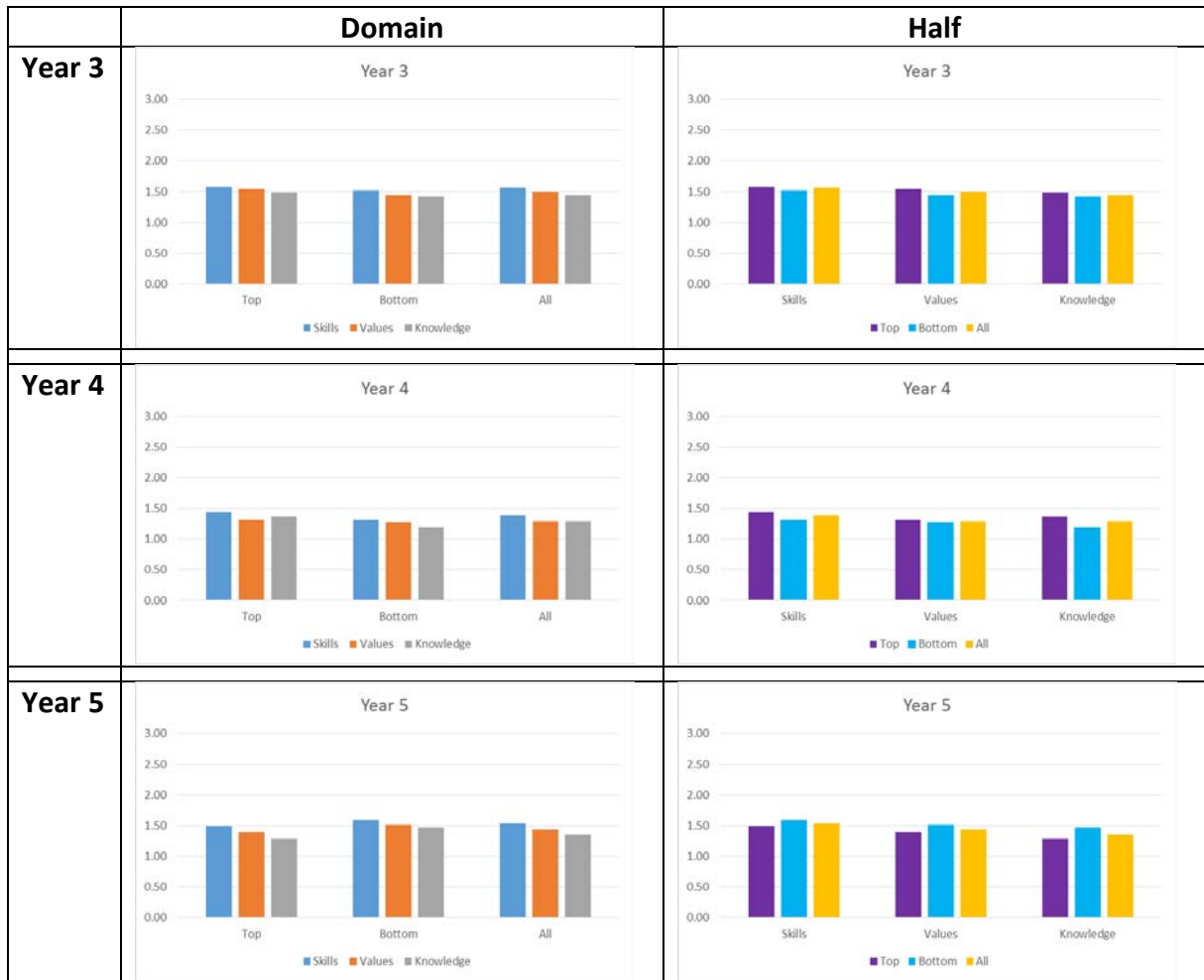


Figure 8: All years' perception of support in the domains by halves - includes the data from those who did not declare a decile.

When we look at this perceived support more closely, by year group and half for individual outcomes, these overall trends are supported (See Appendix N). For example, in Year 3 students in the top half perceive themselves as receiving more support than those in the lower half for 16 of the 17 outcomes. The exception being 'To prescribe safely and effectively', which might be considered outside the syllabus for Year 3. In Year 4, students in the top half perceive themselves as receiving more support than those in the lower half for 15 outcomes. The two exceptions are both in the values domain; 'To understand the clinical roles and responsibilities of a doctor', and 'To understand and apply ethical and professional principles'. In Year 5 it is the students in the bottom half who perceive that they receive more support for 16 items, the exception being 'To elicit clinical information from patients

through taking a history and performing a physical examination'. It should be noted that students in the top half were more likely to complete the survey, see Table 21, and it is possible this affects the reliability of this finding.

8.7.2 Halves / Role

A two-way ANOVA was conducted to examine the effect of role and half on perceived helpfulness by students. The means and standard deviations are presented in Table 89 (Appendix S) and do not do not indicate a significant interaction between different support roles and half for perceived helpfulness, Wilkes' Lambda=.99, $F(5,442) = 1.34$, $p=.245$, multivariate partial eta squared = .02

Figure 9 shows that students in the bottom half have a perception of more support from role 1 (CTFs), role 3 (OHPs), and role 6 (STUs), while the top half perceive more support from role 2 (FGDs) and role 4 (CMGDs). There is almost no difference between how the halves perceive role 5 (SATs). However, none of these differences in perceived support are statistically significant.

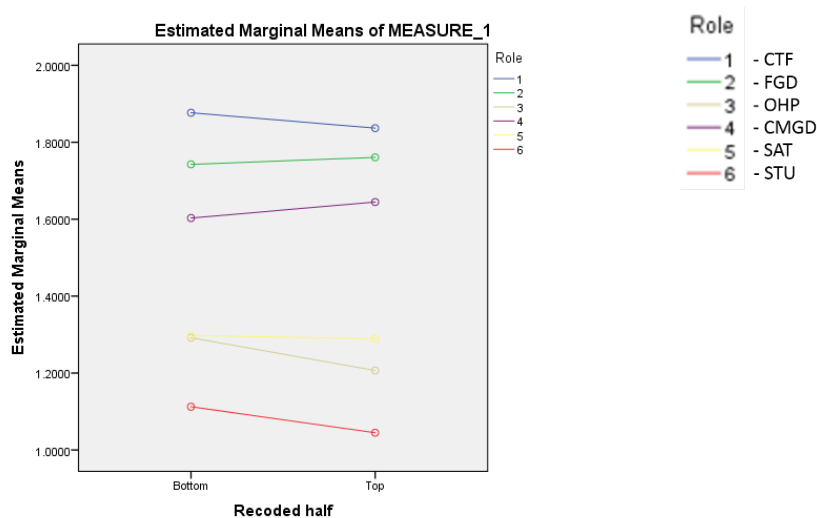


Figure 9: Comparing the effect of role and half on perceived helpfulness - estimated marginal means

8.7.3 Gender / Domain

There were very few students who left this response item blank. Table 29 shows the response rate for both genders.

Gender ratio of MBChB students						
Gender	Year 3		Year 4		Year 5	
	No.	%	No.	%	No.	%
	Male	132	36	139	37	143
Female	236	64	238	63	227	61

Table 28: Gender ratio of MBChB students

There are more females than males in each year (about 1:1.7) (Table 28), and the response rate for females is higher in each year with 2.2 response from females for every response from a male. This will inevitably mean the overall data is more heavily influenced by the views of females. It also explains why the mean scores for all students are more closely aligned to the female means.

Gender ratio of respondents						
Gender	Year 3		Year 4		Year 5	
	No.	%	No.	%	No.	%
	Male	71	31	41	28	71
Female	157	69	103	72	139	66
BLANK	5	-	2	-	0	-

Table 29: Gender ratio of respondents

A two-way ANOVA was conducted to examine the effect of gender and domain on helpfulness perceived by students. The means and standard deviations are presented in Table 90 (Appendix S) and reveal a highly significant interaction between the effects of gender and domain on helpfulness perceived, Wilkes' Lambda=.96, $F(2,593) = 10.16$, $p < .001$, multivariate partial eta squared = .036)

Figure 10 suggests that the highly significant interaction is probably due to males perceiving more support with the knowledge domain than do females.

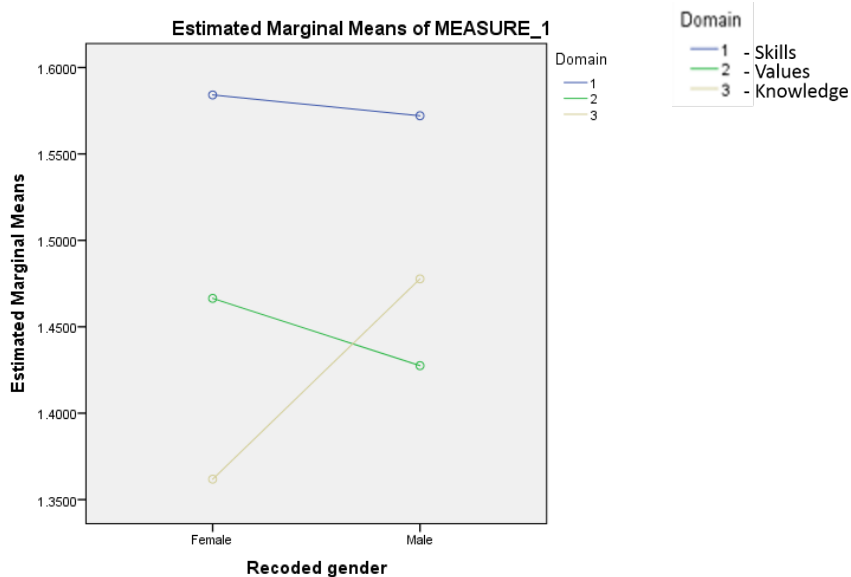


Figure 10: Comparing the effect of domain and gender on perceived helpfulness - estimated marginal means

In Figure 11, the left hand column compares how males and females in each year rated the support they received in the domains of skills, values and knowledge. The right hand column compares how the different domains were rated by the males and females in the year. In both cases 'All' students are shown too.

There is no clear pattern to the data, however, overall:

- In all three years both males and females perceive more support for skills
- In Year 3 and 4, males perceive more support for knowledge than values; in females this is reversed
- In Year 5, both males (just marginally) and females perceive more support with values than with knowledge.

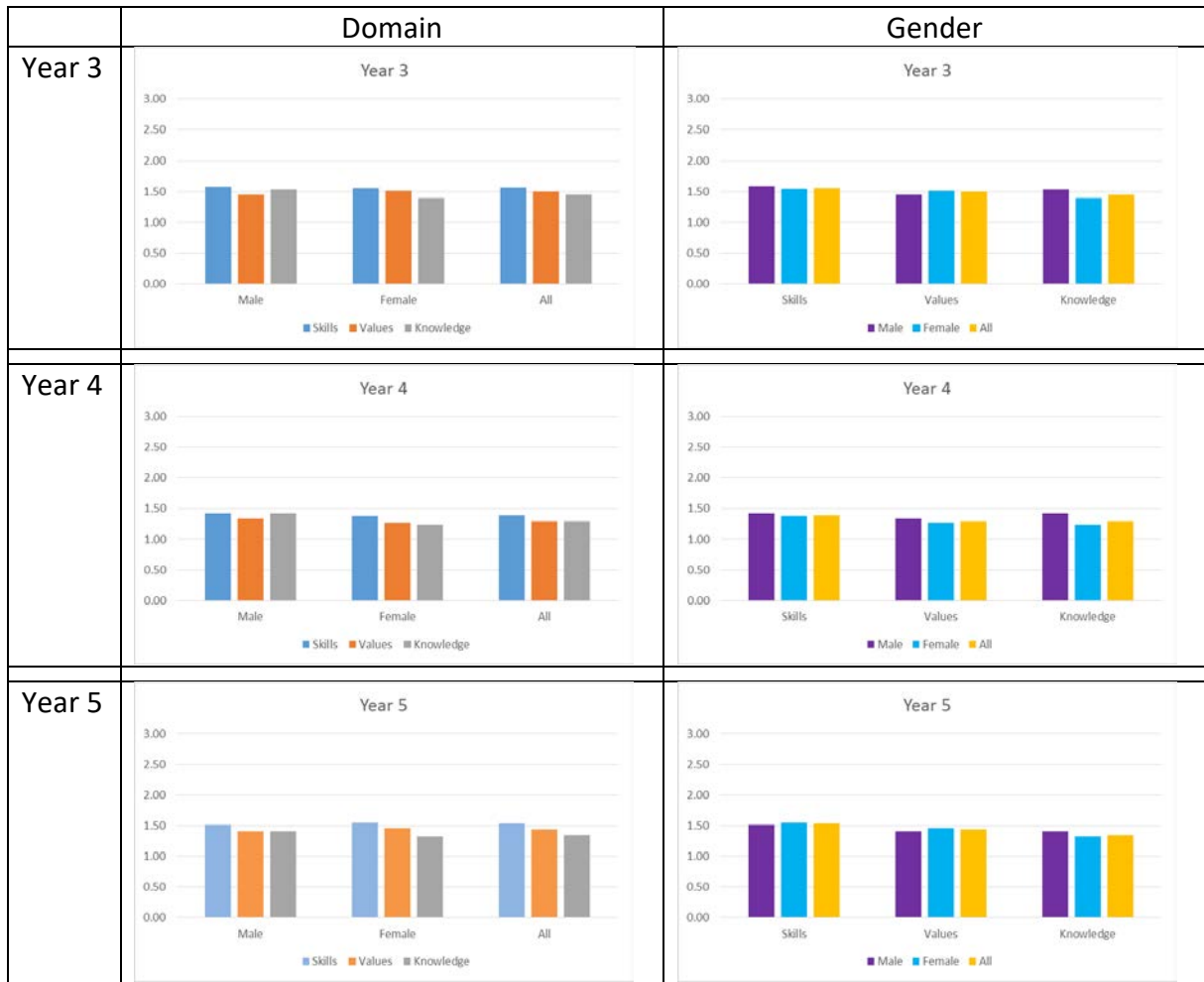


Figure 11: All years' perception of support in the domains by gender

8.7.3.1 Year specific data

When the data is analysed by year group and gender for individual outcomes, some different themes emerge.

In Year 3, males seem to perceive more support for the skills and knowledge domain items, whereas females perceive themselves to receive more support with the values based items (Figure 12).

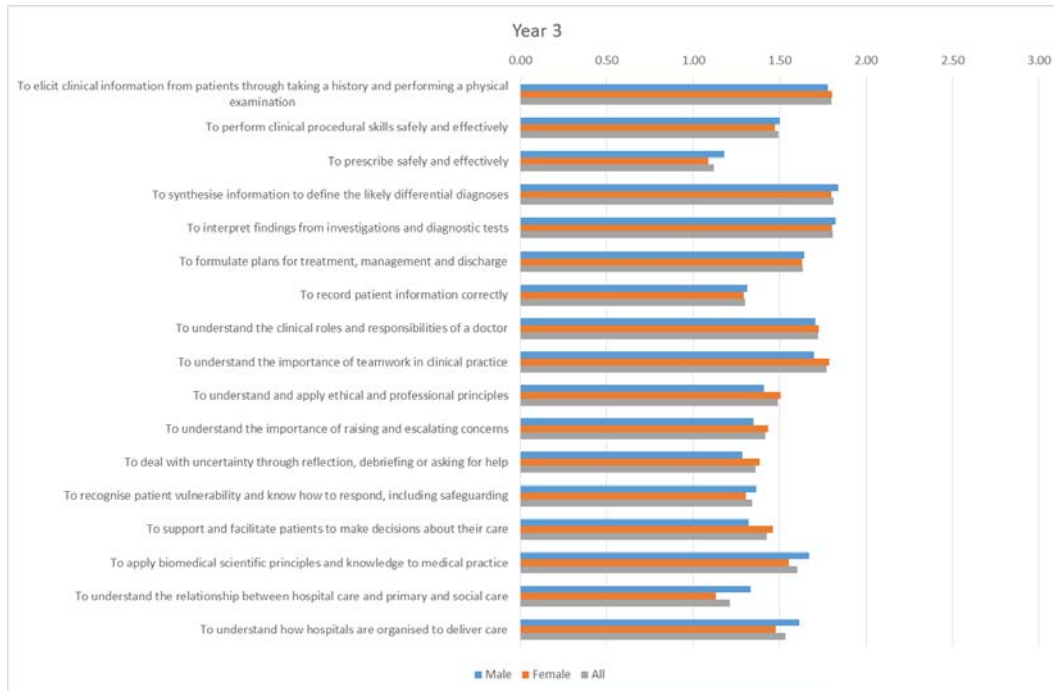


Figure 12: Year 3 perception of helpfulness per outcome by gender

In Year 4 males seem to perceive themselves as receiving more support for all items except three (Figure 13). For two of these, ‘To elicit clinical information from patients through taking a history and performing a physical examination’, and ‘To record patient information correctly’, males and females had equal perceptions of support. Only for ‘To deal with uncertainty through reflection, debriefing or asking for help’, did females perceive themselves as receiving more support than males. Interestingly, the females rank the support from SATs slightly less than do the males for this item, but seem to perceive more support from a wider range of roles.

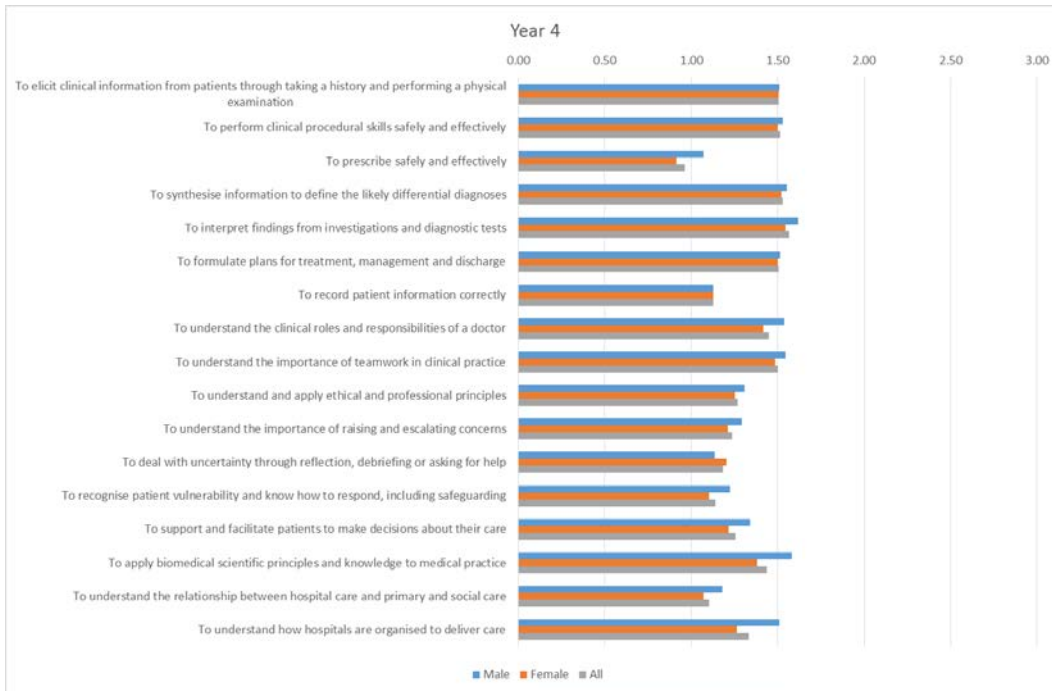


Figure 13: Year 4 perception of helpfulness per outcome by gender

Figure 14 shows that in Year 5 the pattern changes a little. Females now perceive more support in 9/16 outcomes, four of which are in the skills domain and five are in the values domain; none are in the knowledge domain.

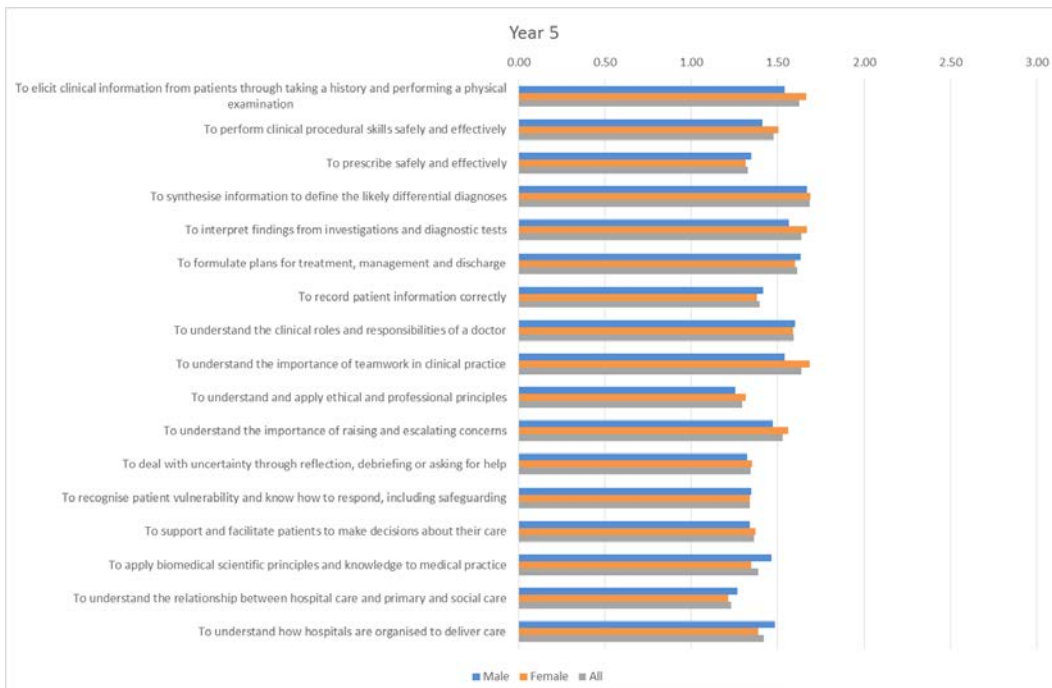


Figure 14: Year 5 perception of helpfulness per outcome by gender

In summary, there is little difference in how the genders perceive support, other than males seem to perceive more support in all years with knowledge domain items. Overall, students in all three years perceive most support for skills and least for knowledge, male students perceive most support for skills, but perceive least support for values.

8.7.4 Gender / Role

A two-way ANOVA was conducted to examine the effect of role and gender on the helpfulness perceived by students. The means and standard deviations are presented in Table 91 (Appendix S) and do not reveal a significant interaction between the effects of role and gender on the perception of helpfulness, $F(1,513) = 1.43$, $p = .233$, multivariate partial eta squared = .003).

Figure 15 shows that while there is not an overall statistical difference, females reported a perception of more support from all roles with the exception of role 6 (STUs). The greater differences in perceived support are for role 3 (OHPs) which is significant ($p = 0.0226$) and role 4 (CMGDs) which is not significant.

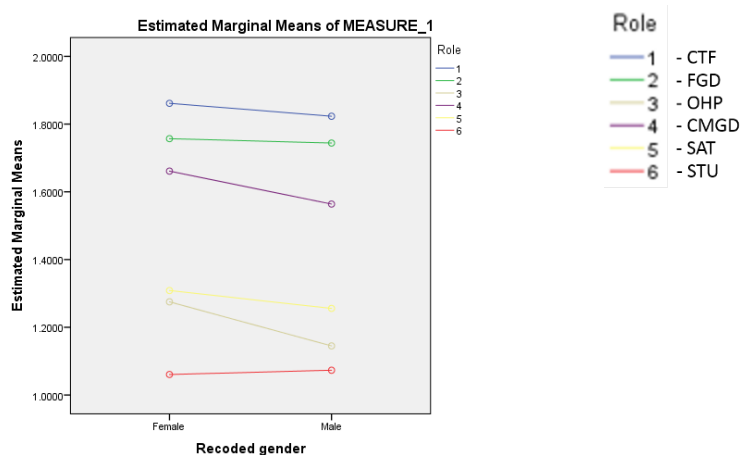


Figure 15: Comparing the effect of role and gender on perceived helpfulness - estimated marginal means

8.8 Analysis of the free text comments

This chapter contains an analysis of the free text comments provided by students in response to:

“Please write a brief comment about three of the support roles, outlining how these roles have been particularly helpful in supporting you.”

The analysis that follows gives an overall view of the number and type of students completing this section of the survey, and the overall thematic analysis of the comments provided. This is followed by a year by year analysis and finally, by the trends and differences between the years.

8.8.1 Overall completion rates

In total, across Years 3, 4 and 5, 466 students (80%) provided at least one comment and 397 (67%) provided three comments (Table 30).

	No. respondents*	Comments		At least		
		No.	%	1 comment	2 comments	3 comments
Year 3	233	62	27	171	161	150
Year 4	146	21	14	125	116	107
Year 5	210	40	19	170	158	140
Total	589	123	21	466	435	397

Table 30: Numbers of comments provided for each year group

* Students who completed at least some part of the survey.

The potential for any subgroup effect in the data was investigated by analysing the two largest subgroups of respondents; previous academic performance and gender.

	Year 3				Year 4				Year 5			
	Students		Comments		Students		Comments		Students		Comments	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Top half	124	65	280	67	83	64	226	70	121	66	274	68
Bottom half	68	35	140	33	47	36	96	30	63	34	129	32

Table 31: Comments by half in each year for students who completed at least some part of the survey

As can be seen in Table 31, students in the top half of the year by previous academic performance were more likely to complete both parts of the survey. Analysis of the data by gender and year group (Table 32) shows that females were more likely to both complete the survey and to provide a comment. Overall, 69% of respondents who completed the survey were female, with no significant difference noted between year groups. Of those respondents who made at least one comment, 70% were female. This is roughly in line with 60% of the MBChB cohort overall being female. In Years 3 and 4 the male to female comment ratio was 1:2.8 and 1:2.5 respectively, but appreciably lower in Year 5 at 1:1.8.

	Year 3				Year 4				Year 5			
	Students		Comments		Students		Comments		Students		Comments	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Gender												
Male	71	31	115	26	41	28	100	29	71	34	161	36
Female	157	69	321	74	103	72	247	71	139	66	288	64

Table 32: Comments by gender in each year for students who completed at least some part of the survey

Overall, Year 3 and Year 5 have roughly similar patterns of response about each role (Table 33). The greatest number of comments were made about CTFs and the lowest number about OHPs and students - although the Year 5 comments relating to STUs was appreciably lower.

In comparison, Year 4, has fewer comments about CTFs, but proportionally more about OHPs and CMGDs.

Support Role		Year 3		Year 4		Year 5	
		No.	%	No.	%	No.	%
Clinical Teaching Fellow	CTF	162	34	85	24	154	34
Foundation Grade Doctor	FGD	105	22	80	23	101	22
Other Healthcare Professional	OHP	44	9	43	12	40	9
Consultant and Middle Grade Doctor	CMGD	50	10	57	16	57	13
Senior Academy Tutor	SAT	76	16	56	16	71	16
Student	STU	45	9	27	8	26	6

Total	482	100	348	100	449	100
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Table 33: Comments by year and support role

8.8.2 Overall thematic analysis

589 students provided 1298 comments, from which a total of 34 themes and closely related sub-themes were identified. These were organised into three categories; Characteristic, Interaction type and Teaching content. The characteristics category includes all themes which relate to the personal attributes, behaviours and knowledge that students appear to value. 'Interaction type' comprises themes which relate to the nature of the activities that the various support roles undertake. The type of teaching activity, as distinct from the teaching of defined content, is included in this category. The third category, Teaching content, includes themes which relate to knowledge or skills named by students. Only one theme, a 'catch-all' for generic negative student comments, remained outside these groupings.

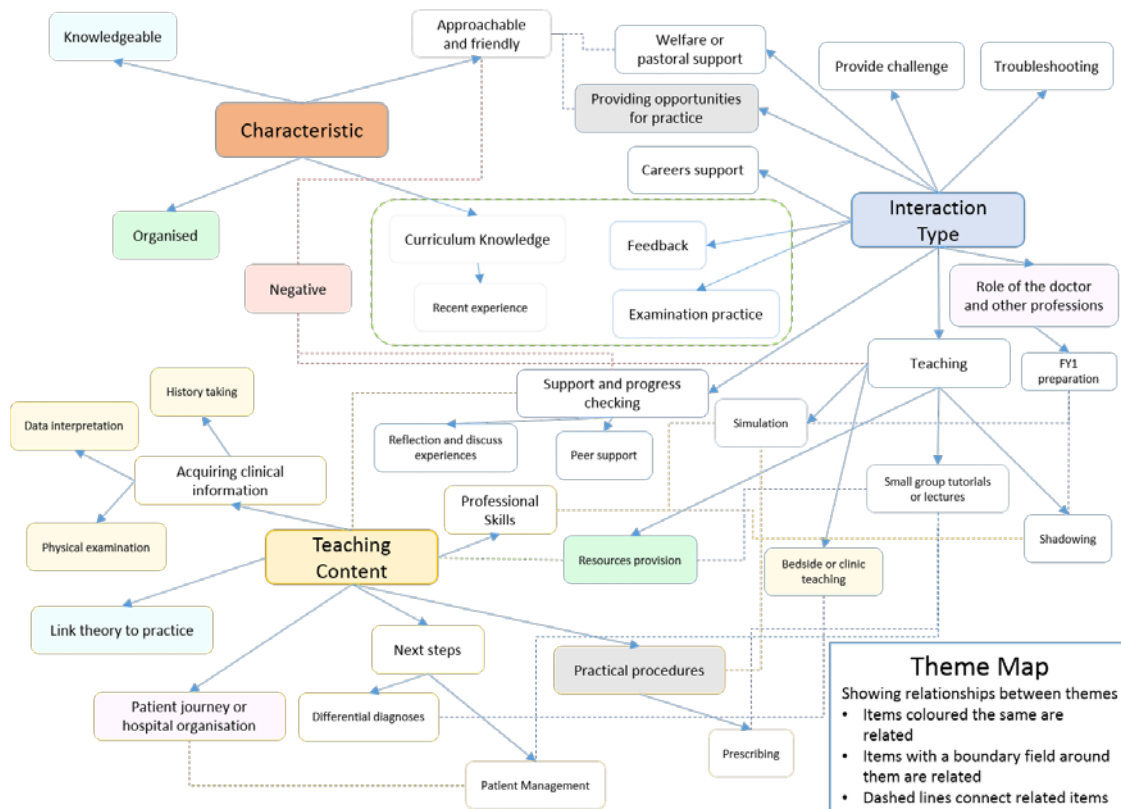


Figure 16: Theme map showing relationships between themes

It is important to note that the categories are equally applicable to all three year groups, given that nearly all themes are common to Years 3, 4 and 5. There are a few notable differences. For example, in Year 4 'Professional skills' is missing. Other, more subtle differences are seen between the sub-themes per year group. For example, in Year 4 and 5, three new teaching (non-specific) sub-themes emerge; Shadowing, Simulation and Small groups or tutorials or lectures. Similarly, 'Bedside teaching' becomes 'Bedside and clinic teaching' in Year 4 only. A second important point is that the three theme categories are to some extent inter-related. Positive themes within the characteristic category will facilitate and lead to better perceived outcomes in the other two categories and vice versa. See Figure 16.

8.8.3 Year 3

8.8.3.1 Completion rates

The Year 3 survey was completed by 233 students of which 171 (73%) provided at least one comment and the average number of comments per student was 2.8 (Table 34). More comments were made about CTFs and FGDs than the other professions.

Support Role		Mentioned in...			Total*
		Comment 1	Comment 2	Comment 3	
Clinical Teaching Fellow	CTF	131	22	9	162
Foundation Grade Doctor	FGD	16	66	23	105
Other Healthcare Professional	OHP	4	18	22	44
Consultant and middle Grade Doctor	CMGD	5	17	28	50
Senior Academy Tutor	SAT	10	31	35	76
Student	STU	5	7	33	45
	BLANK	62	72	83	-
Total[^]		233	233	233	482

Table 34: Number of comments in Year 3 about each support role

* Number of comments about role

[^] Number of completed survey forms

One fifth of students who completed the survey did not indicate their previous academic performance. Of those that did, students in the top half of the year, were more likely to complete some part of the survey (Table 35), and the number of comments provided by each half for each role is roughly in proportion to the survey completion rate. There are two exceptions. Better performing students provide a greater number of comments about CMGDs than proportionally complete the survey, and lower performing students provided more comments about OHPs.

	Role										Total comments		Completed surveys*			
	CTF		FGD		OHP		CMGD		SAT						STU	
Half	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
Top	96	68	66	71	18	47	31	78	42	63	27	66	280	67	124	65
Bottom	45	32	27	29	20	53	9	23	25	37	14	34	140	33	68	35

Table 35: Comments provided by half for each role

*Students who completed the survey

About twice as many females (69%) completed the survey as did males (Table 36). This is a slightly greater proportion of females than are in the cohort as a whole. The comments are provided roughly in proportion to the numbers of students in each group completing the survey, although a slight variation is that a far greater proportion of females provided a comment about an OHP.

	Role										Total comments		Completed surveys*			
	CTF		FGD		OHP		CMGD		SAT						STU	
Gender	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
Male	51	32	38	37	7	16	19	38	22	29	18	41	155	33	71	31
Female	109	68	66	63	36	84	31	62	53	71	26	59	321	67	157	69

Table 36: Comments provided by gender for each role

*Students who completed the survey

8.8.3.2 Thematic analysis

Table 37 shows how many coded aspects there were in the comments provided by the Year 3 students about each role. These are displayed by category, theme and sub-theme.

Category	Theme	Role						Total ^Λ	Category total
		Proportion of comments by role (No. %)*							
		A : CMGD	B : CTF	C : FGD	D : OHP	E : SAT	F : STU		
Characteristic	Approachable or friendly or helpful	5 (6)	46 (15)	42 (20)	10 (14)	18 (13)	7 (10)	128	202
	Knowledgeable	3 (3)	1 (0)	0 (0)	0 (0)	4 (2)	0 (0)	8	
	Organised	1 (1)	11 (3)	0 (0)	0 (0)	2 (1)	1 (1)	15	
	Curriculum knowledge	0 (0)	21 (6)	8 (3)	0 (0)	0 (0)	9 (13)	38	
Interaction type	Recent experience	0 (0)	2 (0)	8 (3)	0 (0)	0 (0)	3 (4)	13	285
	Careers support	0 (0)	1 (0)	1 (0)	0 (0)	0 (0)	0 (0)	2	
	Examination practice	0 (0)	10 (3)	10 (4)	1 (1)	1 (0)	11 (16)	33	
	Feedback	1 (1)	9 (2)	3 (1)	0 (0)	4 (2)	1 (1)	18	
	Provide challenge	1 (1)	0 (0)	0 (0)	0 (0)	1 (0)	0 (0)	2	
	Role of doctor and other professions	1 (1)	0 (0)	15 (7)	5 (7)	1 (0)	0 (0)	22	
	F1 Preparation	0 (0)	0 (0)	3 (1)	0 (0)	0 (0)	0 (0)	3	
	Support and progress checking	1 (1)	35 (11)	9 (4)	0 (0)	25 (18)	0 (0)	70	
	Peer support	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	10 (15)	10	
	Reflection or discuss experiences	0 (0)	0 (0)	0 (0)	0 (0)	3 (2)	1 (1)	4	
	Providing opportunities for practice	7 (8)	0 (0)	16 (7)	7 (10)	3 (2)	0 (0)	33	
	Teaching (non-specific comment)	0 (0)	12 (3)	6 (2)	0 (0)	3 (2)	0 (0)	21	
	Beside teaching	5 (6)	24 (7)	5 (2)	0 (0)	2 (1)	0 (0)	36	
	Resources provision	0 (0)	4 (1)	1 (0)	0 (0)	0 (0)	0 (0)	5	
	Trouble shooting	0 (0)	1 (0)	0 (0)	0 (0)	7 (5)	0 (0)	8	
	Welfare or pastoral support	0 (0)	3 (0)	0 (0)	0 (0)	15 (10)	0 (0)	18	
Teaching content	Acquiring clinical information							0	332
	Data interpretation	2 (2)	11 (3)	5 (2)	1 (1)	4 (2)	6 (9)	29	
	History taking	3 (3)	24 (7)	8 (3)	1 (1)	4 (2)	2 (3)	42	
	Physical examination	6 (7)	40 (13)	9 (4)	0 (0)	7 (5)	9 (13)	71	
	Link theory to practice	8 (10)	19 (6)	6 (2)	1 (1)	3 (2)	3 (4)	40	
	Next steps							0	
	Differential diagnoses	9 (11)	12 (3)	4 (1)	0 (0)	4 (2)	1 (1)	30	
	Patient management	8 (10)	7 (2)	5 (2)	1 (1)	6 (4)	0 (0)	27	
	Patient journey or hospital organisation	2 (2)	0 (0)	0 (0)	5 (7)	4 (2)	0 (0)	11	
	Practical procedures	0 (0)	7 (2)	32 (15)	34 (50)	0 (0)	1 (1)	74	
	Professional skills	1 (1)	0 (0)	2 (0)	1 (1)	3 (2)	1 (1)	8	
Negative	14 (17)	5 (1)	7 (3)	1 (1)	14 (10)	0 (0)	41		
Total[§]		78	305	205	68	138	66	860	

Table 37: Proportion of Year 3 comments about each theme grouped by role

- * Results expressed as number of comments per theme (read horizontally) and the percentage of comments per theme for each role (read vertically).
- Λ Total comments per theme (read horizontally).
- § Total number of comments per role.

Analysis by theme reveals that proportionally more comments were made in the Teaching content category (332) than in the Interaction category (285) or the Characteristic category (202). One theme, Approachable or friendly or helpful, had almost twice as many comments (128) as the next three most commented themes or sub-themes; Support and progress checking (70), Physical examination (71) and Practical procedures (74). However, three themes in the Interaction type category attracted 1% or fewer comments per role; Careers support, Provide challenge and Resource provision.

Role	Coded aspects	Themes covered	Redundant Themes
CMGD	78	18	12
CTF	305	22	8
FGD	205	22	8
OHP	68	12	18
SAT	138	23	7
STU	66	16	14

Table 38: Coverage of Year 3 comments by role and theme

Analysis by role reveals that most coded aspects were made about CTFs (305), FGDs (205) and SATs (138), and these roles also showed the greatest theme coverage, with only 8, 8 and 7 themes respectively, not attracting comments (Table 38). The other three roles had similar response patterns with relatively low numbers of coded aspects and relatively high numbers of redundant themes, namely: CMGDs (78, 12), OHPs (68, 18) and STUs (66, 14).

Comparison of responses per theme according to role, reveals some interesting patterns (Table 37). CTFs, FGDs and STUs are all commented upon for having good knowledge of the curriculum, and for providing examination practice. CTFs and SATs are seen as providing support and checking on students' progress. FGDs and OHPs are commented upon for providing opportunities to practice, and for teaching practical procedures, while CMGDs and CTFs provide bedside teaching. Students comment that welfare support is provided by SATs, but there are a small number of comments that CTFs provide this too. CMGDs receive comments that they support more complex tasks of differential diagnosis and patient management. The majority of the negative comments are about the two more senior roles, CMGDs and SATs.

8.8.3.3 Consultant and Middle Grade Doctors

The theme most commented on in relation to CMGDs was ‘Negative’ (18%) and CMGDs also had the highest value for this theme across all roles (Table 37). However, CMGDs were seen as friendly, and as teachers of content, with three themes in this category, and having a focus on diagnosis and patient management. CGMDs were also commented on as providing opportunities, often in their own clinical area, for students (Table 39).

Role: Consultant and Middle Grade Doctors (CMGDs)		
Theme / Sub-theme	Frequency No. (%)	Example comment
Negative	14 (18)	<i>“However some of the consultants were rude, unsupportive or failed to deliver regular teaching.”</i>
Next steps/ Differential diagnoses	9 (12)	<i>“Understanding the process of making and excluding differentials and the investigation and management required.”</i>
Next steps/ Patient management	8 (10)	<i>“Very helpful for higher understanding of the conditions and then management options. Also help to understand the indications for the discharge of patients.”</i>
Link theory to practice	8 (10)	<i>“The clarity that comes from thinking things through repeatedly comes across when talking to consultants”</i>
Providing opportunities for practice	7 (9)	<i>“Good support from consultant surgeon, allowing experience and potential to scrub up.”</i>
Approachable or friendly or helpful	5 (6)	<i>“Our consultant ACTF was very supporting and offered us lots of opportunities in the hospital we ordinarily wouldn't have had. She was friendly and gave her contact details for the future.”</i>
Teaching (non-specific)/ Bedside teaching	5 (6)	<i>“Good bedside teaching critiquing examination, and teaching about diagnoses.”</i>

Table 39: Themes commented on most frequently for CMGD

*Characteristic category; grey; Interaction type category, blue; Teaching content category, yellow.

8.8.3.4 Clinical Teaching Fellow

The six most frequently commented upon themes about CTFs were equally split between all three theme categories (Table 40). CTFs attracted most comments for being seen as approachable, and a role who could be turned to for advice and support. They were also commented on as providing support for a range of teaching activities, underpinned by a good knowledge of the curriculum. CTFs were also singled out as being organised, as providing feedback and resources, and for non-specific teaching (Table 37).

Role: Clinical Teaching Fellows (CTFs)		
Theme / Sub-theme	Frequency No. (%)	Example comment
Approachable or friendly or helpful	46 (15)	<i>"I felt I could ask my CTF anything"</i>
Acquiring clinical information/ Physical examination	40 (13)	<i>"The CTFs gave us the most contact time with patients, practising examinations and going through diagnostic tests and Differential diagnoses etc."</i>
Support and progress checking	35 (11)	<i>"We were always helped and monitored by the CTFs"</i>
Teaching (non-specific)/ Bedside teaching	24 (8)	<i>"At *** very good bedside teaching. Usefully critical and taught well around the subject"</i>
Acquiring clinical information/ History taking	24 (8)	<i>"CTFs were helpful in developing history, examination and clinical skills - key for 3rd year"</i>
Curriculum knowledge	21 (7)	<i>"CTFs that I have encountered are all very knowledgeable. They knew what level of skills we need acquired as they constantly relate them with their experience when they were third years."</i>

Table 40: Themes commented on most frequently for CTFs

*Characteristic category; grey; Interaction type category, blue; Teaching content category, yellow.

8.8.3.5 Foundation Grade Doctors

FGDs are seen as approachable and willing to provide students with some insight into their role. Four of the topmost themes matched to this role are from the Interaction category, and FGDs are noted for focusing activity on helping students prepare for OSCEs and are generally seen as helpful in identifying useful patient cases or providing opportunities to practice clinical skills. Two themes from the Teaching content category, which underpin these practical skills were also noted. See Table 41.

Role: Foundation Grade Doctors (FGDs)		
Theme / Sub-theme	Frequency No. (%)	Example comment
Approachable or friendly or helpful	42 (20)	<i>“Junior doctors were typically the most approachable and willing to teach and help with clinical skills.”</i>
Practical procedures	32 (16)	<i>“Including helping to do diagnostic tests such as taking bloods or urine analysis.”</i>
Providing opportunities for practice	16 (8)	<i>“Ensured that we had opportunities to examine or take a history from interesting patients on the ward. They also help us to find jobs / skills to carry out on the ward.”</i>
Role of doctor and other professions	15 (7)	<i>“Very helpful in showing us around hospitals and helping us understand the role of the doctor.”</i>
Examination practice	10 (5)	<i>“Good for OSCE specific teaching as recently graduated and know what you need to know at your current level.”</i>
Support and progress checking	9 (4)	<i>“Very helpful in showing us around hospitals and helping us understand the role of the doctor. Very supportive when we don't understand what a consultant is talking about.”</i>
Acquiring clinical information/ Physical examination	9 (4)	<i>“FY1 and 2 are always available to answer questions and give feedback on clinical skills, examinations and histories.”</i>

Table 41: Themes commented on most frequently for FGDs

*Characteristic category; grey; Interaction type category, blue; Teaching content category, yellow.

8.8.3.6 Other Healthcare Professionals

OHPs were the role most frequently commented on (50%) in relation to the learning and practising of practical procedures. They were also seen as friendly, able to identify suitable patients and staff to speak to, and to help students understand how clinical teams work. Apart from the five themes shown in Table 42, OHPs received few other theme related comments.

Role: Other Healthcare Professionals (OHPs)		
Theme / Sub-theme	Frequency No. (%)	Example comment
Practical procedures	34 (50)	<i>"The nurses on the wards were very helpful when it came to performing clinical skills required by the clinical skills passport."</i>
Approachable or friendly or helpful	10 (15)	<i>"Very friendly on the wards and helpful in finding and observing clinical skills"</i>
Providing opportunities for practice	7 (10)	<i>"She was so encouraging and would take it upon herself to aid us in finding and practising clinical skills if we were finding it hard."</i>
Role of doctor and other professions	5 (7)	<i>"Other members of the healthcare team provide a lot of insight into professional development, teamwork and how the role of the doctor corresponds with the overall management of a hospital setting"</i>
Next steps/ Patient journey or hospital organisation	5 (7)	<i>"Staff on the wards like nurses were very helpful with teaching us about oxygen and administering medication. Allied healthcare professionals like SLTs and occupational therapists helped me understand how patients are rehabilitated and their continuity of care in the community."</i>

Table 42: Themes commented on most frequently for OHP

*Characteristic category; grey; Interaction type category, blue; Teaching content category, yellow.

8.8.3.7 Senior Academy Tutor

SATs are commented on as supporting students over the length of the placement, checking on progress and providing feedback and suggestions for development. When students experience problems on placement, the SAT is seen as someone who can help resolve the issue and who can also provide some pastoral support. While SATs are seen as approachable, with some comments mentioning ‘enthusiastic’ and ‘inspiring’, the negative comments suggest SATs are not all committed to the role, and are sometimes too busy to undertake it effectively (Table 43). The students also note that SATs interpret their role very differently, with some focusing on teaching, others on pastoral support, and others on providing students with developmental support.

Role: Senior Academy Tutors (SATs)		
Theme / Sub-theme	Frequency No. (%)	Example comment
Support and progress checking	25 (18)	<i>“SATs in both of my placements were always making sure that we have made considerable progress and gave constructive feedback. They were the main drive for me to be motivated and keep on track in clinical sessions.”</i>
Approachable or friendly or helpful	18 (13)	<i>“Both of my SATs were very good, inspiring teacher. They gave a well thought out structure sessions both on and off the ward. They were also both very approachable and helped us with anything we were confused or worried about.”</i>
Welfare and pastoral support	15 (11)	<i>“My SAT was concerned about our moral wellbeing, which was useful.”</i>
Negative	14 (10)	<i>“My 2nd SAT saw us rarely, so I never felt he was a point of support, and when he did communicate with us he was brash on the verge of seemingly rude.”</i>
Trouble shooting	7 (5)	<i>“Helped us with other teachers eg. Other consultants, in terms of organisation, making sure we got enough contact hours.”</i>
Acquiring clinical information/ Physical examination	7 (5)	<i>“SATs were helpful in refining our examinations technique and getting us to think about investigations and management.”</i>

Table 43: Themes commented on most frequently for SAT

*Characteristic category; grey; Interaction type category, blue; Teaching content category, yellow.

8.8.3.8 Student

The six most commented themes for STUs were equally split between all three theme categories. Students comment that they receive useful support from older students, who are familiar with the curriculum, about what to focus on in the third year. Students are also noted for providing useful teaching and their recent experience of the exams is seen as helpful. Comments suggest that peers can be supportive, both emotionally and also in teaching each other. See Table 44.

Role: Students (STUs)		
Theme / Sub-theme	Frequency No. (%)	Example comment
Examination practice	11 (17)	"Recent experience of 3rd year so useful advice for exams."
Peer support	10 (15)	<i>"Student - student relationship is probably the most important support available"</i>
Curriculum knowledge	9 (14)	<i>"5th year teaching was extremely helpful as it was relevant to our curriculum and focused on key tips that could come up in the OSCEs and they allowed us to choose topics we wanted extra help on"</i>
Acquiring clinical information/ Physical examination	9 (14)	<i>"Some the best teaching we have had this year has been from students, who taught me many of the small examinations"</i>
Approachable or friendly or helpful	7 (11)	<i>"Can understand our point of view because they have been through the same thing. Can approach in the common room easily"</i>
Acquiring clinical information/ Data interpretation	6 (9)	<i>"Fifth year buddies at XXX were useful in practising examinations and data interpretation for the OSCE exam. They also provided tips on best ways to examine patients and elicit signs."</i>

Table 44: Themes commented on most frequently for STU

*Characteristic category; grey; Interaction type category, blue; Teaching content category, yellow.

8.8.4 Year 4

8.8.4.1 Completion rates

The Year 4 survey was completed by 146 students. This was a smaller number of respondents than in Year 3, but a greater proportion of those who did respond provided at least one comment; 125 (86%) compared to 171 (73%) in Year 3. Most of these 125 students provided three comments (n=107); nine students provided two comments and a further nine students just the one comment. More comments were made about CTFs and FGDs than for other roles. See Table 45.

Support Roles		Mentioned in...			Total*
		Comment 1	Comment 2	Comment 3	
Clinical Teaching Fellow	CTF	71	9	5	85
Foundation Grade Doctor	FGD	23	43	14	80
Other Healthcare Professional)	OHP	3	17	23	43
Consultant and Middle Grade Doctor	CMGD	9	18	30	57
Senior Academy Tutor	SAT	14	23	19	56
Student	STU	5	6	16	27
	BLANK	21	30	39	-
Total[^]		146	146	146	438

Table 45: Number of comments in Year 4 about each support role

* Number of comments about role

[^] Number of completed survey forms

Of those students who indicated their previous academic performance, almost twice as many better performing students (83) completed the survey as did the lesser performing students (47)(Table 46). Sixteen respondents did not reveal which half of the year they were in. If we assume these students were in the lower half, this would mean 63 lesser performing students completed the survey. A greater proportion of students in the top half

provided at least one comment. It is not known how this might affect the nature of the comments.

	Role										Total comments		Completed surveys*			
	CTF		FGD		OHP		CMGD		SAT						STU	
Half	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
Top	56	74	49	67	25	61	36	71	40	74	20	74	226	70	83	64
Bottom	20	26	24	33	16	39	15	29	14	26	7	26	96	30	47	36

Table 46: Comments by 'half' for each role

*Students who completed the survey

The proportion of females who completed the survey was considerably higher than that of males, 72% compared to 28%, and higher than the proportion of females in the Year 4 cohort. One respondent did not specify a gender. The comments are provided in the same proportion as the numbers of females and males who completed the survey (Table 47).

	Role										Total comments		Completed surveys*			
	CTF		FGD		OHP		CMGD		SAT						STU	
Gender	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
Male	28	33	26	33	4	9	17	30	13	23	12	44	100	29	41	28
Female	56	67	54	68	39	91	40	70	43	77	15	56	247	71	103	72

Table 47: Comments by gender for each role

*Students who completed the survey

8.8.4.2 Thematic analysis

Table 48 shows the coded aspects in the Year 4 comments by category, theme and sub-theme. Each comment contained on average 1.5 code-able aspects.

Category	Theme	Role						Total [^]	Category total
		Proportion of comments by role (No. %)*							
		A : CMGD	B : CTF	C : FGD	D : OHP	E : SAT	F : STU		
Characteristic	Approachable or friendly or helpful	6 (7.4)	27 (18.36)	16 (17.2)	5 (8.19)	5 (5.95)	1 (2.63)	60	115
	Knowledgeable	12 (14.81)	1 (0.68)	0 (0)	4 (6.55)	3 (3.57)	0 (0)	20	
	Organised	1 (1.23)	5 (3.4)	1 (1.07)	0 (0)	0 (0)	0 (0)	7	
	Curriculum knowledge	1 (1.23)	9 (6.12)	10 (10.75)	0 (0)	0 (0)	1 (2.63)	21	
Interaction type	Recent experience	0 (0)	1 (0.68)	5 (5.37)	0 (0)	0 (0)	1 (2.63)	7	192
	Careers support	1 (1.23)	0 (0)	0 (0)	0 (0)	2 (2.38)	0 (0)	3	
	Examination practice	0 (0)	7 (4.76)	0 (0)	0 (0)	1 (1.19)	3 (7.89)	11	
	Feedback	4 (4.93)	2 (1.36)	0 (0)	0 (0)	1 (1.19)	2 (5.26)	9	
	Provide challenge	0 (0)	1 (0.68)	0 (0)	0 (0)	2 (2.38)	0 (0)	3	
	Role of doctor and other professions	0 (0)	0 (0)	4 (4.3)	10 (16.39)	3 (3.57)	0 (0)	17	
	F1 Preparation	0 (0)	3 (2.04)	17 (18.27)	0 (0)	0 (0)	0 (0)	20	
	Support and progress checking	2 (2.46)	0 (0)	0 (0)	0 (0)	13 (15.47)	0 (0)	15	
	Peer support	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	15 (39.47)	15	
	Reflection or discuss experiences	0 (0)	1 (0.68)	1 (1.07)	0 (0)	3 (3.57)	5 (13.15)	10	
	Providing opportunities for practice	3 (3.7)	5 (3.4)	7 (7.52)	4 (6.55)	3 (3.57)	1 (2.63)	23	
	Teaching (non-specific comment)	0 (0)	3 (2.04)	1 (1.07)	0 (0)	0 (0)	6 (15.78)	10	
	Bedside or clinic teaching	15 (18.51)	7 (4.76)	1 (1.07)	0 (0)	2 (2.38)	0 (0)	25	
	Resources	0 (0)	1 (0.68)	0 (0)	0 (0)	0 (0)	0 (0)	1	
	Shadowing	0 (0)	2 (1.36)	1 (1.07)	0 (0)	0 (0)	0 (0)	3	
	Simulation	0 (0)	3 (2.04)	0 (0)	0 (0)	1 (1.19)	0 (0)	4	
	Small groups or tutorials or lectures	2 (2.46)	4 (2.72)	1 (1.07)	0 (0)	1 (1.19)	0 (0)	8	
	Trouble shooting	0 (0)	3 (2.04)	0 (0)	0 (0)	6 (7.14)	0 (0)	9	
	Welfare or pastoral support	0 (0)	1 (0.68)	0 (0)	0 (0)	5 (5.95)	0 (0)	6	
Teaching Content	Acquiring clinical information							0	141
	Data interpretation	2 (2.46)	3 (2.04)	0 (0)	0 (0)	1 (1.19)	0 (0)	6	
	History taking	4 (4.93)	6 (4.08)	2 (2.15)	1 (1.63)	2 (2.38)	1 (2.63)	16	
	Physical examination	4 (4.93)	8 (5.44)	2 (2.15)	2 (3.27)	1 (1.19)	1 (2.63)	18	
	Link theory to practice	5 (6.17)	6 (4.08)	4 (4.3)	0 (0)	1 (1.19)	0 (0)	16	
	Next steps							0	
	Differential diagnoses	2 (2.46)	2 (1.36)	1 (1.07)	0 (0)	0 (0)	0 (0)	5	
	Patient management	7 (8.64)	1 (0.68)	2 (2.15)	2 (3.27)	11 (13.09)	0 (0)	23	
	Patient journey or hospital organisation	0 (0)	1 (0.68)	1 (1.07)	8 (13.11)	1 (1.19)	0 (0)	11	
	Practical procedures	2 (2.46)	5 (3.4)	8 (8.6)	23 (37.7)	2 (2.38)	1 (2.63)	41	
	Prescribing	2 (2.46)	1 (0.68)	1 (1.07)	0 (0)	1 (1.19)	0 (0)	5	
Negative	6 (7.4)	28 (19.04)	7 (7.52)	2 (3.27)	13 (15.47)	0 (0)	56		
Total[§]		81	147	93	61	84	38	504	

Table 48: Proportion of Year 4 comments about each theme grouped by role

- * Results expressed as number of comments per theme (read horizontally) and the percentage of comments per theme for each role (read vertically).
- ^ Total comments per theme (read horizontally).
- § Total number of comments per role.

Analysis by theme reveals that proportionally more comments were made in the Interaction category (192), than the Teaching content category (141) and the Characteristic category (115). Two themes were particularly highly commented on; Approachable or friendly or helpful (60), and Negative (56). In contrast, two Teaching (non-specific) sub- themes in the Interaction category, attracted 1% or fewer comments per role. These were Resources and Shadowing.

Role	Coded aspects	Themes covered	Redundant Themes
CMGD	81	19	14
CTF	147	29	4
FGD	93	21	12
OHP	61	10	23
SAT	84	24	9
STU	38	12	21

Table 49: Coverage of Year 4 comments by role and theme

This corresponds with the observation that CTFs have the greatest theme coverage (29) and STUs one of the least (12), with 4 and 21 themes respectively not attracting comments. OHPs had the second lowest number of coded aspects (61) and the highest theme redundancy (23). The other three roles had similar response patterns with relatively low numbers of coded aspects and relatively high numbers of redundant themes, namely: CGMDs (81, 14), FGDs (93, 12) and SATs (84, 9) (Table 49).

Comparison of responses by theme and role revealed that most themes attracted comments in relation to at least two roles. All roles were commented on as providing support for two themes, Providing opportunities for practice and Practical procedures; and for two sub-themes, History taking and Physical examination. However, two sub-themes attracted comments about just one role; Peer support and STUs, and Resources and CTFs. In general, CTFs and FGDs are commented on for knowing, and having recent experience of, the curriculum. SATs, and to a lesser extent CGMDs, for providing support, progress checks and careers advice, and in the case of SATs, welfare and pastoral support. SATs are also the only role to provide challenge. CGMDs and CTFs were mentioned in comments related to teaching content, particularly history taking and examination, and CMGDs and CTFs along with FGDs were noted as helping link theory to practice. OHPs were the most commented on for explaining the role of a doctor and other professions and also for teaching practical

skills. STUs were most commented on for peer support. Fifty per cent of all negative comments were related to CTFs.

8.8.4.3 Consultant and Middle Grade Doctors

Student comments suggest that much of the interaction with CMGDs takes place in clinics or on wards where CMGDs' experience and expertise, for example in providing useful feedback or discussion how to manage patients, is particularly valued. While often described as approachable and friendly, they also attract some negative comments for reasons such as not being interested in students, being intimidating and pitching their teaching at too high a level (Table 50).

Role: Consultant and Middle Grade Doctors (CMGDs)		
Theme / Sub-theme	Frequency No. (%)	Example comment
Teaching/Bedside or clinical teaching	15 (19)	<i>"On ward rounds I have had some very good teaching including opportunities to take histories, examine & present back as well as learn about writing up prescriptions & correct writing in patient notes."</i>
Knowledgeable	12 (15)	<i>"Consultants are knowledgeable source of advice on complex issues of patient care, and particularly when ethics/legal concerns are being discussed"</i>
Next steps/ Patient management	7 (9)	<i>"Good at teaching you about management options and counselling patients."</i>
Approachable or friendly or helpful	6 (7)	<i>"I have found consultants and middle grade doctors have been the most helpful and friendly people in hospitals. I have been impressed by how willing they are to teach. However, I have been shocked by how impressed they are when I offer to help with care."</i>
Negative	6 (7)	<i>"Very good at teaching their own speciality, but often don't know what/how much we need to know, or overinflate the relative importance of their own speciality"</i>
Link theory to practice	5 (6)	<i>"Test you on biomedical principles behind diseases and treatments."</i>

Table 50: Themes commented on most frequently for CMGD

*Characteristic category; grey; Interaction type category, blue; Teaching content category, yellow.

8.8.4.4 Clinical Teaching Fellows

CTFs are regarded as understanding what fourth year students need to know, partly through recent experience of the curriculum, and are thought to help prepare students for exams (Table 51). The comments about teaching focus mainly on the basics of taking histories, patient examination and data interpretation, and they are the most commented on role with regard to how this teaching takes place in small groups, tutorials or lectures (n=4, 3%) (Table 48). They are generally seen as approachable and friendly. The negative comments are not critical of CTFs, but rather note that they are not available for support in the way they were in the third year.

Role: Clinical Teaching Fellows (CTFs)		
Theme / Sub-theme	Frequency No. (%)	Example comment
Negative	28 (19)	<i>"We did not have CTFs in fourth year - would have been helpful to have one to ask questions about skills/treatment/professionalism etc."</i>
Approachable or friendly or helpful	27 (18)	<i>"The XXX CTFs were particularly helpful and provided fantastic teaching throughout our placement"</i>
Curriculum knowledge	9 (6)	<i>"Know exactly the right level of knowledge and clinical judgement that we should have."</i>
Acquiring clinical information/ Physical examination	8 (5)	<i>"Provides feedback on clinical examination and history taking."</i>
Teaching/Bedside or clinical teaching	7 (5)	<i>"Provides feedback on clinical examination and history taking."</i>
Examination practice	7 (5)	<i>"Pertinent sessions organised in run up to exams."</i>

Table 51: Themes commented on most frequently for CTF

*Characteristic category; grey; Interaction type category, blue; Teaching content category, yellow.

8.8.4.5 Foundation Grade Doctors

FGDs are often the 'foot in the door' for introducing students to the F1 role and into the medical team. They are generally considered approachable and have the level of knowledge just right to teach medical students (Table 52). The FGD role is the most commented on as a provider of opportunities to practice (8%) (Table 48).

Role: Foundation Grade Doctors (FGDs)		
Theme / Sub-theme	Frequency No. (%)	Example comment
Role of doctor and other professions/F1 preparation	17 (18)	<i>"Really useful in providing information about the transition from student to F1 life, including shifts, responsibilities & time management advice."</i>
Approachable or friendly or helpful	16 (17)	<i>"Very accommodating, understands the student role in a healthcare team. Generally very approachable."</i>
Curriculum knowledge	10 (11)	<i>"Foundation doctors can offer lots of advice as they remember being a student, so they know the appropriate level we are supposed to know."</i>
Practical procedures	8 (9)	<i>"Very helpful with clinical skills and for examining patients."</i>
Providing opportunities for practice	7 (8)	<i>"Provide opportunities to perform clinical skills."</i>
Curriculum knowledge/Recent experience	5 (5)	<i>"Foundation doctors can offer lots of advice as they remember being a student, so they know the appropriate level we are supposed to know."</i>

Table 52: Themes commented on most frequently for FGD

*Characteristic category; grey; Interaction type category, blue; Teaching content category, yellow.

8.8.4.6 Other Healthcare Professionals

OHPs received more than four times the number of comments of any other role about the help they provide with practical procedures and opportunities to practice, and are seen as passing on useful tips and skills knowledge. They are also the role which is commented on as providing the most insight into how teams and the wider hospital function.

Role: Other Healthcare Professionals (OHPs)		
Theme / Sub-theme	Frequency No. (%)	Example comment
Practical procedures	23 (38)	<i>"The nurses were very helpful at teaching me clinical skills and giving me tips to make the procedures easier to remember and carry out."</i>
Role of doctor and other professions	10 (16)	<i>"The nurses and theatre staff made me feel at home and part of the team, and were great at teaching me about the normal running of the department and other roles in the team."</i>
Next steps/ Patient journey or hospital organisation	11 (13)	<i>"During my SSC the nurses and theatre staff made me feel at home and part of the team, and were great at teaching me about the normal running of the department and other roles in the team."</i>
Approachable or friendly or helpful	5 (8)	<i>"Nursing and technical staff were very friendly and a good source knowledge especially in imaging departments."</i>
Knowledgeable	4 (7)	<i>"Very knowledgeable about trust-specific policies and often gave greater awareness of patient experience. Good to explain team dynamics and roles of other team members."</i>
Providing opportunities for practice	4 (7)	<i>"Nurses extremely helpful in demonstrating and supervising clinical skills"</i>

Table 53: Themes commented on most frequently for OHP

*Characteristic category, grey; Interaction type category, blue; Teaching content category, yellow.

8.8.4.7 Senior Academy Tutor

Student comments suggest that regular meetings allow SATs to get to know their students, and this allows SATs to discuss students' progress and deal with any welfare or pastoral issues. SATs also help ensure students have opportunities to learn while on placement and support student reflection on their experiences. The proportion of Negative comments was relatively high, and the same as for Support and progress checking, but the comments themselves suggest variation in how SATs undertake their role, a lack of clarity about what the

role is for, and also that SATs can be busy and therefore not as available as might be expected.

See Table 54.

Role: Senior Academy Tutors (SATs)		
Theme / Sub-theme	Frequency No. (%)	Example comment
Support and progress checking	13 (15)	<i>"Someone in the trust who knows you, can discuss your weekly activities and any issues."</i>
Negative	13 (15)	<i>"I have yet to have a particularly useful interaction with SATs; they have either been new to the role, hard to pin down, usually not productive during contact time and mainly just for signing off EPRs"</i>
Next steps/ Patient management	11 (13)	<i>"Dr XXX got each of us to discuss a case from the speciality we were on then he discussed one of his cases. Useful for data interpretation, management & prescribing."</i>
Trouble shooting	6 (7)	<i>"Useful to talk to if we had problems whist on placement."</i>
Approachable or friendly or helpful	5 (6)	<i>"Having a SAT who is engaged with us and when they are flexible with addressing our needs this can be a very helpful regular meeting."</i>
Welfare or pastoral support	5 (6)	<i>"They support students from a pastoral side of things."</i>

Table 54: Themes commented on most frequently for SAT

*Characteristic category; grey; Interaction type category, blue; Teaching content category, yellow.

8.8.4.8 Students

Nearly 40% of comments for this role related to peer support; clearly Year 4 students see other students as an important source of support on hospital placement. Students seem to support one another with learning, with orientation and emotionally (Table 55).

Role: Students (STUs)		
Theme / Sub-theme	Frequency No. (%)	Example comment
Peer support	15 (39)	<i>"My peers are the most supportive. Able to discuss any concerns with them, and query any uncertainties about the academic content. Great support network during exam period, able to practice OSCE exams & discuss cases."</i>
Teaching (non-specific)	6 (16)	<i>"Teaching from older students, when it has occurred was always very useful"</i>
Reflection or discuss experiences	5 (13)	<i>"Can debrief together"</i>
Examination practice	3 (8)	<i>"Practised teaching sessions. Practised examinations etc together"</i>
Feedback	2 (5)	<i>"Peer learning & very helpful in giving honest and regular feedback."</i>

Table 55: Themes commented on most frequently for STU

*Characteristic category; grey; Interaction type category, blue; Teaching content category, yellow.

8.8.5 Year 5

8.8.5.1 Completion rates

In Year 5, 210 students completed the survey of which 163 (78%) provided at least one comment, 152 (72%) provided at least two comments and 134 (64%) three comments (Table 56). More comments were made about CTFs and FGDs than the other professions. STUs were commented on the least.

Support Role		Mentioned in...			Total*
		Comment 1	Comment 2	Comment 3	
Clinical Teaching Fellow	CTF	133	17	4	154
Foundation Grade Doctor	FGD	9	70	22	101
Other Healthcare Professional	OHP	8	8	24	40
Consultant and Middle Grade Doctor	CMGD	2	17	38	57
Senior Academy Tutor	SAT	10	30	31	71
Student	STU	1	10	15	26
	BLANK	47	58	76	-
Total[^]		210	210	210	449

Table 56: Number of comments in Year 5 about each support role

* Number of comments about role

[^] Number of completed survey forms

Twenty-six students who completed the survey did not specify their previous academic performance. Of those that did, a greater number of students in the top half (121) completed the survey than did students in the bottom half (63) (Table 57). Even if all 26 non-identifiers were regarded as being lower performing students, this does not remove the imbalance. The better performing students provided a greater number of comments about all roles with the exception of fellow students; the proportion of comments in both groups was about the same.

	Role												Total comments		Completed surveys*	
	CTF		FGD		OHP		CMGD		SAT		STU					
Half	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Top	93	67	67	74	23	64	38	78	41	66	12	46	274	68	121	66
Bottom	46	33	24	26	13	36	11	22	21	34	14	54	129	32	63	34

Table 57: Comments provided by 'half' for each role

*Students who completed the survey

Two thirds of respondents were females, but males provided more comments proportionally than females. Comments about roles were provided roughly in proportion to how many males and females completed the survey (Table 58).

	Role												Total comments		Completed surveys*	
	CTF		FGD		OHP		CMGD		SAT		STU					
Gender	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Male	52	34	35	35	13	33	24	42	23	32	14	54	161	36	71	34
Female	102	66	66	65	27	68	33	58	48	68	12	46	288	64	139	66

Table 58: Comments provided by gender for each role

*Students who completed the survey

8.8.5.2 Thematic analysis

Table 59 shows how many code-able aspects there were in the comments provided by the students. These are displayed by category, theme and sub-theme. Each comment contained on average 1.9 code-able aspects.

Category	Theme	Role						Total [^]	Category total
		Proportion of comments by role (No. %)*							
		A : CMGD	B : CTF	C : FGD	D : OHP	E : SAT	F : STU		
Characteristic	Approachable or friendly or helpful	18 (19.35)	54 (17.76)	15 (6.81)	18 (24.65)	14 (12.72)	1 (2.77)	120	194
	Knowledgeable	6 (6.45)	5 (1.64)	1 (0.45)	3 (4.1)	3 (2.72)	0 (0)	18	
	Organised	0 (0)	8 (2.63)	0 (0)	0 (0)	1 (0.9)	0 (0)	9	
	Curriculum knowledge	0 (0)	18 (5.92)	1 (0.45)	0 (0)	1 (0.9)	1 (2.77)	21	
	Recent experience	0 (0)	10 (3.28)	16 (7.27)	0 (0)	0 (0)	0 (0)	26	
Interaction Type	Careers support	3 (3.22)	2 (0.65)	1 (0.45)	0 (0)	6 (5.45)	0 (0)	12	392
	Examination practice	0 (0)	6 (1.97)	1 (0.45)	0 (0)	0 (0)	1 (2.77)	8	
	Feedback	3 (3.22)	3 (0.98)	8 (3.63)	0 (0)	1 (0.9)	0 (0)	15	
	Provide challenge	1 (1.07)	1 (0.32)	0 (0)	0 (0)	0 (0)	0 (0)	2	
	Role of doctor and other professions	0 (0)	2 (0.65)	7 (3.18)	2 (2.73)	2 (1.81)	0 (0)	13	
	F1 Preparation	1 (1.07)	34 (11.18)	48 (21.81)	0 (0)	3 (2.72)	0 (0)	86	
	Support and progress checking	1 (1.07)	0 (0)	0 (0)	0 (0)	13 (11.81)	0 (0)	14	
	Peer support	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	15 (41.66)	15	
	Reflection or discuss experiences	3 (3.22)	2 (0.65)	2 (0.9)	1 (1.36)	11 (10)	5 (13.88)	24	
	Providing opportunities for practice	7 (7.52)	3 (0.98)	23 (10.45)	13 (17.8)	1 (0.9)	1 (2.77)	48	
	Teaching (non-specific comment)	7 (7.52)	8 (2.63)	0 (0)	0 (0)	9 (8.18)	4 (11.11)	28	
	Bedside or clinic teaching	11 (11.82)	17 (5.59)	1 (0.45)	2 (2.73)	2 (1.81)	0 (0)	33	
	Resources	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0	
	Shadowing	0 (0)	0 (0)	24 (10.9)	1 (1.36)	1 (0.9)	0 (0)	26	
	Simulation	0 (0)	35 (11.51)	0 (0)	2 (2.73)	1 (0.9)	0 (0)	38	
	Small groups or tutorials or lectures	2 (2.15)	10 (3.28)	0 (0)	0 (0)	5 (4.54)	0 (0)	17	
	Trouble shooting	0 (0)	0 (0)	0 (0)	0 (0)	2 (1.81)	0 (0)	2	
Welfare or pastoral support	0 (0)	4 (1.31)	0 (0)	0 (0)	7 (6.36)	0 (0)	11		
Teaching Content	Acquiring clinical information							0	213
	Data interpretation	0 (0)	2 (0.65)	0 (0)	0 (0)	1 (0.9)	1 (2.77)	4	
	History taking	3 (3.22)	5 (1.64)	6 (2.72)	0 (0)	2 (1.81)	2 (5.55)	18	
	Physical examination	3 (3.22)	9 (2.96)	9 (4.09)	0 (0)	0 (0)	3 (8.33)	24	
	Link theory to practice	3 (3.22)	6 (1.97)	2 (0.9)	1 (1.36)	0 (0)	0 (0)	12	
	Next steps							0	
	Differential diagnoses	3 (3.22)	3 (0.98)	1 (0.45)	1 (1.36)	0 (0)	1 (2.77)	9	
	Patient management	3 (3.22)	12 (3.94)	1 (0.45)	4 (5.47)	3 (2.72)	1 (2.77)	24	
	Patient journey or hospital organisation	1 (1.07)	1 (0.32)	0 (0)	1 (1.36)	0 (0)	0 (0)	3	
	Practical procedures	1 (1.07)	2 (0.65)	31 (14.09)	19 (26.02)	2 (1.81)	0 (0)	55	
	Prescribing	0 (0)	29 (9.53)	1 (0.45)	1 (1.36)	1 (0.9)	0 (0)	32	
	Professional skills	1 (1.07)	12 (3.94)	16 (7.27)	2 (2.73)	1 (0.9)	0 (0)	32	
	Negative	12 (12.9)	1 (0.32)	5 (2.27)	2 (2.73)	17 (15.45)	0 (0)	37	
Total[§]		93	304	220	73	110	36		

Table 59: Proportion of Year 5 comments about each theme grouped by role

Analysis by theme reveals that proportionally more comments were made in the Intervention category (392) than in the Teaching content (213) or Characteristic category

(194). One theme in the Characteristic category, Approachable or friendly or helpful, attracted 120 comments. This was considerably more than the second-most commented, the sub-theme F1 Preparation in the Interaction category. Several other themes attracted significant numbers of comments, for example Practical procedures (55) and Providing opportunities for practice (48). One sub-theme, Resources, did not attract any comments.

Role	Coded aspects	Themes covered	Redundant Themes
CMGD	93	21	13
CTF	304	29	5
FGD	220	22	12
OHP	73	16	18
SAT	110	25	9
STU	36	12	22

Table 60: Coverage of Year 5 comments by role and theme

Analysis by role (Table 60) reveals that most coded aspects were made about CTFs (304), followed by FGDs (220). SATs (110) and CGMDs (93) had the next most coded aspects followed by OHPs (73) and STUs (32). The number of redundant themes more or less mirrored this pattern in reverse; CTFs (5), SATs (9), FGDs (12), CGMDs (13), OHPs (18) and STUs (22). Analysis of responses per theme according to role (Table 59), contains some points of interest. CGMDs, CTFs and OHPs receive proportionally the most comments about approachability and friendliness. SATs are commented upon for providing support and progress checking and SATs are also the role that attracted the most comments about reflection and discussing experiences. Perhaps linked to peer support, STUs also receive comments about reflection. Students comment that FGDs and to a significant but lesser extent CTFs, help prepare students to become junior doctors. CTFs are also noted in relation to simulation and prescribing, while FGDs are noted for shadowing, help with practical

procedures and, along with OHPs, for providing opportunities. The negative comments are mostly about the senior roles, the CMGDs and the SATs.

8.8.5.3 Consultants and Middle Grade Doctors

CGMDs provide students with opportunities for practice and are generally seen as knowledgeable and as providing useful teaching at the bedside (Table 61). The negative comments note the variability of experience with consultants. Although some consultants are seen as approachable, this does not seem to be uniform and some consultants appear to be either uninterested in teaching, or resent student presence.

Role: Consultant and Middle Grade Doctors (CMGDs)		
Theme / Sub-theme	Frequency No. (%)	Example comment
Approachable or friendly or helpful	18 (19)	<i>“Usually helpful and prompt and question thinking and logic. Good guidance”</i>
Negative	12 (13)	<i>“Very variable experience. Some very helpful, and others unengaging and disinterested in the students.”</i>
Teaching (non-specific comment)/ Bedside teaching	11 (12)	<i>“Bedside teaching with senior registrars is very helpful. Reinforcing focussed history and examination skills”</i>
Providing opportunities for practice	7 (8)	<i>“On A&E consultants / middle grade doctors took initiative to allocate patients to take Hx and examination then reviews when they say they would.”</i>
Teaching content (non-specific)	7 (8)	<i>“Good teaching on clinical medicine and surgery”</i>
Knowledgeable	6 (6)	<i>“Excellent source of knowledge and experience. This is where the real learning occurred. Most valued sessions, but not very frequent.”</i>

Table 61: Themes commented on most frequently for CMGD

*Characteristic category; grey; Interaction type category, blue; Teaching content category, yellow.

8.8.5.4 Clinical Teaching Fellows

The comments show that CTFs are seen as friendly and supportive, and their relatively recent experience of being a medical student allows them to know what is important to Year 5 medical students and to know what level of teaching is required (Table 62). CTFs carry out a range of teaching which is focused on preparing students for their role as a foundation doctor, including bedside teaching, patient management, prescribing and scenario-based simulations especially related to the FY1 job. Several comments mention that CTFs also provide input on a range of issues that will help students as professionals, such as tips on being a doctor.

Role: Clinical Teaching Fellows (CTFs)		
Theme / Sub-theme	Frequency No. (%)	Example comment
Approachable or friendly or helpful	54 (18)	<i>"All very approachable and down to earth. Created an environment of support, even if it wasn't needed."</i>
Teaching (non-specific comment)/ Simulation	35 (12)	<i>"I found simulation sessions the most useful part of fifth year"</i>
Role of doctor and other professions/F1 preparation	34 (11)	<i>"Very useful for preparing for the foundation year. Felt a lot more confident carrying out A-E assessment. Lots of sessions on prescribing and common problems faced by FY1."</i>
Practical procedures / Prescribing	29 (10)	<i>"Good prescribing teaching as well as on commonly prescribed drugs."</i>
Curriculum knowledge	18 (6)	<i>"CTFs are by far the best source of teaching support in the hospital placements. They know exactly what it is like to be in our shoes and what is expected of us and therefore provide concise and relevant teaching on the most important areas."</i>
Teaching (non-specific comment)/ Bedside teaching	17 (6)	<i>"Useful bedside teaching sessions to practice examinations"</i>

Table 62: Themes commented on most frequently for CTF

*Characteristic category; grey; Interaction type category, blue; Teaching content category, yellow.

8.8.5.5 Foundation Grade Doctors

FGDs are similarly regarded as friendly and are seen as ‘relatable’, people who understand what is important to medical students and who pass on the tips of ‘the trade’ (Table 63).

FGDs facilitate student involvement in clinical activity and provide opportunities for students to undertake practical procedures. FGDs received twice the proportion of comments (22%) about F1 preparation than did CTFs (11%), and are commented as encouraging students to learn how to do the jobs of an F1. Shadowing of an FGD is seen as a particularly useful activity.

Role: Foundation Grade Doctors (FGDs)		
Theme / Sub-theme	Frequency No. (%)	Example comment
Role of doctor and other professions/F1 preparation	48 (22)	<i>“Very much willing to help prepare me to become an FY1 and helping med students become integrated into the ward team”</i>
Practical procedures	31 (14)	<i>“Good at helping with clinical skills and getting us involved in ward activities.”</i>
Teaching (non-specific comment)/ Shadowing	24 (11)	<i>“Shadowing the FY1 and FY2s is definitely the best way to learn and to put knowledge into practice.”</i>
Providing opportunities for practice	23 (10)	<i>“Allowing hands on experience of clerking, writing in notes, discharge notes. Gives practical advice”</i>
Curriculum knowledge/Recent experience	16 (7)	<i>“As foundation doctors have recently finished their medical student training, they know exactly what would be helpful and will teach accordingly.”</i>
Professional skills	16 (7)	<i>“Helpful to shadow when FY1s clerk - learned tips for effective time management, how best to perform clinical skills and form a concise and thorough differential diagnosis”</i>

Table 63: Themes commented on most frequently for FGD

*Characteristic category; grey; Interaction type category, blue; Teaching content category, yellow.

8.8.5.6 Other Healthcare Professionals

OHPs are seen as welcoming, and nurses in particular receive comments that they provide opportunities to practice practical procedures (Table 64).

Role: Other Healthcare Professionals (OHPs)		
Theme / Sub-theme	Frequency No. (%)	Example comment
Practical procedures	19 (26)	<i>"...learning clinical skills e.g. phlebotomy with phlebotomists ECGs with cardiographers is the best way to learn it."</i>
Approachable or friendly or helpful	18 (25)	<i>"They were friendly and approachable, making the placement enjoyable."</i>
Providing opportunities for practice	13 (18)	<i>"The academy tutors and advanced care practitioners helped me with clinical skills and practical hands on experience. They let me practice skills in a safe environment and without pressure."</i>
Next steps/ Patient management	4 (5)	<i>"ANPs on AIP extremely helpful at XXX learnt a lot about managing unwell patients, gained experience in clinical skills and attended medical emergencies"</i>
Knowledgeable	3 (4)	<i>"ACP were amazing in AIP, particularly on A&E and ITU. They are very knowledgeable and approachable."</i>

Table 64: Themes commented on most frequently for OHP

*Characteristic category; grey; Interaction type category, blue; Teaching content category, yellow.

8.8.5.7 Senior Academy Tutor

The comments suggest that SATs appear to vary in their approachability, but some are reported to be very helpful, providing general support during the duration of the placement, welfare or pastoral support and even career guidance (Table 65). SATs are also seen to provide students with opportunities to reflect. The variability of how SATs interpret their

role was noted. They are also sometimes seen as being too busy to undertake their role properly.

Role: Senior Academy Tutors (SATs)		
Theme / Sub-theme	Frequency N (%)	Example comment
Negative	17 (15)	<i>"Not a hugely helpful role - often very busy consultants that would rather get the meetings over and done with very quickly. Sometimes involves teaching, but this is actually rare."</i>
Approachable or friendly or helpful	14 (13)	<i>"However at my next placement they were incredibly engaging and willing to teach. This was enormously valuable time."</i>
Support and progress checking	13 (12)	<i>"Useful meetings to review progress."</i>
Reflection or discuss experiences	11 (10)	<i>"Gave an opportunity to raise concerns and to reflect on practice. Useful place to ask silly questions."</i>
Teaching (non-specific)	9 (8)	<i>"Very good teaching on AIP key presentations from SAT at XXX."</i>
Welfare and pastoral support	7 (6)	<i>"Good person to call to for pastoral support and careers advice."</i>

Table 65: Themes commented on most frequently for SAT

*Characteristic category; grey; Interaction type category, blue; Teaching content category, yellow.

8.8.5.8 Students

Students recognise the support provided by their peers. This seems to take several forms, from emotional to practical support such as through teaching, practising skills or sharing experiences.

Role: Students (STUs)		
Theme / Sub-theme	Frequency N (%)	Example comment
Peer support	15 (42)	"Have other people in the same boat is always very reassuring and good to talk about things that are happening."
Reflection or discuss experiences	5 (14)	<i>"Discussion with peers about what we are experiencing or worrying about."</i>
Teaching (non-specific)	4 (11)	<i>"Peer teaching sometimes been really helpful as certain students have certain expertise based on intercalation SSC etc."</i>
Acquiring clinical information/ Physical examination	3 (8)	<i>"Useful to go in pairs to take Hx and examinations."</i>
History taking	2 (6)	<i>"Teaching histories, examination together."</i>

Table 66: Themes commented on most frequently for STU

*Characteristic category; grey; Interaction type category, blue; Teaching content category, yellow.

8.9 Trends and differences in the comment frequency about the support roles across the three years surveyed

8.9.1 Analysis of the most frequent comments by role

In the following tables the themes receiving the most comments are shown for each role.

These are comments where in one year the item receives 5% or more of the comments made in that year about that role.

8.9.1.1 Consultant and Middle Grade Doctors

Category	Theme or sub-theme	Year 3		Year 4		Year 5	
		No.	%	No.	%	No.	%
Characteristic	Approachable or friendly or helpful	5	6	6	7	18	19
	Knowledgeable	3	4	12	15	6	6
Interaction type	Providing opportunities for practice	7	9	3	4	7	8
	Teaching (non-specific comment)	0	0	0	0	7	8
	Bedside or clinic teaching	5	6	15	19	11	12
Teaching Content	Physical examination	6	8	4	5	3	3
	Link theory to practice	8	10	5	6	3	3
	Differential diagnoses	9	12	2	2	3	3
	Patient management	8	10	7	9	3	3
	Negative	14	18	6	7	12	13

Table 67: Most frequently coded comment themes for CMGD

Students in Year 3 comment more frequently than in later years about teaching in basic skills, and in common with Year 5 students mention that CMGDs provide opportunities to practice, and both year groups are the most negative about this role (Table 67). Students in Year 5, however, comment more frequently that CMGDs are approachable, friendly or helpful and that they provide teaching. Perhaps the most important trend is that in Year 4 students comment more frequently about how CMGDs are knowledgeable and how they

provide bedside or clinic teaching. This year group make the fewest negative comments about CMGDs.

8.9.1.2 Clinical Teaching Fellows

Category	Theme or sub-theme	Year 3		Year 4		Year 5	
		No.	%	No.	%	No.	%
Characteristic	Approachable or friendly or helpful	46	15	27	18	54	18
	Curriculum knowledge	21	7	9	6	18	6
Interaction type	F1 Preparation	0	0	3	2	34	11
	Support and progress checking	35	11	0	0	0	0
	Bedside or clinic teaching	24	8	7	5	17	6
	Simulation	-	-	3	2	35	12
Teaching Content	History taking	24	8	6	4	5	2
	Physical examination	40	13	8	5	9	3
	Link theory to practice	19	6	6	4	6	2
	Prescribing	-	-	1	1	29	10
	Negative	5	2	28	19	1	0

Table 68: Most frequently coded comment themes for CTF

Students in all years comment on the fact that CTFs are approachable and friendly, but in Year 4 CTFs also receive a lot of negative comments (Table 68). Students in Year 3 comment frequently on support and progress checking, which is not mentioned in subsequent years, and on receiving support with basic skills and with linking theory to practice. In Year 5, CTFs receive comments related to simulation, prescribing and F1 preparation. These differences suggest a change in focus in how the CTF role is undertaken in each year. It is very noticeable how the comment pattern is different in Year 4, where CTFs mainly receive comments about approachability and negative comments.

8.9.1.3 Foundation Grade Doctors

Category	Theme or sub-theme	Year 3		Year 4		Year 5	
		No.	%	No.	%	No.	%
Characteristic	Approachable or friendly or helpful	42	20	16	17	15	7
	Curriculum knowledge	8	4	10	11	1	0
	Recent experience	8	4	5	5	16	7
Interaction type	Examination practice	10	5	0	0	1	0
	Role of doctor and other professions	18	9	4	4	7	3
	F1 Preparation	3	1	17	18	48	22
	Providing opportunities for practice	16	8	7	8	23	10
	Shadowing	-	-	1	1	24	11
Teaching Content	Practical procedures	32	16	8	9	31	14
	Professional skills	2	1	-	-	16	7
	Negative	7	3	7	8	5	2

Table 69: Most frequently coded comment themes for FGD

FGDs receive most comments about being approachable, friendly or helpful from students in Year 3 (Table 69). All years comment on the FGDs curriculum knowledge, with particular focus on recent experience in Years 3 and 5. In Year 3 students comment on how FGDs help with learning about the role of the doctor and other professions, but in Year 4 and 5 this becomes more specifically about the role of the F1. FGDs receive fewer comments in Year 4 about supporting learning in practical procedures. In Year 5, there is a big increase in comments about professional skills, and these are related to learning the role of the F1.

8.9.1.4 Other Healthcare Professionals

Category	Theme or sub-theme	Year 3		Year 4		Year 5	
		No.	%	No.	%	No.	%
Characteristic	Approachable or friendly or helpful	10	15	5	8	18	25
Interaction type	Role of doctor and other professions	5	7	10	16	2	3
	Providing opportunities for practice	7	10	4	7	13	18
Teaching Content	Patient journey or hospital organisation	5	7	8	13	1	1
	Practical procedures	34	50	23	38	19	26

Table 70: Most frequently coded comment themes for OHP

There are few themes attracting more than 5% of the comments in a year in relation to OHPs (Table 70). This is because student comments are heavily clustered in only a few areas such as Practical procedures. The comments in Year 4 show a slightly different pattern, in that the students comment less frequently on how OHPs are approachable, friendly or helpful, but comment more frequently on how OHPs provide support with learning about the role of the doctor and other professions and with learning about the patient journey or hospital organisation.

8.9.1.5 Senior Academy Tutor

Category	Theme or sub-theme	Year 3		Year 4		Year 5	
		No.	%	No.	%	No.	%
Characteristic	Approachable or friendly or helpful	18	13	5	6	14	13
Interaction type	Careers support	0	0	2	2	6	5
	Support and progress checking	25	18	13	15	13	12
	Reflection or discuss experiences	3	2	3	4	11	10
	Teaching (non-specific comment)	3	2	0	0	9	8
	Welfare or pastoral support	15	11	5	6	7	6
Teaching Content	Physical examination	7	5	1	1	0	0
	Patient management	6	4	11	13	3	3
	Negative	14	10	13	15	17	15

Table 71: Most frequently coded comment themes for SAT

SATs are not commented upon for being approachable, friendly or helpful as frequently in Year 4 (Table 71). Students in Year 3 comment more on support and progress checking and on welfare and pastoral support than either of the other two years. In Year 4, SATs receive more comments for teaching on patient management, while in Year 5 students comment more frequently on career support and reflection or discuss experience.

8.9.1.6 Students

Category	Theme or sub-theme	Year 3		Year 4		Year 5	
		No.	%	No.	%	No.	%
Characteristic	Approachable or friendly or helpful	7	11	1	3	1	3
	Curriculum knowledge	9	14	1	3	1	3
Interaction type	Examination practice	11	17	3	8	1	3
	Peer support	10	15	15	39	15	42
	Reflection or discuss experiences	1	2	5	13	5	14
	Teaching (non-specific comment)	0	0	6	16	4	11
Teaching Content	Data interpretation	6	9	0	0	1	3
	History taking	2	3	1	3	2	6
	Physical examination	9	14	1	3	3	8

Table 72: Most frequently coded comment themes for STU

Perhaps the most noticeable differences are between Year 3 students and the others in that they comment more frequently about STUs approachability, curriculum knowledge, support with examination practice, and with teaching of basic skills (Table 72). All years comments are frequently coded for peer support, and Year 4 and 5 comment on reflection and discuss experience, with other STUs.

8.9.1.7 Redundant Themes

Analysis of the redundant themes for each role by year reveals an interesting pattern in that there are fewer redundant themes in any year for CTFs and FGDs than there are for SATs and

CMGDs, and a greater amount of redundant themes for OHPs and STUs. This provides further indications that the support roles are perceived to offer support in different ways at different times in the programme. The data tables can be found at Appendix O.

8.9.2 Analysis of trends by category and theme

In the following section the figures quoted are for the proportion of comments, expressed as a percentage, attributed to a category in a year. For example, in Year 3, the total number of coded comments about the characteristics of support roles was 202. Of these, 128 or 63% were about support roles being approachable or friendly or helpful. See Table 73 for the number and percentage of comments for each coding theme in each year. Table 74 gives a summary of this data.

		Proportion of comments by theme (No. %)					
		Year 3		Year 4		Year 5	
Category	Theme	No.	%	No.	%	No.	%
Characteristic	Approachable or friendly or helpful	128	63	60	52.17	120	62
	Knowledgeable	8	4	20	17.39	18	9
	Organised	15	7	7	6.09	9	5
	Curriculum knowledge	38	19	21	18.26	21	11
	Recent experience	13	6	7	6.09	26	13
Total		202	100	115	100	194	100
		Year 3		Year 4		Year 5	
Category	Theme	No.	%	No.	%	No.	%
Interaction Type	Careers support	2	1	3	2	12	3
	Examination practice	33	12	11	6	8	2
	Feedback	18	6	9	5	15	4
	Provide challenge	2	1	3	2	2	1
	Role of doctor and other professions	22	8	17	9	13	3
	F1 Preparation	3	1	20	10	86	22
	Support and progress checking	70	25	15	8	14	4
	Peer support	10	4	15	8	15	4
	Reflection or discuss experiences	4	1	10	5	24	6
	Providing opportunities for practice	33	12	23	12	48	12
	Teaching (non-specific comment)	21	7	10	5	28	7
	Bedside teaching	36	13	25	13	33	8
	Resources provision	5	2	1	1		
	Shadowing			3	2	26	7
	Simulation			4	2	38	10
	Small groups or tutorials or lectures			8	4	17	4
Trouble shooting	8	2.81	9	5	2	1	
Welfare or pastoral support	18	6.32	6	3	11	3	
Total		285	100	192	100	392	100
		Year 3		Year 4		Year 5	
Category	Theme	No.	%	No.	%	No.	%
Teaching content	Acquiring clinical information						
	Data interpretation	29	9	6	4	4	2
	History taking	42	13	16	11	18	8
	Physical examination	71	21	18	13	24	11
	Link theory to practice	40	12	16	11	12	6
	Next steps						
	Differential diagnoses	30	9	5	4	9	4
	Patient management	27	8	23	16	24	11
	Patient journey or hospital organisation	11	3	11	8	3	1
	Practical procedures	74	22	41	29	55	26
	Prescribing			5	4	32	15
Professional skills	8	2			32	15	
Total		332	100	141	100	213	100
Negative		41		56		37	

Table 73: Cross Year Comment Proportion Summary

Category	Year 3 (%)	Year 4 (%)	Year 5 (%)	Mean (%)
Characteristic	23	23	23	23
Interaction type	33	38	47	39
Teaching content	39	28	25	31
Negative*	5	11	4	7
% Total	100	100	100	100

Table 74: The proportion of comments by category in all years

* 'Negative' is a catch-all theme included here for completeness

Table 74 shows that the overall proportion of comments about the characteristics of a role remains remarkably constant, although there is some intra-category variation as discussed below. The proportion of comments about the nature of the interactions increases year on year, whereas the proportion of comments about teaching content reduces years on year. This represents a shift from comments outlining what the students felt they were helped with to how the students felt they were helped. The increase in the proportion of negative comments is discussed elsewhere.

8.9.2.1 Characteristics category

If the frequency values for curriculum knowledge and recent experience are combined then there is little different between the years (Table 73). Perhaps the main points to note are that students in Year 4 do not comment proportionally as much about the approachability, friendliness and helpfulness of the support roles. However there is a notable increase in the proportion of comments about how the support roles are knowledgeable.

8.9.2.2 Interaction type category

In Year 3 a greater proportion of the comments attributed to the Interaction category are about receiving support for examination practice and about support and progress checking and to a lesser extent welfare and pastoral care. The proportion of comments about receiving support with FY1 preparation and being taught in simulation or being given opportunities to shadow increase year on year, and doubling between Years 4 and 5. Year 5 students make very few comments about troubleshooting, and proportionally fewer comments about bedside teaching. Year 4 students make fewer comments about receiving feedback.

8.9.2.3 Teaching content category

The number of comments about data interpretation, history taking and physical examination, linking theory to practice, and differential diagnosis reduces after Year 3. In contrast the proportion of comments about patient management increases. Students in all years comment in proportionally similar ways about support for practical procedures. Perhaps the most noticeable differences between Year 5 and the other years is the large increase in support for prescribing and for professional skills. As explained elsewhere the latter is linked to the increase in comments about FY1 preparation and shadowing.

8.10 Bringing together Likert and thematic analyses with insight from the local context

This section summarises key points from the quantitative and qualitative research in the context of the Birmingham MBChB matrix of support. It reveals a complex, overlapping and perhaps complementary support network, with student perceptions of their own needs and the curriculum structure impacting on perceptions of support.

8.10.1 Clinical Teaching Fellows

The data from the Likert scales suggests CTFs were regarded as the most helpful support role in Year 3 and Year 5. The CTFs also received the most comments in the free text section of the survey, and these were nearly all positive in nature. In contrast CTFs are not reported to be so helpful in Year 4, but this is most likely to reflect the peculiarities of the Year 4 curriculum rather than negativity about the CTF role itself.

8.10.1.1 Teaching

The difference in the perceptions students have about CTFs in Year 4, compared to their perceptions of CTFs in Years 3 and 5 is thought in large part to be explained by the differences in placement type. In Years 3 and 5, students have more broadly-based rotations focused either in Year 3 on acquiring clinical skills or in Year 5 learning the management of acutely ill patients. Year 4 in contrast is constituted of a range of specialty focused placements. This means that in the Academies, CTFs are mostly assigned to support students in Years 3 and 5, and are less involved in teaching students in Year 4.

Year 3 is the first year Birmingham medical students spend in hospital placements. Despite having spent 18 days in GP practices in Years 1 and 2, students will only have developed very basic levels of clinical skills. The shock of the transition from a predominantly pre-clinical programme to spending the majority of time in hospitals is widely reported (Hayes et al., 2004; Moss and McManus, 1992; Prince et al., 2005; Radcliffe and Lester, 2003; Seabrook, 2004).

Having people specifically employed to support students in Year 3 may help ease the shock of the transition. Taking students onto the wards and clinical areas for teaching may help break down some of the apprehension students feel about pursuing their learning needs in hospitals. The free text comments that CTFs are approachable, and provide support and progress checking, suggest regular contact with students. Furthermore, the Likert scales data suggests the CTFs are teaching Year 3 students basic clinical skills while the thematic analysis of the free text comments shows the CTFs' good understanding of the curriculum and that this teaching is targeted to the students' needs.

There are many free text comments suggesting CTFs provide teaching and support with what might be described as 'acquiring clinical information' such as taking patient histories, physical examination of patients and data interpretation, and with basic next steps such as formulating differential diagnoses. This is also seen in the Likert-type scale questions, where students report a good deal of support with these basic skills. Outcomes 1, 4 and 5 and the outcomes linked to this, are the outcomes Year 3 students perceive they receive most support from CTFs for (Table 75).

Domain	Outcome	Rating of helpfulness*		
		Year 3	Year 4	Year 5
Skills	1 To elicit clinical information from patients through taking a history and performing a physical examination	2.70	1.85	2.42
Skills	2 To perform clinical procedural skills safely and effectively	1.96	1.85	1.71
Skills	3 To prescribe safely and effectively	1.38	1.18	2.63
Skills	4 To synthesise information to define the likely differential diagnoses	2.59	1.88	2.46
Skills	5 To interpret findings from investigations and diagnostic tests	2.57	1.95	2.49
Skills	6 To formulate plans for treatment, management and discharge	2.24	1.83	2.42
Skills	7 To record patient information correctly	1.38	1.05	2.00
Values	8 To understand the clinical roles and responsibilities of a doctor	2.15	1.38	2.26
Values	9 To understand the importance of teamwork in clinical practice	1.73	1.11	1.88
Values	10 To understand and apply ethical and professional principles	1.66	1.21	1.70
Values	11 To understand the importance of raising and escalating concerns	1.75	1.17	2.24
Values	12 To deal with uncertainty through reflection, debriefing or asking for help	1.74	1.26	1.91
Values	13 To recognise patient vulnerability and know how to respond, including safeguarding	1.54	0.93	1.71
Values	14 To support and facilitate patients to make decisions about their care	1.49	1.05	1.71
Knowledge	15 To apply biomedical scientific principles and knowledge to medical practice	2.27	1.70	1.92
Knowledge	16 To understand the relationship between hospital care and primary and social care	1.41	0.98	1.45
Knowledge	17 To understand how hospitals are organised to deliver care	1.75	1.12	1.79

Table 75: Rating of helpfulness for CTFs for each outcome in each year

* Mean rating of helpfulness on a four point scale 0, 1, 2, 3

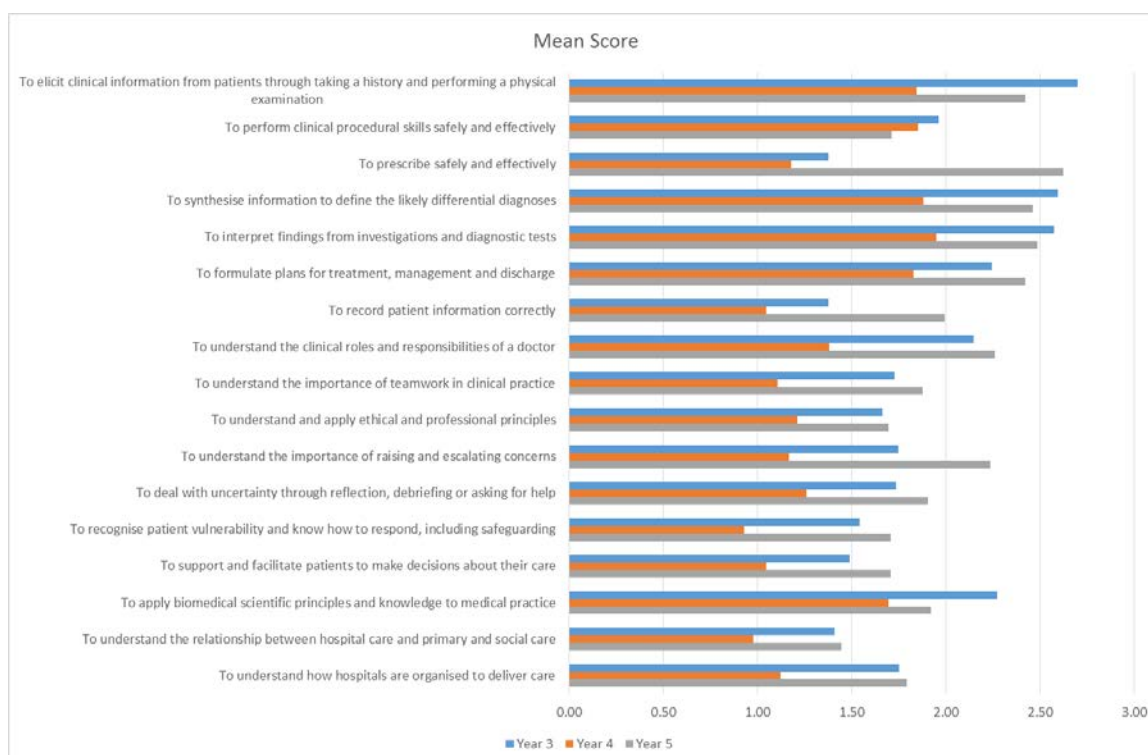


Figure 17: Rating of helpfulness for CTFs for each outcome in each year

Table 75 and Figure 17 above show that in every outcome, Year 4 students perceive they receive less support than students in Years 3 and 5. The only slight exception to this is outcome 2, where students in Year 4 perceive a little more support with clinical procedural skills than those in Year 5.

While students in Year 5 continue to perceive a good deal of support with acquiring basic clinical skills, largely due to input from CTFs, there is an increase in the perception of support with some of the more complex outcomes, for example with formulating management plans. This perhaps shows a change in emphasis of the curriculum in Year 5, as perhaps does the increased perception for support with prescribing (outcome 3). It is also noticeable that there are some other areas where the perception of support increases in Year 5, relative to Year 3. These are, to record patient information correctly and to understand the importance of raising and escalating concerns. These may reflect the development of the curriculum and what is expected of Year 5 students, but also may have some origin in the way Year 5 students are taught. This may be a result of a shifting emphasis from classroom and bedside teaching to simulation.

8.10.1.2 Simulation

High fidelity simulation is used to provide students with immersive experiences of aspects of care or situations that they would otherwise not be able to participate in. It is therefore used in Birmingham to give students experience of handling acute care situations, such as when patients deteriorate. Simulation is also used to immerse students in situations where they have to interact with hospital processes, for example completing paperwork while under time pressure and distraction. An important facet of simulation is that it can allow students to work in (multi) professional teams and as such can require students to think about team work, job allocation and communication. It is used to help students prepare for situations they may encounter when they become Foundation Doctors that are difficult to prepare for in other ways and to bring skills and values together.

In the Birmingham MBChB most of the students' experience of simulation will be in the fifth year and these students make many comments about simulation when discussing CTFs. This is perhaps to be expected since much of this simulation is to some extent designed by CTFs and most of the sessions are run and facilitated by them. CTFs are taught to use debriefing techniques such as 'appreciative enquiry' or debriefing with good judgement. These are designed to get the participants in the simulation to reflect on how the simulation went and upon their role in it. This may account for the fact that there is a slight rise in the students' reported perception of support for outcome 12, 'To deal with uncertainty through debriefing, reflection or asking for help'.

How otherwise this focus on simulation is seen in the Likert-type scale data is difficult to know. Given the aims of using simulation, it may perhaps help explain the slight increases in students' perceptions of support in areas such as, 'To record patient information correctly', 'To understand the roles and responsibilities of a doctor', 'To understand the importance of teamwork in clinical practice', 'To understand the importance of raising and escalating concerns', and 'To deal with uncertainty through reflection, debriefing and asking for help'.

8.10.2 Foundation Grade Doctors

In all three clinical years the pattern of perceived support received from FGDs is broadly similar. FGDs are perceived to be helpful with many of the outcomes in the skills domain, helpful with some of the outcomes in values domain, and generally perceived as less helpful with the outcomes in the knowledge domain. In all years there are many comments suggesting that FGDs are approachable, friendly or helpful. There are however some

differences between the years in how the FGDs are perceived. Students in Year 4, do not perceive they receive the same levels of support as students in Years 3 and 5 do. Perhaps the Year 4 student perceptions about FGDs have a similar origin to those Year 4 students have about CTFs. The specialty focused nature of the placements in Year 4 means that students are less likely to have much contact with FGDs, as these are mostly ward-based. While Year 4 students do spend some time on the ward as part of their specialty placements, they spend more time in other specialty areas, such as clinics.

FGDs are recent graduates from Medical School. Their role is in providing medical care for patients on the wards which involves using a lot of the clinical skills and knowledge that form part of the undergraduate medical curriculum. While there is perhaps an increasing tendency for medical students to move region on graduation it is still the case that many FGDs the students will encounter are Birmingham graduates, and will be intimate with the curriculum and the assessments that students will face.

8.10.2.1 Opportunities

Many FGDs are keen to teach medical students, with some organising teaching schemes at their local Trust and others contributing to endeavours, such as 'Countdown to finals', where FGDs provide evening sessions for final year medical students to help them prepare for their exams. All FGDs will have some incentive to provide teaching as they need to provide evidence of teaching experience within their portfolio (The UKFP, 2016).

However, the majority of student interaction with FGDs occurs more informally in clinical areas, in particular on the ward. FGDs are therefore in a position to identify suitable patients for medical students to practice their examinations or history taking with. The Likert-type scale data appears to confirm that this is indeed what happens in practice. FGDs are perceived to be very helpful in supporting students learning with practical procedures (outcome 2, Table 76). The number of comments about this in each year also reinforce the idea that FGDs are a valuable source of support in finding suitable patients to practise procedures on, and to observe students performing the procedures.

Domain	Outcome	Rating of helpfulness*			
		Year 3	Year 4	Year 5	
Skills	1	To elicit clinical information from patients through taking a history and performing a physical examination	1.86	1.68	1.85
Skills	2	To perform clinical procedural skills safely and effectively	2.08	1.93	2.33
Skills	3	To prescribe safely and effectively	1.43	1.48	1.78
Skills	4	To synthesise information to define the likely differential diagnoses	2.00	1.67	1.93
Skills	5	To interpret findings from investigations and diagnostic tests	2.12	1.77	1.96
Skills	6	To formulate plans for treatment, management and discharge	1.88	1.73	2.02
Skills	7	To record patient information correctly	1.96	1.91	2.25
Values	8	To understand the clinical roles and responsibilities of a doctor	2.37	2.04	2.32
Values	9	To understand the importance of teamwork in clinical practice	2.13	1.90	2.07
Values	10	To understand and apply ethical and professional principles	1.56	1.25	1.34
Values	11	To understand the importance of raising and escalating concerns	1.57	1.22	1.92
Values	12	To deal with uncertainty through reflection, debriefing or asking for help	1.49	1.18	1.55
Values	13	To recognise patient vulnerability and know how to respond, including safeguarding	1.52	1.23	1.46
Values	14	To support and facilitate patients to make decisions about their care	1.72	1.51	1.73
Knowledge	15	To apply biomedical scientific principles and knowledge to medical practice	1.72	1.38	1.44
Knowledge	16	To understand the relationship between hospital care and primary and social care	1.26	1.04	1.40
Knowledge	17	To understand how hospitals are organised to deliver care	1.76	1.56	1.71

Table 76: Rating of helpfulness for FGDs for each outcome in each year

* Mean rating of helpfulness on a four point scale 0, 1, 2, 3

FGDs are also on hand to explain things to students and also to discuss their role, which allows medical students to gain a good appreciation of the job they will be doing once they graduate. Again the Likert scale data shows that students perceive that FGDs support students with outcome 8, understanding the clinical roles and responsibilities of a doctor and with outcome 9, to understand the role of teamwork in clinical practice. The comments

provided by students also frequently mention the support provided by FGDs with these aspects, both in more general terms about the role of the doctor in the team, and more specifically about the role of the FGD.

FGDs, because they are able to allow students to perform some of their tasks under their supervision, are able to give feedback on what they observe. This is more evident in the comments provided by the Year 5 students.

8.10.2.2 Shadowing

There is no specific requirement for medical students to shadow an FGD while on clinical placement, but in the fifth year, it is common for hospitals where students are placed to organise shadowing opportunities during the Acutely Ill Patient placement.

Several students in Year 5 commented how useful it can be to shadow FGDs. Rather than being noted as an opportunity to undertake tasks, this is noted as a way to appreciate the nature of the role the students will undertake once qualified and participate in some of the important, but perhaps mundane administrative tasks. Issues such as prioritisation of tasks and time-management are mentioned. The higher helpfulness rating seen for outcome 2, 'To perform clinical skills safely and effectively', outcome 3, 'To prescribe safely and effectively', outcome 6, 'To record patient information correctly, to formulate plans for management and discharge' and outcome 9, 'To understand the importance of raising and escalating concerns' could be linked to shadowing and also the free text comments about learning professional skills. The perception of helpfulness may reflect being allowed to

undertake tasks under FGD supervision, or observing FGDs undertake some of these activities. It may also be due to changing emphases in the Birmingham curriculum. For example, students perceive that prescribing is not really part of the curriculum until Year 5.

8.10.3 Consultants and Middle Grade Doctors

Students will come into contact with CMGDs in two main ways. Firstly, through scheduled sessions with CMGDs as part of the teaching timetables organised by their placement trust. These teaching sessions can be classroom based, but are also likely to involve the student joining the CMGD in clinic or on the ward. Secondly, some trusts run systems where they provide the contact details for CMGDs for students, and expect the students to make arrangements to meet the consultants for teaching. Students will also encounter CMGDs in other ways such as during multi-disciplinary team meetings, or on ward rounds.

Domain	Outcome	Rating of helpfulness*			
		Year 3	Year 4	Year 5	
Skills	1	To elicit clinical information from patients through taking a history and performing a physical examination	2.02	1.99	1.82
Skills	2	To perform clinical procedural skills safely and effectively	0.68	1.38	1.13
Skills	3	To prescribe safely and effectively	1.26	1.13	1.10
Skills	4	To synthesise information to define the likely differential diagnoses	2.22	2.27	2.07
Skills	5	To interpret findings from investigations and diagnostic tests	2.05	2.19	1.99
Skills	6	To formulate plans for treatment, management and discharge	2.06	2.22	1.99
Skills	7	To record patient information correctly	1.20	1.27	1.38
Values	8	To understand the clinical roles and responsibilities of a doctor	1.96	2.02	1.69
Values	9	To understand the importance of teamwork in clinical practice	1.74	1.82	1.55
Values	10	To understand and apply ethical and professional principles	1.66	1.68	1.47
Values	11	To understand the importance of raising and escalating concerns	1.25	1.37	1.49
Values	12	To deal with uncertainty through reflection, debriefing or asking for help	1.14	1.20	1.20
Values	13	To recognise patient vulnerability and know how to respond, including safeguarding	1.27	1.45	1.50
Values	14	To support and facilitate patients to make decisions about their care	1.71	1.98	1.78
Knowledge	15	To apply biomedical scientific principles and knowledge to medical practice	1.78	2.12	1.81
Knowledge	16	To understand the relationship between hospital care and primary and social care	1.23	1.59	1.40
Knowledge	17	To understand how hospitals are organised to deliver care	1.62	1.76	1.52

Table 77: Rating of helpfulness for CMGDs for each outcome in each year

* Mean rating of helpfulness on a four point scale 0, 1, 2, 3

Students in all years seem to perceive similar patterns of support from CMGDs (Table 77). It is noticeable that students perceive themselves to receive support from CMGDs in a range of outcomes from the skills domain, but generally perceive less support from CMGDs in other areas. This is likely due to the nature of the encounters between students and CMGDs which mostly take place in clinics or on the wards, so the conversations and activities will be focused on the patient in question. There seems to be little involvement of consultants in some of the more practically oriented tasks, such as clinical procedural skills, prescribing or recording patient information. This may be because these are not activities routinely performed by consultants on the ward, but are left to more junior members of the team. Consultants are perceived as one of the most supportive roles when it comes to some of the more complex skills, such as 'To synthesise information to define the likely differential diagnoses' (outcome 4) or 'To formulate plans for treatment, management and discharge' (outcome 6). (Table 77). In Years 3 and 5 only the CTFs are perceived to be more helpful, and in Year 4, CMGDs are perceived to be the most helpful. Although it is not by much, CMGDs are seen as helpful with outcome 14, 'To support and facilitate patients to make decisions about their care'. It is not possible to know why CMGDs are perceived this way as it is not specifically mentioned in the free text comments, but it may be that students observe CMGDs discussing care with patients, and learn from observation, or it may be that this is discussed in conversations with students after interactions with patients. Perhaps an example of vicarious learning (Bandura, 1986). These results in the Likert scales may perhaps be reflected in the free text comments, where students, particularly in Year 4 comment that CMGDs are knowledgeable.

Given the number of negative comments about consultants, charts which show the proportion of responses in each response category in the Likert scale questions are provided.

See Figure 18, Figure 19, Figure 20. These show quite a spread of student opinion for many of the outcomes.

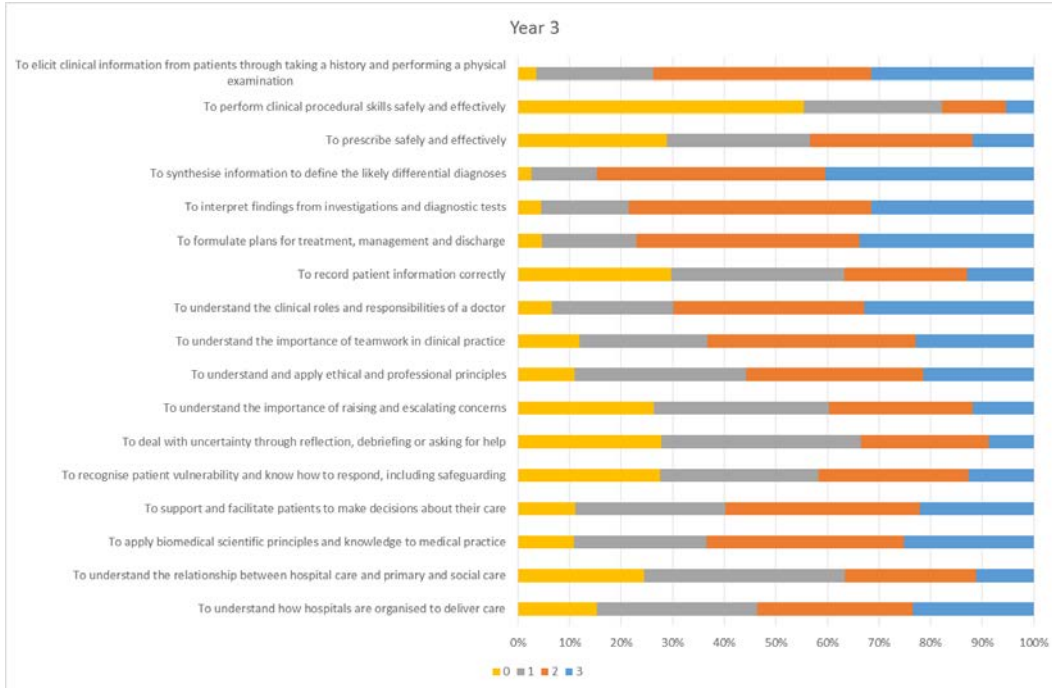


Figure 18: Proportion of responses for each point in the Likert scale for CMGD Year 3

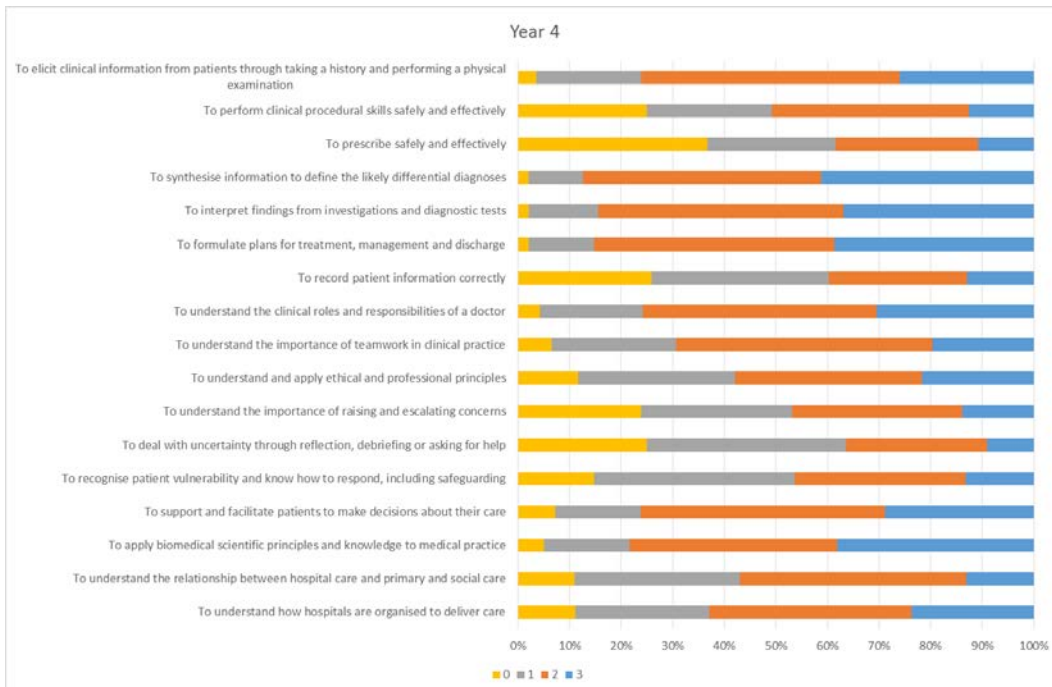


Figure 19: Proportion of responses for each point in the Likert scale for CMGD Year 4

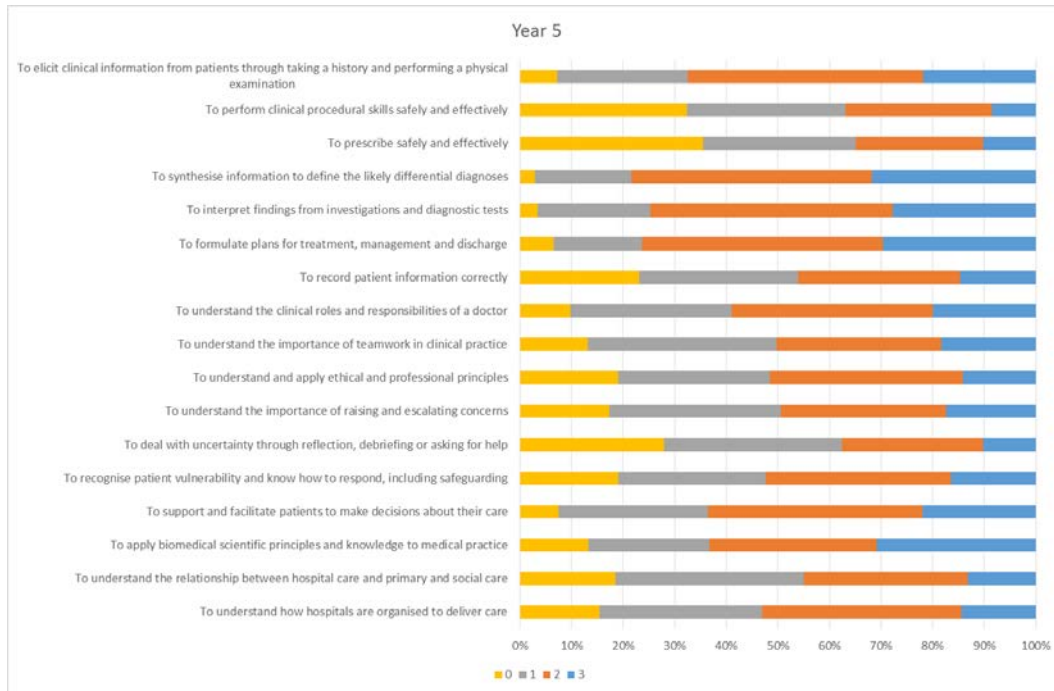


Figure 20: Proportion of responses for each point in the Likert scale for CMGD Year 5

The negative comments about CMGDs tend to highlight three points. The first is, as discussed above, that CMGDs are not always aware of what students need to know. The second is that CMGD teaching is very varied. Sometimes it can be very good, at other times not. The third is that CMGDs can be difficult to get hold of, can appear uninterested in teaching medical students, and may appear distant or rude. The students themselves suggest that some of this is because CMGDs are busy and preoccupied with service delivery. Some of this may be because not all CMGDs are interested in teaching.

There may be another explanation which is possibly due to a cultural shift and which can also sour the relationship between consultants and students. Consultants are known to despair that medical students never seem to be on the ward, and do not always turn up to teaching, remembering perhaps the environment, the conditions and their own behaviours

when they were students. Outcomes-based curricula with blue-printed assessments can encourage medical students to be very 'efficient' in looking for what are perceived as high-value learning opportunities that support learning for assessments. Therefore, no matter how useful an experience may be in the longer term it can often be measured unfavourably against a more short-term yardstick. This more instrumental attitude may be perceived negatively by CMGDs who may see it as students not being interested in their subject or not appreciating their teaching.

8.10.4 Other Healthcare Professionals

There are only three outcomes, one from each domain, where OHPs have a mean average rating of helpfulness of more than 1.5 in any year. These are outcomes 2, 9 and 17. See Table 78 and Figure 21 below. This suggests that OHPs are regarded as useful for a very specific range of outcomes. It should perhaps also be noticed that in each of these three outcomes, students perceive the support received to diminish from year to year.

Curriculum requirements may play a part. In Year 5, students at the time this survey was administered did not have a mandatory requirement to undertake a target amount of clinical procedural skills (outcome 2), and this may affect the perception of helpfulness. The other two outcomes are essentially about how professions interact and it is therefore perhaps not surprising that OHPs are seen as supporting students' learning in this regard.

			Rating of helpfulness*		
Domain	Outcome		Year 3	Year 4	OHP
Skills	1	To elicit clinical information from patients through taking a history and performing a physical examination	0.88	0.75	0.87
Skills	2	To perform clinical procedural skills safely and effectively	2.40	2.07	1.90
Skills	3	To prescribe safely and effectively	0.98	0.64	0.75
Skills	4	To synthesise information to define the likely differential diagnoses	0.73	0.60	0.79
Skills	5	To interpret findings from investigations and diagnostic tests	0.91	0.84	0.82
Skills	6	To formulate plans for treatment, management and discharge	0.79	0.68	0.78
Skills	7	To record patient information correctly	1.48	1.06	1.07
Values	8	To understand the clinical roles and responsibilities of a doctor	1.18	1.03	1.01
Values	9	To understand the importance of teamwork in clinical practice	2.17	2.06	1.91
Values	10	To understand and apply ethical and professional principles	1.43	1.18	1.04
Values	11	To understand the importance of raising and escalating concerns	1.37	1.04	1.18
Values	12	To deal with uncertainty through reflection, debriefing or asking for help	0.99	0.72	0.91
Values	13	To recognise patient vulnerability and know how to respond, including safeguarding	1.49	1.40	1.40
Values	14	To support and facilitate patients to make decisions about their care	1.35	1.32	1.33
Knowledge	15	To apply biomedical scientific principles and knowledge to medical practice	0.63	0.62	0.66
Knowledge	16	To understand the relationship between hospital care and primary and social care	1.25	1.41	1.36
Knowledge	17	To understand how hospitals are organised to deliver care	1.75	1.61	1.54

Table 78: Rating of helpfulness for OHPs for each outcome in each year

* Mean rating of helpfulness on a four point scale 0, 1, 2, 3

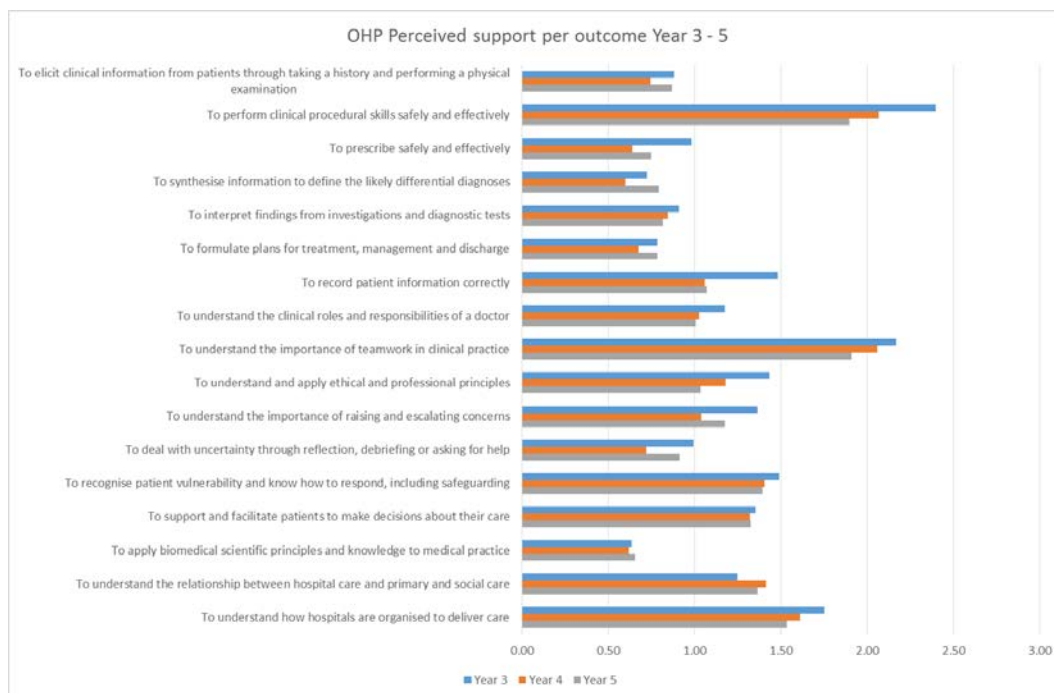


Figure 21: Perceived support from OHPs per theme, all years

There are two themes that come through in the comments about OHPs. These are about the support that is provided through teaching, and that which is given by providing opportunities.

8.10.4.1 Providing teaching

While OHPs are known to participate in a range of teaching activities with medical students, the most commented upon activity is teaching clinical procedural skills. In many of the hospitals where Birmingham medical students are placed, this is often undertaken by clinical skills trainers, sometimes specially employed by the placement trusts to teach and support students in learning these skills. Perhaps therefore some of the positive perception derives from the fact that like CTFs, clinical skills trainers have time allocated to devote specifically to teaching. Because they are generally teaching a very defined set of procedural skills, OHPs often repeat the teaching sessions with multiple groups of students. They are therefore able to pitch the sessions at an appropriate level, often based on experience of what students struggle with or need to know. Some teaching is provided on other topics, particularly in the skills domain, and this is often provided by nurses with extended roles who are Advanced Care Practitioners (ACPs). Perhaps this shows some overlap with the support often provided by CTFs or FGDs.

8.10.4.2 Providing opportunities

In all three years, students comment on how OHPs provide opportunities for learning or practice. Nurses know the patients, perform routine tasks on them, and have a reasonable understanding of the patients' condition and know which of them require procedures. This means that they are very well placed to support students in achieving some of their goals, for example in undertaking observed practice of procedural skills. It is clearly, very advantageous for students to encounter approachable and friendly OHPs.

The Centre for the Advancement of Interprofessional Education (CAIPE) (2019) define IPE as “occasions when two or more professions learn with, from and about each other to improve collaboration and the quality of care,” and extends this definition to students. At the top of the hierarchy is where students of different professions learn together. This is not reported by students in this survey. However, the next two levels of the hierarchy are where students of one profession learn from another profession and then where students learn about another profession. For the three outcomes where OHPs are perceived to provide support, that is in the teaching about clinical procedural skills (outcome 2), in learning about teamwork (outcome 9) and about how hospitals are organised to deliver care (outcome 17), students are both learning ‘from’ and ‘about’ other healthcare professions. What is not clear from the results of the survey, however, in relation to the knowledge and values domain outcomes (9 and 17 respectively) is whether students are learning as a result of specific teaching sessions, conversations with OHPs, experiential learning, or observation. The free text comments do not provide much insight into this.

8.10.5 Senior Academy Tutor

In general, the pattern of support from SATs perceived by students in Years 3, 4 and 5 is quite similar across the 17 outcomes (Table 79).

			Rating of helpfulness*		
Domain	Outcome		Year 3	Year 4	Year 5
Skills	1	To elicit clinical information from patients through taking a history and performing a physical examination	1.63	1.24	1.25
Skills	2	To perform clinical procedural skills safely and effectively	0.63	0.73	0.68
Skills	3	To prescribe safely and effectively	0.96	0.82	0.81
Skills	4	To synthesise information to define the likely differential diagnoses	1.90	1.50	1.48
Skills	5	To interpret findings from investigations and diagnostic tests	1.64	1.38	1.30
Skills	6	To formulate plans for treatment, management and discharge	1.65	1.44	1.32
Skills	7	To record patient information correctly	0.92	0.74	0.84
Values	8	To understand the clinical roles and responsibilities of a doctor	1.78	1.57	1.38
Values	9	To understand the importance of teamwork in clinical practice	1.61	1.05	1.17
Values	10	To understand and apply ethical and professional principles	1.59	1.33	1.21
Values	11	To understand the importance of raising and escalating concerns	1.56	1.67	1.37
Values	12	To deal with uncertainty through reflection, debriefing or asking for help	1.68	1.72	1.32
Values	13	To recognise patient vulnerability and know how to respond, including safeguarding	1.27	1.17	1.10
Values	14	To support and facilitate patients to make decisions about their care	1.45	1.07	0.97
Knowledge	15	To apply biomedical scientific principles and knowledge to medical practice	1.60	1.48	1.25
Knowledge	16	To understand the relationship between hospital care and primary and social care	1.21	0.97	0.87
Knowledge	17	To understand how hospitals are organised to deliver care	1.52	1.34	1.07

Table 79: Rating of helpfulness for OHPs for each outcome in each year

* Mean rating of helpfulness on a four point scale 0, 1, 2, 3

There are, however, some differences to note. The first is that the perceived usefulness of SATs declines from Year 3, to Year 4, to Year 5. In Year 3, it is particularly noticeable that SATs are mainly perceived to be more useful with the skills domain outcomes, notably 1, 4, 5 and 6. This is interesting because SATs are, in Birmingham, more directly involved both in the organisation and provision of teaching in Year 3 compared to the other year groups. This teaching will likely be primarily focused on outcomes in the skills domain - particularly outcomes 1, 4, 5 and 6.

The free text comments suggest a very variable experience with SAT support. There are suggestions that some SATs don't really know what to do, and that they would benefit from

training (see Section 6.10.5.1 below). This variability is borne out when looking at Figure 22, Figure 23 and Figure 24 which show that for many of the outcomes and in each year, opinion of SAT support is divided.

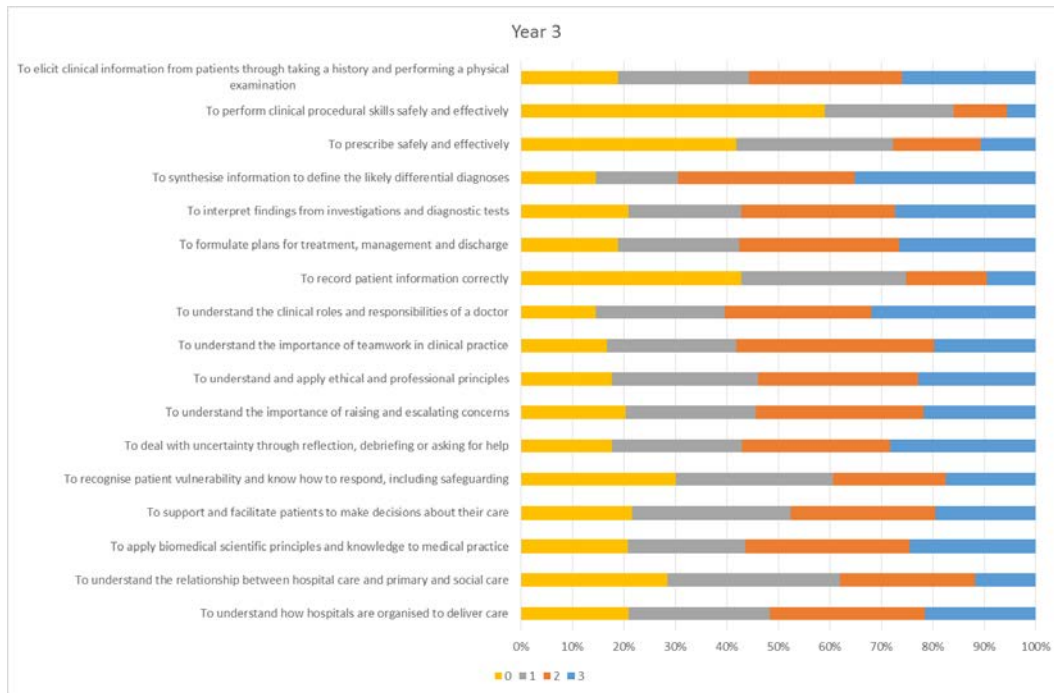


Figure 22: Proportion of responses for each point in the Likert scale for SAT Year 3

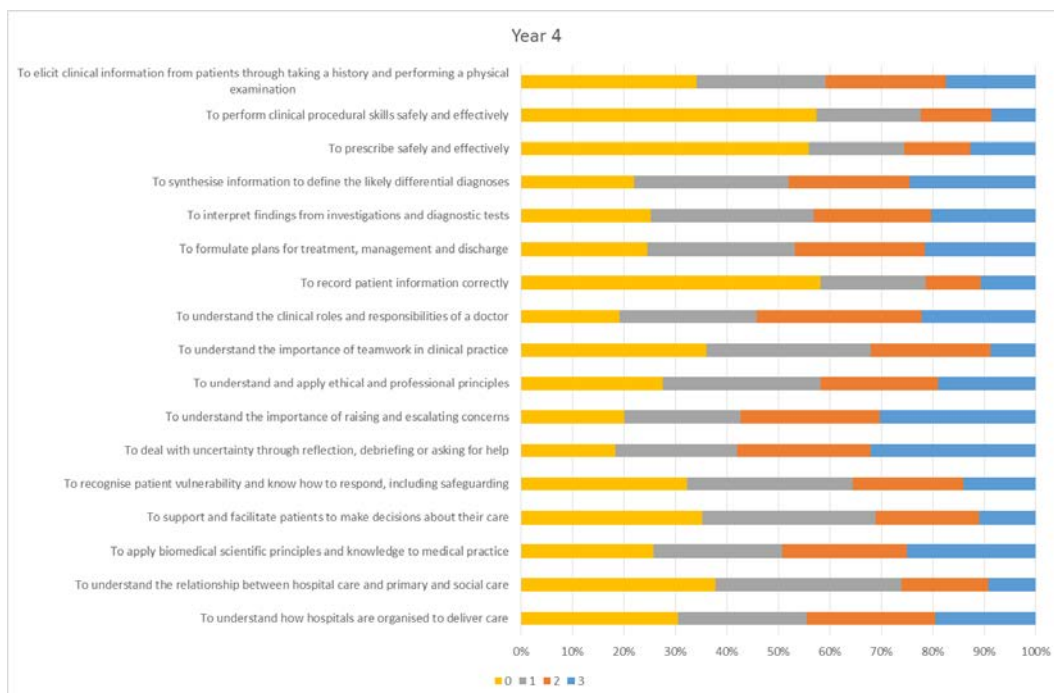


Figure 23: Proportion of responses for each point in the Likert scale for SAT Year 4

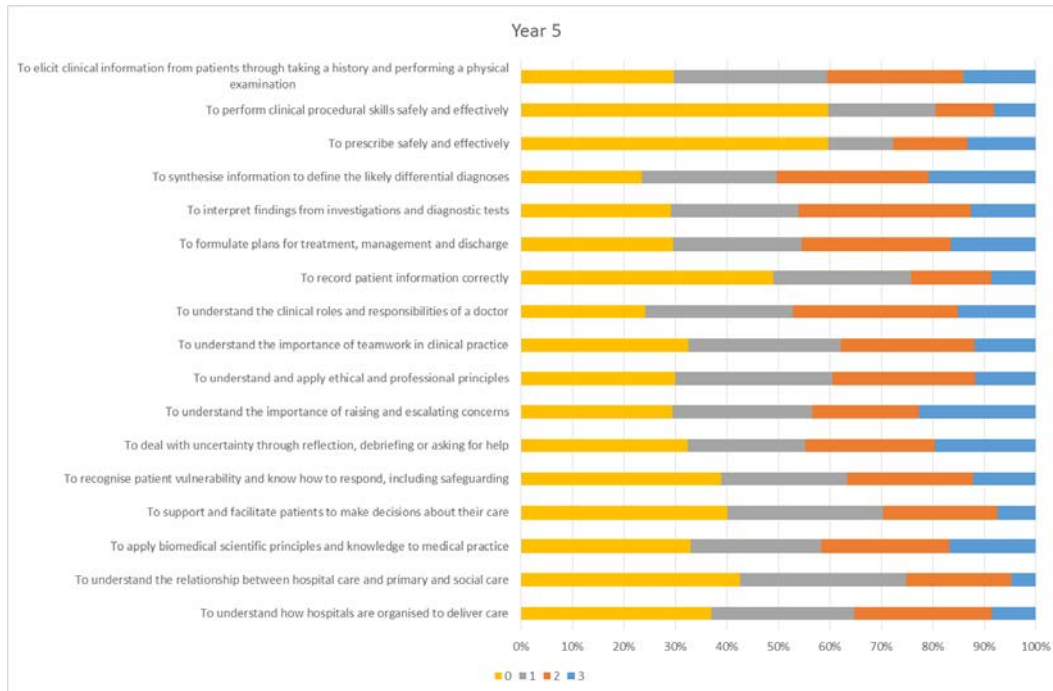


Figure 24: Proportion of responses for each point in the Likert scale for SAT Year 5

8.10.5.1 Role interpretation

The free text comments from students suggest there is still a wide variation in how SATs interpret their roles. This shows that despite guidance and training that were developed after the research into how students and tutors perceived the role when it was newly established, SATs are a hard to reach group who have individual ideas about how they should undertake their role. The comments suggest that SATs do provide a range of support activities from teaching and academic support to providing opportunities for learning, or practice and discussing careers and engaging students in reflective conversations. There are also some comments that some SATs continue to interpret their role as being to provide pastoral support. This perception that SATs variably interpret their role may be why student opinion on SATs helpfulness is variable for the outcomes on the Likert scales.

8.10.6 Students

The results from the Likert-type scale data suggest that students in Year 3 perceive the most support from fellow students, whereas those in Year 4, generally perceive the least amount of support (Table 80). There is little in the data to suggest why Year 4 students perceive less support, but it may be as a result of the speciality focussed placements in Year 4 which mean students often rotate through one-week or two-week placements in small groups or individually. The learning focus can be quite specialty focused too. This means that both contact with other students may be limited, and the specialty content may be something other students may feel less able to help with.

Domain	Outcome	Rating of helpfulness*		
		Year 3	Year 4	Year 5
Skills	1 To elicit clinical information from patients through taking a history and performing a physical examination	1.68	1.53	1.53
Skills	2 To perform clinical procedural skills safely and effectively	1.20	1.12	1.11
Skills	3 To prescribe safely and effectively	0.66	0.53	0.90
Skills	4 To synthesise information to define the likely differential diagnoses	1.44	1.25	1.37
Skills	5 To interpret findings from investigations and diagnostic tests	1.54	1.24	1.27
Skills	6 To formulate plans for treatment, management and discharge	1.18	1.13	1.13
Skills	7 To record patient information correctly	0.87	0.75	0.84
Values	8 To understand the clinical roles and responsibilities of a doctor	0.95	0.65	0.89
Values	9 To understand the importance of teamwork in clinical practice	1.22	1.07	1.25
Values	10 To understand and apply ethical and professional principles	1.06	0.95	1.02
Values	11 To understand the importance of raising and escalating concerns	1.01	0.95	0.98
Values	12 To deal with uncertainty through reflection, debriefing or asking for help	1.10	1.02	1.16
Values	13 To recognise patient vulnerability and know how to respond, including safeguarding	0.92	0.64	0.89
Values	14 To support and facilitate patients to make decisions about their care	0.82	0.60	0.66
Knowledge	15 To apply biomedical scientific principles and knowledge to medical practice	1.59	1.32	1.25
Knowledge	16 To understand the relationship between hospital care and primary and social care	0.91	0.61	0.90
Knowledge	17 To understand how hospitals are organised to deliver care	0.80	0.61	0.89

Table 80: Rating of helpfulness for STUs for each outcome in each year

* Mean rating of helpfulness on a four point scale 0, 1, 2, 3

In the free text comments, Year 3 students report a good deal of support from fifth year students. This support is described as teaching. It is known that students in later years do provide teaching in informal ways for ‘younger’ students. However more recently there have been a number of (near) peer teaching schemes established in the placement Trusts.

These are often facilitated by CTFs and there have been some instances where the Year 5 students who volunteer to lead peer teaching sessions have been given some limited teacher training.

In all years, the areas that students report most support from peers are for those outcomes in the skills domain, particularly those associated with taking patient histories, physical examination and data interpretation, and differential diagnoses (Table 80). Students are also reported to support one another with applying biomedical science and knowledge to medical practice. These are likely areas that students feel more confident and comfortable supporting each other with, and also are the more predictably assessed in OSCEs and MCQ examinations.

8.11 Summary

While there is much overlap in what the various roles provide support for, this support is often provided in different ways and with a different emphasis.

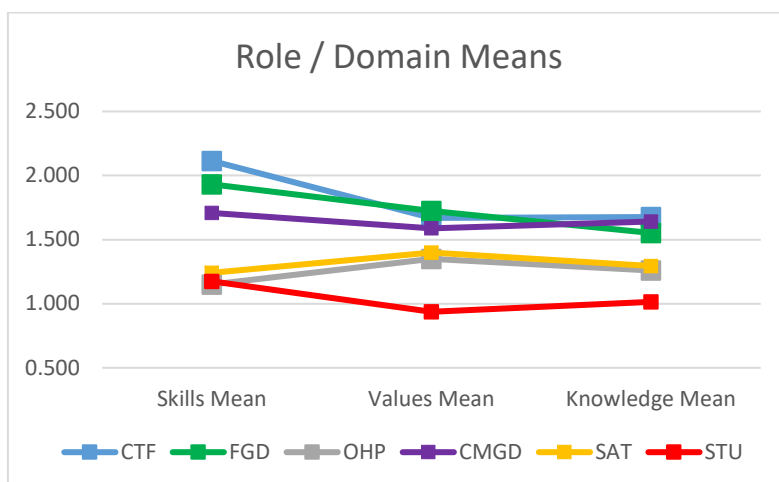


Figure 25: Average rating for each domain/role

Four roles, CTFs, FGDs CMGDs and STUs are perceived to provide more support in the skills domain than in the values or knowledge domains (Figure 25). The remaining two roles, SATs and OHPs are perceived to provide more support in the values domain than in skills or knowledge. It is also possible to see that the roles are roughly divided into two groups. Those which are rated above 1.5 for each domain (CTF, FGD, CMGD) and those which are rated below 1.5 for each domain (OHP, SAT, STU). Of the latter group, OHPs are only regarded as helpful for two of 17 outcomes and so their overall helpfulness rating is low. SATs do not provide much actual 'teaching' and do not see students in clinical areas. Their main role is to provide supervision and tutorial support, and students do not always perceive this role positively. Students are seen to provide a little support with some of the outcomes in the skills and knowledge domain, but the helpfulness rating is not high for any outcome.

The way some of the roles are perceived to provide support changes across the three years (Figure 26). In the third year students value the CTFs teaching of basic skills, whereas in the fifth year the students value the support provided by CTFs in providing simulation. This may explain the increase in perceived support for some of the values domain items. The FGDs are valued for providing opportunities for practising basic skills in Year 3, but more valued for providing opportunities to shadow and for allowing students in Year 5 to undertake some of the tasks of a doctor. In Year 3 students value the teaching provided by older students, but by Year 5 there is a greater emphasis on moral support. This may explain why the students' perception of support for the knowledge domain items decreases after Year 3. Of all the roles, CMGDs are the one for which perceived support increases in Year 4. This may be to do with increased contact and the specialty focused nature of the Year. Only one role,

the SAT has a reduced perception of support in each subsequent year. The practical utility of the SAT role appears to decline as their role in teaching and supporting learning decreases, and others such as FGDs are seen to provide orientation to life as a doctor.

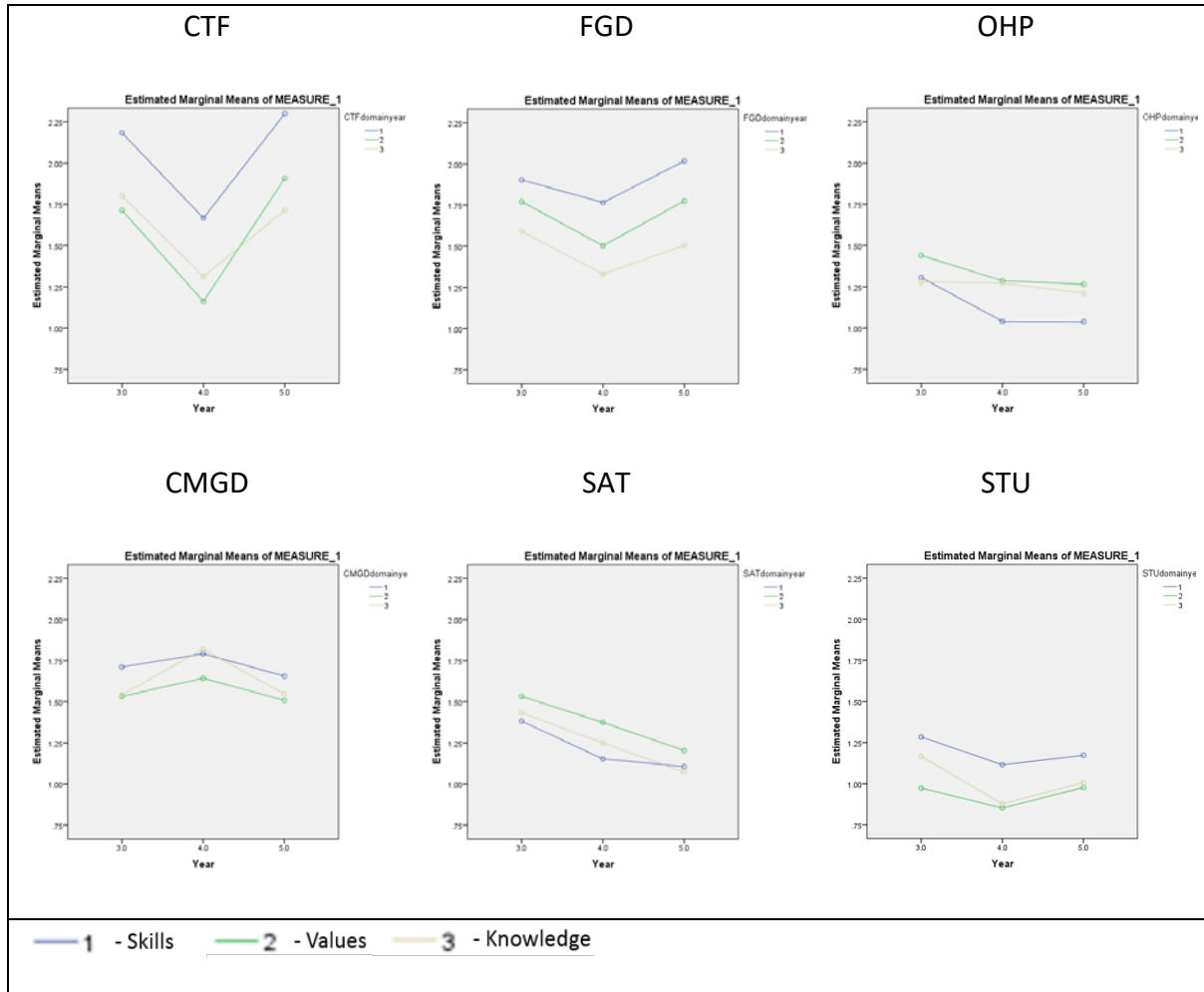


Figure 26: Rating of helpfulness for each role by students in each year

8.12 Chapter Summary

The good response rates achieved for the questionnaire survey have allowed statistical analysis of the results. These results show that there is similarity in how students perceive the way roles support them across years 3 to 5. This allows a picture to be built about the nature of support provided. There are also some changes in the perceptions of the students about how much support they receive and from which roles, and about the nature of this

support. For example, CTFs are seen to provide a lot of support with learning basic skills in year 3, and with some of the more practice focused outcomes in year 5, whereas in year 4, CMGDs rather than CTFs are seen to provide more support. This will be discussed in the next chapter. It is also seen that while there is much overlap in what the various roles provide support for, this support is often provided in different ways and with a different emphasis.

9 DISCUSSION

9.1 Introduction

This discussion looks at the contribution of the support roles that have been the subject of this thesis to a support matrix that helps students meet their professional development aims. The support matrix is set within the hospital community of practice (CoP) which is proposed as a good way to conceive of medical students' changing orientations to learning with time and to explain how the students report their changing relationships with the support roles. CoP theory is, however, only one possible way of conceptualising the context of student learning on hospital placement. It is also important to acknowledge that other theories of learning can help describe the students' learning. There are perhaps three strands of theory that might be useful to consider. These are identity theories, cognitive learning theories and social theories of learning. It will be contended that these are not mutually exclusive and can provide useful insights into facets of the results.

The discussion will start with an account of what constitutes the hospital CoP and some critiques of CoP theory acknowledged. This will be followed by careful consideration of how various theories of learning can be used to inform the analysis of the research results and add to the CoP explanatory model. Some of the themes emerging from the scoping review will then be examined in the context of this study. The discussion will conclude by looking at what has been learnt about the matrix of support for medical students and where the support is provided.

9.2 What is a community of practice and how is this revealed in this research?

This section starts with a reminder of how Wenger (1999) conceives of a community and what its characteristics and components are. The reasoning for conceptualising a CoP of hospital medicine in this study is then discussed. Finally, consideration will be given to what this research reveals about medical students' place in the CoP that is hospital medicine.

9.2.1 What is a community of practice?

Wenger et al. (2002) suggest that communities exist within a bounded domain that creates a common sense of purpose. In this study, the domain is that of hospital medicine and the purpose may broadly be described as the care of the patients in the hospital. Wenger (1999) suggests three basic characteristics of a CoP. These are mutual engagement, joint enterprise and shared repertoire. It is a little difficult to determine the difference between mutual engagement and joint enterprise, but for the purposes of this research it may be enough to say that mutual engagement is about doing things together and the nature of the relationships that exist in the community. Joint enterprise is more about how things are done. Some of the ways things are done may be negotiated between community members, others are more dictated by institutional demands. Examples of this may be some of the processes involved in providing care, such as operating theatre processes, ward rounds, handover meetings etc. Joint enterprise is also about accountability to the community for actions in the joint enterprise. Shared repertoire is about the skills and knowledge that

community members share, but goes wider than this to include the stories told in the community, the language used and artefacts involved. So as well as, for example, being able to take blood and interpret investigations, community members will have a shared language and things like patients notes, or prescription forms are integral to how the community functions.

Another defining feature of a community is that it is persistent and sustaining (Wenger, 1999). This perhaps derives from the fact that it serves a useful purpose for its members. Not all members may remain part of the community for a long period of time, but perhaps it can be suggested that it is difficult to engage in the community if members are not familiar with the routines, and discourses, and that this takes time.

Wenger (1999) also focuses considerably on issues of identity. He suggests that identity is linked to the community and members' identities can be defined through feelings of belonging to the community, and that identity develops as learners become more fully immersed in the activities of the community. Wenger proposes a trajectory from the periphery of the community to the centre.

The final point to note is that learning is conceived of as a social activity. Community members create new shared meaning through engagement in the practices of the community. This is in keeping with Eraut's (2000) notion of professional learning being non-formal and tacit in nature. This may help us explain how students move from the more overt learning required to meet medical school requirements to learning the practices and

discourses of the community, and how engagement with community members can foster this non-formal learning.

Communities evolve as members leave, and new members join. Communities need to be open and to be welcoming to new members if they are to persist (Wenger et al., 2002). This leads to a brief exploration of the notions of educational environment and educational climate, as the perceptions of students about the community of practice may be rooted in these concepts. The roles which support students in hospital placements, whether on-stage or off-stage will be creating the educational climate that students experience. The educational climate might be regarded as a measure of the openness of the CoP. Therefore the factors that influence the educational environment are also factors that will shape a student's impression of the CoP and perhaps their motivation to engage in its activities.

9.2.2 How to conceptualise the Community of practice for this study

Can we use the CoP theory as a lens to view students' learning on hospital placement?

Perhaps the first task is to define the CoP.

9.2.3 Of hospital medicine?

In this thesis I have described the CoP as being that of hospital medicine, that is all doctors who work in a hospital in any specialty, including surgical specialties. This is based on the premise that all students want to become doctors and therefore have aspirations to join the community. All the roles included in the survey, with the exception of Other Health

Professionals (OHPs), are representatives of different grades of doctor or, in the case of medical students, aspiring to become a doctor. This raises the question about whether OHPs should be included in the community. I would argue that while the repertoire and discourses may be a little different, the principle aim of providing patient care means that they are at least allied to the community. The emphasis on team work (NHS England, 2015), the development of extended roles (Oxtoby, 2009; Lmison et al., 2016) and the use of structured communication tools (Buckley et al., 2010) arguably reduce some of the differences between OHPs and doctors. However, it is important to note that the students' trajectory towards the centre of the community will not take them into roles occupied by OHPs but into the roles occupied by Foundation Grade Doctors (FGDs) and Consultant and Medical Grade Doctors (CMGDs). It is also possible that students could if they chose become Clinical Teaching Fellows (CTFs), or Senior Academy Tutors (SATs).

9.2.4 Of undergraduate medical education?

A possible alternative is to conceive of a CoP of undergraduate medical education, but this presents some problems if using it to explain students' learning. First, which roles are central to and peripheral to the community? It could be argued that CTFs are closest to the centre of the community as they spend the most time engaged in undergraduate medical education, probably have the best grasp of the students' curriculum and are arguably those with the greatest degree of expertise in teaching. Similarly, FGDs are close to the centre given their familiarity with the curriculum and understanding of students' needs. CMGDs, however, are perhaps peripheral as they only engage in medical student teaching

occasionally. Second, if this is the case, is there a clear trajectory towards the centre of the community as the doctor grade increases? Some CMGDs may choose to become more involved in undergraduate education and undertake a qualification in education to support their role, but this is not a trajectory all will choose to take, as some will focus on other aspects of their CMGD roles. There is also a problem with the conception of a CoP of undergraduate medical education, which is where to place the students themselves. Are they already at the centre of the community as the true experts in their own learning? Is it possible to begin a journey at the centre? Perhaps instead, students are at the periphery, and may choose to become fuller members if they participate in undergraduate education activities as an FGD and more so if they decide to take on a job as a CTF? This is very possible, but this is more of a niche community, and not one to which all students would aspire.

It seems more useful then to regard the CoP as that of hospital medicine as it encompasses all roles and allows for a trajectory for all involved.

9.2.5 Peripheral legitimacy

The reorientation towards learning the job as opposed to learning that which is required by the medical school may partly result from students' self-perception at having learnt enough for them not to be in the way. It has already been noted that hospitals can be busy and daunting places for medical students. To explain this perhaps it is helpful to adapt Bourdieu's (1977) ideas about capital. Instead of social capital we may conceive of the

notion of learning capital. As students (and others) learn, then more learning capital is acquired. In this analogy, once enough learning capital is acquired, perhaps off-stage, or prior to hospital learning, this can be used as a down payment or stake that allows a students to enter the 'game'. In this case the game is hospital medicine. Once in the game students continue to learn, and this allows them to continue playing and perhaps access different levels of the game, where more learning is undertaken and more learning capital accrued. Learning capital will be perceived both by students and those who support them. The down payment or stake to enter the game is not a definable amount, but in this case depends upon individual student's confidence or self-efficacy. They enter when they think they have enough. The notion of learning capital perhaps allows us to consider when students perceive themselves to be ready to begin their journey from the periphery, and why students in Year 3, perceive the need for teaching input and prioritise it above experiential learning. Support roles may also perceive the capital in a different way. Students who appear to have learning capital might be deemed a 'safe' investment and allowed a greater degree of participation in the work of the community.

9.2.5.1 Students developing orientation towards and penetration of the community

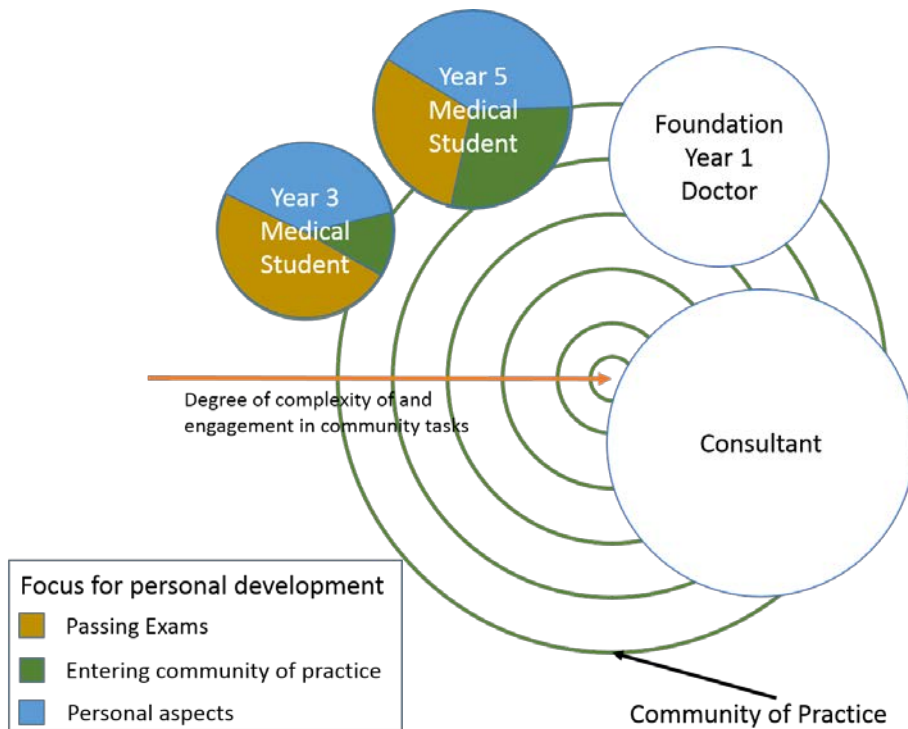


Figure 27: Degree of penetration of the community of practice

Figure 27 attempts to provide a graphical depiction of the students' orientation to the community. The figure also shows two other community members – the FGDs and consultants. These two are depicted as they are roles students may in turn take on. They exist naturally within the community rather than being created specifically to support students. The size of the circle is meant to indicate developmental level. The proportion of the member's circle inside the CoP shows how far embedded and acculturated into the community a role is and perhaps how much it defines their identity. The nearer the centre a member's circle is the greater the degree of complexity of community tasks the role undertakes and the more central to community functioning. Hence the consultant is central to the functioning of the community, is the expert in the tasks of the community and is defined by, as well as helps define, the community. Turning attention to the students, the

fifth years are further embedded into the community than are third years. The coloured segments indicate the focus for personal development. Third years are perhaps more concerned with passing exams, and so their focus may be less towards joining the CoP. The orientation of the segments suggests that third year students do not yet appreciate that participating in the activities of the community is good preparation for assessments. The fifth years remain concerned to pass exams, but are now also very much focused on learning to participate in the activities of the community. There is also a greater appreciation that participating in the community is helpful in passing exams. The blue segments simply show that students have other concerns than merely those of being a medical student. Similar segments have not been identified for the two other roles, as they are not the primary focus of study.

9.2.6 Summary

This section has put forward the reasoning behind using the hospital CoP as a conceptual framework for looking at student learning on hospital placement. It provides a foundation for discussion of the main findings of this research project; students' changing orientations to learning as they progress through years 3 to 5 of the MBChB programme, and their interactions and relationships with various support roles over the same period.

9.3 What critiques of Community of practice theory exist?

In the following section, some of the critiques of CoP theory being used to conceptualise the context of student learning on hospital placement are outlined and considered.

9.3.1 Hierarchy

One critique of CoP as a theory to explain the learning of medical students during clinical placement is that it does not pay enough attention to hierarchies or power dynamics (Hodkinson and Hodkinson, 2004; Kerno, 2008). An individual's place in the hierarchy will affect the resources available to them and affect how they undertake their learning, and also their orientation to and purpose for learning. Hierarchy is an acknowledged feature of medicine, and to some extent this is acknowledged as part of the trajectory from the periphery towards the centre of the community. There are useful points to make, borrowing from Bourdieu (1977), about social capital. It may be argued that those with less social capital may feel (or be) somewhat marginalised in a community, and perhaps this means that these individuals find it harder to move from a peripheral status in the community. Those who have more social capital may find it easier to pick up the ways of the community, interact with other members and therefore find their trajectory towards the centre a smoother process. To give an example, those students whose parents are medics may find the CoP of hospital medicine one with which they already have some familiarity and in which they are better able to negotiate learning opportunities.

9.3.2 Resistance to change

There are criticisms that communities of practice can be resistant to change, as those towards the top of the hierarchy preserve practice as they have learnt it (Roberts, 2006).

This may lead to a disconnect between what is valued in the community, and what is expected of students. Perhaps this is an example of the theory practice gap. This gap between the way things should be done and the way they are done, is perhaps where the hidden curriculum has some of its foundation. It may also lead to tensions between students' expectations and their experiences, and this can affect professional identity formation.

9.3.3 The place of formal learning

CoP has been criticised as a theory because all the emphasis is on informal, on-the-job learning and formal on-the-job learning is downplayed (Hodkinson and Hodkinson, 2004).

This is a reasonable criticism in the author's opinion and to some extent the borrowing of Sinclair's (1997) notion of on-stage and off-stage, which is discussed in Section 1.6, acknowledges this. It places off-stage activity, where much of the formal learning by medical students takes place, as being away from the community, but still essential as preparation for participation in it. Perhaps off-the-job learning helps with participation in on-the-job learning. It could be argued then that by assimilating the concept of on-stage and off-stage learning as an integral part of the formation of a functioning community, the case for using communities of practice theory to explain how undergraduate medical students learn is strengthened.

9.3.4 Is it a community?

Another potential criticism of using CoP theory as described in this thesis, centres on the use of the word 'community' itself. 'Community' evokes something warm and cosy and intimate. However, to be successful, as Wenger acknowledges, whatever their size communities need to be open and welcoming to new members. Size may also be seen as an issue if the community is spatially separated (Roberts, 2006), and other societal and cultural factors, and local imperatives serve to create some divergence in the sense of purpose of the community. This may be a legitimate critique, but perhaps not of the CoP of hospital medicine, where the community arguably has similar goals and a shared discourse and repertoire. Two hospital doctors are never usually stuck for something to say when they meet, and most often conversation is about aspects of work.

9.3.5 The role of individual differences

The final criticism of CoP theory relevant to this discussion is around the issue of individual dispositions. Roberts (2006) uses Bourdieu's (1977) idea of habitus to make this critique. Habitus is a set of dispositions developed through interactions and experience. Dispositions as conceived by Bourdieu are fluid and change with experience, but are often shared by people with similar backgrounds. In the context of undergraduate medical education, individuals will have developed dispositions prior to engaging with a CoP, and these will shape how they learn within the CoP. This mirrors Bandura's (1986) ideas about personal factors affecting learning, and is what Sinclair (1997) based his outline of medical student

dispositions on. If we accept Bourdieu's view that dispositions are changeable, this allows for professional socialisation or professional identity formation and also allows for community members to absorb the behaviours and goals of the community as part of the process of 'becoming' or 'belonging'.

9.3.6 Summary

This section has carefully considered critiques of CoP theory in relation to the research of this thesis. While several criticisms are acknowledged to make valid points, it has been argued that these do not negate the central premise that a hospital CoP can be used to conceptualise student learning on hospital placement.

9.4 The explanations afforded by other theories of learning

In this section, the explanatory power of a range of pertinent theories of learning will be considered. These theories range from those more based in identity theory, through theories using cognitive theories of learning to social theories of learning. These provide useful explanations for student orientations and behaviour that build on explanations rooted in a CoP framework.

This is not the place for an extensive review of identity theory; however, identity theory informs the more educationally oriented theories of self-authorship and transformative learning. There are links between self-authorship and cognitive theories of learning through notions of crossroads experiences which includes the concept of cognitive dissonance or disorientation. Cognitive learning theories inform social cognitive learning theory which in

turn contains ideas of self-regulation. Social constructivism helps us understand the relationship between learners and those they learn from and activity theory can help look at the nature of particular activities. While these may all help explain to some extent the changes in orientation to learning and the changing nature of relationships with support roles, they lack the idea of trajectory. If a medical student is asked what they want to do when they graduate they will hopefully reply that they want to be a doctor. This suggests that the learning can be conceptualised as students being introduced to a CoP that they want to join and then engaging with it more fully. This discussion will contend that although medical students are individuals, they learn with and from others, and while this learning may effect changes in individuals, it also affects their relationships with others. There may be diverse purposes for learning, but ultimately for medical students a significant purpose is to join the ranks of the medical profession.

9.4.1 Self-authorship

The development of self-authorship across the inter-related cognitive, interpersonal and intrapersonal dimensions (Magolda, 2001; Sandars and Jackson, 2015) can be used to provide theoretical insight into student changes in orientation to learning and their changing relationships with support roles.

During the central, crossroads phase of the journey to self-authorship (Magolda, 2008, Johnson, 2013) learners engage in new internal meaning making when exposed to new external influences in a supportive environment. This is accompanied by a shift away from a

reliance on authority figures towards self-authority. Is this the case for medical students?

Arguably medical students, given the nature of the programme, should find themselves regularly challenged by experiences they have while on placement and have access to others who can support them in how they react to or reflect on these experiences.

On the MBChB programme, we can speculate that students in Year 3 perhaps lack self-confidence and may be looking for authority figures and absolute knowledge, which may be seen as key to passing assessments. This may then promote the reliance, noted in this study, on CTFs to provide formulae for undertaking basic skills such as history taking and physical examination. It may also actually create some aversion to experiential learning where experiences are messy and there may appear to be multiple ways of doing things. Students will not have developed the confidence in their own identity and ability to make judgements to decide what they think fits with their own beliefs and values.

By Year 5, however, students are likely to have developed greater confidence and become more capable of self-authorship. They may, through experience, have begun to appreciate that knowledge is complex, and developed a greater tolerance for this. Therefore FGDs, who expose students to the diversity and complexity of the clinical arena, arguably become more important. Positive comments about CTFs in year 5 could be related to the challenge (and subsequent support through debrief) that students receive from CTFs who facilitate high fidelity simulation sessions with the students. Given that techniques such as appreciative enquiry are used, are students being challenged, for perhaps the first time, to consider multiple perspectives?

The picture is more complex in Year 4. Given the requests for more CTF input, the data suggests that some Year 4 students are still looking for certainties and guidance from authority figures. The nature of the short placements in different specialties may not allow relationships which both support and challenge students to develop, and some learners may have their progress towards self-authorship protracted (Sandars and Jackson, 2015). Development of self-authorship may perhaps stall and students may instead focus on what they are comfortable with, such as learning for exams. Perhaps more engagement with SATs to explore issues of personal development alongside checking on developing competence may be a consideration. As Hodge et al. (2009) note, one of the roles of an educator is to help students see that their experiences can support their development.

What about other roles in the support matrix? The roles of the FGD and OHP are largely framed as supportive by all students in that they can teach core skills and provide opportunities for practice. This may be just what is needed in year 3, as it allows students to become more confident and eventually to focus less on instrumental learning. Perhaps these roles take the pressure off others to provide support. Students report CMGDs as being experts and great teachers, but also note they can be hard to engage with. This suggests that perhaps while CMGDs provide challenge, some students may prefer a more supportive relationship. Many students do not perceive the utility of the SAT role, although others report positive experiences. This seems to be more about the variability in how SATs undertake the role. Some clearly do provide support, both academically and pastorally.

Others challenge students through requiring them to present cases, or to reflect on experiences among other things.

Perhaps one of the reasons students provide positive reviews of CTFs, FGDs and sometimes of SATs, is because these roles know the students' level better and can provide appropriate amounts of supportive challenge. Since it is unlikely those holding these roles will be aware of self-authorship, are they serendipitously working within an appropriate tier for the students' stage of development? In contrast, CMGDs who may only have fleeting interactions with students will find it more difficult to provide students with an appropriate level of supportive challenge.

Any explanation accounting for changes in student orientation to learning over time and their changing relationship with support roles should take account of self-authorship theory. Students on hospital placement will be at different stages of self-authorship development (Magolda, 1998) which in part will likely determine how they respond to crossroads experiences and shape the nature of support required. An interesting question is whether it is within the remit of all support roles to balance support with challenge. Perhaps, given the fleeting interactions and lack of knowledge of student requirements by some roles, is it sufficient to have an appropriate matrix of support that overall provides students with, and guides them through, crossroads experiences? Students may also be able to support each other through a process of co-authorship (Bergh, 2016) as they share experiences and support each other while on placement. This process of sharing and co-authorship could

result in students developing new orientations to knowledge and new orientations to the support roles they encounter.

9.4.2 Transformative learning

Moments of transition are known to be tough. Third year medical students face a very new learning environment when they first arrive on hospital placements. There will be lots of new things to learn, students may feel the need to create a good impression and fit in, but it is also likely that the experience will be challenging to previously held perspectives as they encounter 'disorienting dilemmas' (Mezirow, 1997).

Until students have learnt some of the knowledge and skills required, they may feel it is difficult to make a good impression on the ward. This may mean that students focus on learning the knowledge and skills that they perceive they will need for assessment purposes, but that will also enable them to create a good impression and perhaps enables them to participate more in clinical activity. In short, year 3 students focus mainly on instrumental learning, with occasional forays into impressionistic and/or normative learning. It is not surprising then that students report very favourably their experiences with CTFs who are specifically employed to teach medical students. Perhaps it is this understood relationship between 'teacher and learner' that relieves the students of some of the burden of impressionistic learning (Habermas, 1981, cited in Mezirow, 1997). CTF supported forays into clinical areas for bedside teaching may further support students' learning through observation of how things work, thus providing students with some idea of how to fit in.

Discussion with CTFs, either in small group teaching or after clinical experiences, may also help students adjust to the new learning environment and potentially reduce some of the disorientation students feel. FGDs and CTFs, given their near peer proximity to medical students, may be valued as they understand what it is to be a Year 3 medical student, and can also help students consider how to succeed in year 3. The experience of third year students with SATs and CMGDs seems much more variable. While SATs have a remit to engage students in reflection it is not always clear this happens, or that it is perceived to be useful. Is this a missed opportunity for transformative learning?

By Year 4, it might be hoped that students would have learnt many of the core skills required to take part in clinical activities (albeit as a peripheral participant), will have spent some time in clinical areas and have a better idea of expectations. Year 4 students do not have much contact with FGDs and CTFs and move frequently from specialty to specialty. The need to be constantly reorienting to new environments may distract from instrumental learning and perhaps also suggests that students may not develop the relationships with hospital staff that might foster transformative learning.

In Year 5, students are facing another transition this time to becoming a junior doctor. The focus of learning seems to move towards learning the job as opposed to discrete skills development. Shadowing FGDs is reported positively in year 5, with FGDs sharing insights into how to 'get by'. CTFs are also valued for providing simulation with the subsequent debrief likely to provoke reflection.

Perhaps there are some lost opportunities for transformative learning in Years 3 to 5, as students do not keep a reflective portfolio, and hence there is little requirement for reflective discussions, particularly with SATs, within whose remit this might fall. Students do report that some SATs engage them in useful reflective conversations, discuss interesting cases or give insights into how healthcare is undertaken. However, there is a great deal of variability in how SATs (and CMGDs) undertake their roles, potentially leading to lost opportunities for communication which can lead to transformative learning.

It seems reasonable to assume that transformative learning can in part help to inform the picture we are developing of how students engage with learning while on hospital placement. The theory of transformative learning aligns with the theory of communities of practice in that in order to join a community you have to learn and be able to do some of the things that form part of the shared repertoire. This perhaps provides the 'learning capital' that enables students to participate more in the activities of the CoP. Part of joining a CoP is about re-shaping your identity as part of that community which will lead to a desire to create a good impression and to fit in. The transformation here may be incremental transformation from the identity of being a medical student to being a doctor. Much of this may be learned through 'talk' (Stevens et al., 2014) through communication with members of the community while engaged in activity on placement.

9.4.3 Social Cognitive Theory

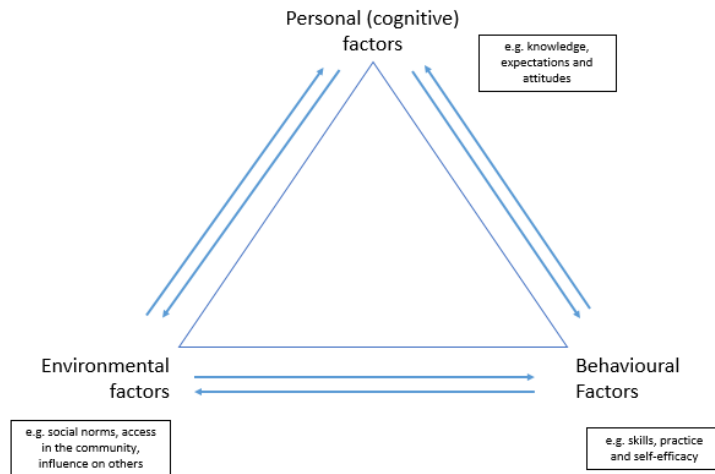


Figure 29: Social Cognitive Theory

Can social cognitive theory (Figure 29) provide us with an explanation of student learning during hospital placement? Bandura (1986) provides us with the idea of three interrelated concepts that affect and are affected by each other. These are; personal factors, behavioural factors and environmental factors. To put this in a medical education context, the acquisition of knowledge may lead to the development of skills. This may affect self-efficacy and the willingness to seek out opportunities to practice. This willingness to seek out opportunities may enable students greater access into the community. In turn this greater access may allow for the development of new skills and consequent increases in self-efficacy, or a change in attitudes as one is more accepted by the community. In many ways this mirrors the trajectory outlined in a CoP, where members move from the periphery towards the centre as they develop more of the shared repertoire of the community. This can perhaps allow us to incorporate other ideas about the prerequisites for student learning.

It might be argued that the environmental factors include the educational environment and educational climate. For example if verbal encouragement exists in a good educational environment, this can lead to greater self-efficacy and therefore a greater willingness to participate in the activities of the community. Perhaps also some of the skills may be learnt off-stage and then used on-stage.

Therefore social cognitivism as outlined above does not seem like a competitor theory which has a better lens for examining the process of student learning on hospital placement.

However, it should be noted that the interplay between the environment, behavioural factors such as skills development and self-efficacy and the personal factors involved in the development of attitudes and expectations, is a good way to describe professional identity formation. It should further be noted that there is a useful focus on the individual in social cognitivism. This point was discussed earlier as a critique of communities of practice theory.

9.4.4 Self-regulatory learning

To take control of their own learning students need to engage in effective self-regulated activity. This involves managing their emotions, summoning the motivation necessary to undertake a task, and then deciding how to undertake the task. Monitoring their progress throughout and then forming accurate perceptions of how they performed can allow students to perform similar tasks more effectively in the future.

Hospital placements are a new context for students, where both the nature of the learning environment and the types of skills being learnt are quite different to students' prior experience. Berkhout (2018) provides a nice image of students as pinballs when they first arrive on hospital placements, spinning haphazardly and unplanned from one learning opportunity to the next. To help students adapt to the new learning environment requires context-specific support from teachers or supervisors (Berkhout et al., 2017 and 2018).

When students first arrive on hospital placement it is helpful for someone to provide them with some structure and encouragement to do things, especially if the new environment is daunting. This may require working through how to undertake an activity (cognitively) as well as ensuring students understand why it is important to engage (motivation) (Berkhout et al., 2017 and 2018). If there are perceived barriers to engaging in activity, students may 'acquiesce' and not actively pursue learning opportunities (Wood et al., 2016). By providing feedback on observed activity and helping students engage and reflect on their own performance, educators can help students develop their self-regulatory capacity. If this is done sensitively, students should become more aware of what they are capable of thereby building confidence and increasing self-efficacy. This potentially makes it more likely that students will engage in similar tasks (Bransen et al., 2019; de Bruin, 2017; Sandars and Cleary, 2011).

9.4.4.1 Clinical Teaching Fellows

The way the MBChB curriculum is organised, CTFs predominately support Year 3 and Year 5 students. Given that CTFs provide a lot of the teaching and support to third year students in

either classroom-based teaching sessions or 'bedside teaching' (described elsewhere in this thesis), they are perhaps the best placed role to help Year 3 students develop their self-regulatory capacity. CTFs provide the teaching that should help students think through activities they engage in and are known to provide encouragement to students. Since CTFs are thought to have a good understanding of the curriculum they can also help students see the importance of tasks. Debrief sessions after bedside teaching or classroom-based activity can be used to provide feedback that will help students understand their performance.

Undertaking high-fidelity simulation supervised by CTFs may be an important component of developing year 5 students' capacity for SRL. Thinking through a scenario beforehand, and the process of debrief, which often enquires into students reasons for undertaking tasks as they did, may help students develop an understanding of their performance, but also the reasons for their performance, which will be useful in future similar (real) situations.

9.4.4.2 Foundation Grade Doctors

FGDs appear to have little contact with Year 4 MBChB students. Looking at where students do interact with FGDs, this seems to take place on the ward and with year 3 students around practical skills development, with FGDs often observing students undertaking procedures. This suggests that they are perhaps well placed to support students developing their within-task (volitional) self-regulatory capacity. This is done possibly through asking questions as a procedure unfolds and perhaps supporting students through a micro-analytic approach

(Sandars and Cleary, 2011). The provision of feedback is again important, which helps students judge their performance and continue to develop both their sense of where work is required, and a sense of self-efficacy. FGDs probably spend a lot of time talking to year 5 students while they are being shadowed, which can give students an insight into how to undertake tasks as they are being performed and reflection once the task is completed. Perhaps watching someone engaged in the process of self-regulation can promote the development of a self-regulatory capacity in the observer, in this case a fifth-year student?

9.4.4.3 Other Healthcare Professionals

OHPs are known to provide a lot of support with clinical procedural skill learning. This, as is the case for FGDs, suggests that a micro-analytic approach (Sandars and Cleary, 2011) may be useful.

9.4.4.4 Senior Academy Tutors

SATs are less likely to be engaged with students in the performance of individual tasks and more likely to provide general support to students such as helping them to plan their learning and providing encouragement to stimulate the motivation necessary to engage in tasks. Engaging students in reflection of their experiences will help students recognize what they have learnt and identify where further learning effort might be required. In year 4, given the lack of significant interaction with many of the matrix of support roles, the SAT role might be regarded as more important at a macro level. Here helping students reflect on diverse learning experiences and helping students devise their learning goals and working up

strategies for achieving their goals could support the students in the development of their self-regulated learning. SATs, through discussing activities the students have engaged in could help them make sense of the feedback they have received – whether this is self-generated feedback based on reflection or feedback from others received through being observed undertaking tasks. One of the reasons why perceptions of the SAT role decline a little bit in the fifth year could be because students have developed better self-regulatory capacity and a greater sense of self-efficacy, and need less support in this aspect of their development from SATs as a result.

9.4.4.5 Consultant and Middle Grade Doctors

The potential for CMGDs to help develop self-regulated learning in students is less clear. There is some suggestion that CMGDs provide feedback on activities but students could perhaps benefit most by observing CMGDs engaged in clinical activity. If in the process of acting as role models CMGDs vocalise their thought processes, this could help students in developing their own capacity for thinking through tasks. Students are reported to look for support from more senior grades as they progress through the course (Berkhout et al., 2017) but this research study suggests students value input from CMGDs most in Year 4. As discussed elsewhere this may be due to how the curriculum is organised, and in particular the lack of contact with CTFs in fourth year.

9.4.4.6 Students

Since students tend to compare themselves to their peers, it is possible that perceiving performance to be on the same level as others is both confidence building and motivating. Sharing thoughts about how to engage in learning may also be useful. Feedback received by year 3 students from year 5 students is likely to be perceived as valuable, since year 5 students know what is expected of a year 3 student and will pitch advice at the correct level.

9.4.4.7 Development of self-regulation over the course of the MBChB

Self-regulation theory can also help explain students' changing orientation to learning over the course of the MBChB programme. Fifth years, with two sets of exams under their belt, should have developed a greater sense of self-efficacy, in many aspects of their learning. This may provide year 5 students with the confidence (learning capital) to engage in new activities where prior learning can be useful. As discussed elsewhere the year 5 students' orientation to learning may have changed as they become more focused on learning the job, than learning to pass exams.

9.4.5 Social Constructivism

Analysis of the free text comments suggests value in Vygotsky's (1998) ideas of social constructivism, as students report a desire for support staff to know what students need to

know and to provide practical support in learning the required skills and knowledge at the right level.

Year 3 students place a lot of value on having people in support roles who know their curriculum, who know what they need to learn, and who have recent experience of the same, or similar, curriculum. This suggests a desire for a More Knowledgeable Other, for someone who knows what the students know, is able to support the students learn skills and knowledge at an appropriate level. In other words, someone who know what the students' Zone of Proximal Development is, and who is able to work to support students within it and therefore to extend it. The support roles most often noted as being best placed to know what a third year medical student knows and should know are CTFs, FGDs and students.

The comments provided by students in Year 5, however, suggest that the ways these roles are seen as useful has changed from when students are in Year 3. The CTFs are noted for providing scenario-based simulation sessions. These are designed to prepare students for their first jobs as FGDs rather than prepare students for exams. CTFs are also positively evaluated for providing practical teaching sessions about the things students will need to know and to be able to do once they have become an FGD. An example of this is death certification. FGDs remain noted for providing opportunities, but there are a lot of comments about shadowing and learning about the tasks undertaken by FGDs. Students, on the other hand, become more valued for the support they can provide and the acknowledgement that it is useful to learn from the experiences of others, suggests a sharing of the stories and the discourse of the community. Perhaps therefore we can see that the

perception of the students in Year 5 towards CTFs, FGDs and other students is to see them as a 'journeyman', someone with valuable experience that can help the student survive in and navigate their way through the community. The community that fifth years will join in the coming year.

9.4.6 Activity Theory

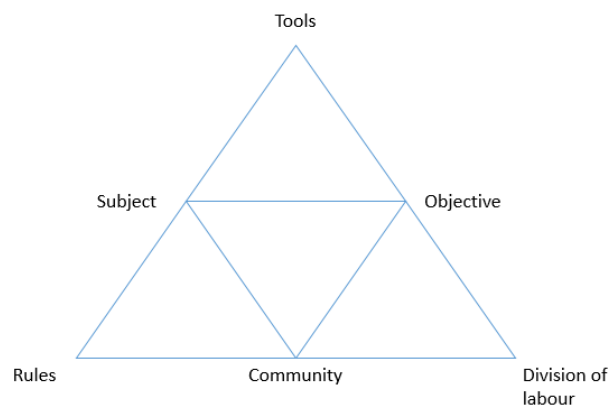


Figure 28: Activity Theory

In activity theory Engeström (2001) argues for the interplay of many factors in activities undertaken (Figure 28). The subject of the study, the person undertaking the activity, has an objective that will influence activity and the relationships with others, the 'community', who are involved in achieving the same objective. Engeström argues that there is a division of labour as to who in the community does what and that the activity in question is also subject

to rules and social norms which bound and guide the activity. A range of 'tools' are used to support completion of the activity.

We can apply Engeström's activity theory to the context of undergraduate medical education. In this case the objective of the medical students, the subject, could for example be to pass exams or become a doctor. The support roles in the community share the same objective. The matrix of support described in this thesis fits well with the concept of a division of labour amongst community members. The tools and rules that Engeström envisages as bounding and guiding the activity might perhaps be seen as reified objects. Wenger (1999) describes reification as giving the abstract 'thingness' so it can be made more concise and shareable. Therefore things like curricula, handbooks and other codified objects, perhaps such as protocols and guidance from the GMC may be included here. Tools could also learning resources, but could potentially include things such as patients, which are necessary for student learning. (Though, an argument could be made to include them in the community (Okun et al., 2014), as patients do share some investment in supporting the training of future doctors.) It may perhaps be worth noting that in the context of undergraduate medical education, students may have objectives which are not fully aligned with other members of the community. For example, students may initially have a greater concern with passing exams, and this may be at odds with other members of the community who perceive themselves as bringing on the next generation of doctors.

In conclusion then, activity theory is perhaps useful in giving another perspective, but it does not contain the notion of a trajectory, or really deal with the development of those engaged

as a process of community engagement. There are, of course, criticisms of activity theory, but as it is not the lens through which this thesis looks at student learning, it is not the place of this thesis to describe them.

9.4.7 The Complementary nature of the selected learning theories

9.4.7.1 Development

As might be expected, many of the learning theories discussed in this thesis are concerned with the development of the individual. Whether this be the development of the learner's meta-cognitive abilities that guide thought and activity before during and after learning events (self-regulatory learning theory), the way learning events can have a transformative effect on an individual (transformational learning), or how a student progresses towards being able to use their own beliefs to form judgements about new knowledge (self-authorship). Or whether it is how learners develop as they are supported in the construction of new knowledge onto existing foundations or develop as members of a community as they learn its shared repertoire.

9.4.7.2 Social relationships

The importance of 'others' in supporting the development of learners is acknowledged as important in all the theories considered. The notion that learners benefit from support from those who understand their context and can help them interpret it is common to all. While names may not be given to these roles in some theories, it is perhaps possible to see them as synonymous either with Vygotsky's More Knowledgeable Other, supporting learners in

building new knowledge on previously established foundations, or the 'journeyman' supporting learners in their understanding of the new contexts in which they are as yet only peripherally participant. These roles provide support for developing self-regulatory capacity or in processing the crossroads or transformational experiences important in self-authorship and transformational learning theories.

9.4.7.3 Cognitive theory

Cognitive theories focus more on the internal processes taking place within an individual that support learning. Perhaps stemming from Piaget, (Muller et al., 2009) these theories of learning explain how individuals attempt to assimilate new information into existing schemas. However, when new information cannot easily be assimilated into existing schemas cognitive dissonance occurs and a state of disequilibrium arises. This causes 'discomfort' in the individual who seeks to resolve the issue and may, as a result, move to a more comfortable state of equilibrium. Cognitive theories of learning suggest that the work that is done by the individual to return to a state of equilibrium is where real learning takes place.

9.4.7.4 Importance of others in development

However, the process of being exposed to new information that provokes a state of disequilibrium or the cognitive work undertaken to achieve equilibrium do not happen in a vacuum. Others will have an influence on the individual. This may be through the non-deliberate act of provoking disequilibrium while being observed undertaking activity that requires the individual to engage in processing (social cognitive theory), through to more

deliberate creation of situations where the individual will be exposed to new information that requires cognitive work (social constructivism). Here we can perhaps see a space for the Vygotskian notion of the More Knowledgeable Other who is able to support learners by creating situations where appropriate but manageable amounts of disequilibrium are provoked and to support the individual in the process of achieving equilibrium again.

9.4.7.5 Cognitive dissonance within the community

New situations which cause cognitive dissonance do not necessarily have to arise as part of a process of formal learning. The peripheral participant is likely to experience this as they begin their journey into the community of practice. Here again having someone able to support the process of assimilation of these new experiences into existing schema is likely to be helpful. The 'journeyman', outlined in community of practice theory, perhaps helps fulfil this role through drawing attention to aspects of the shared repertoire of the community that provoke disequilibrium and supporting the individual's understanding of their experiences.

9.4.7.6 Self-regulatory learning as a way to deal with disequilibrium

Self-regulatory learning perhaps sits slightly outside this discussion, but perhaps it may be argued that developing good metacognitive processes supports the individual in making sense of and processing experiences so they may be assimilated into existing schema, and also in deliberately seeking opportunities that create disequilibrium. Again, while self-regulation is an internal process, individuals can be supported in developing their self-regulatory capacity.

9.4.7.7 Disequilibrium and assimilation, crossroads experiences and transformational learning

The theme of there being experiences that are a catalyst for change within an individual is present in different theories. Ideas of crossroads experiences and transformational learning might be seen to have roots in the idea of disequilibrium and subsequent assimilation of the new information into existing schemas. An important point here is that new learning, as it is assimilated, may lead to changes in how an individual's schema are constructed, and hence to a change in the individual.

9.4.7.8 Identity

Experience and learning are seen as part of identity development in some theories. Through self-authorship individuals develop the ability to author their own identity as they become secure in their values and perspectives. In community of practice theory, an individual's identity changes as they become more immersed in, and consider themselves as belonging to, the community. If values and perspectives are shaped through 'belonging' to the community there is a link suggesting that being a participant in a community of practice may contribute towards self-authorship.

9.4.7.9 Changing relationships to support roles

Perhaps the theories discussed in this thesis may help us understand this. Elsewhere in this thesis the changing orientation to learning and to the community of practice are discussed and how this might affect the relationships between support roles and students are

considered. Perhaps looking at this from the viewpoint of the more cognitively oriented theories may add perspective to these changes. As students become familiar with the context in which their learning is taking place, the hospital, they may become more adept at recognising their learning needs and become more self-directed in meeting them. This development of students' self-regulatory learning capacity may mean there is less reliance on roles like the CTFs or SATs as students progress through the MBChB programme. These roles are known to encourage the students to consider their own learning development needs and to support students' reflections on their learning. Perhaps there becomes less need for this as students develop. As students develop, might it also be likely that the nature of experiences that might be described as crossroads experiences or transformational experiences will change? If as discussed elsewhere in the thesis, students develop the confidence to become more immersed in the activities of the hospital medicine community of practice, this may lead to more formative experiences. Therefore, roles such as FGDs assume more importance in supporting students thinking about and processing these experiences.

9.4.8 Summary: The context of the community

While many of the learning theories used in this thesis to help explain how learners might be being supported while on hospital placement can be used to describe learning taking place in all aspects of the learner's life, communities of practice is the only one to bound the learning process and explain it as happening within a particular context. This perhaps has both advantages and disadvantages.

This thesis looks at how medical students are supported while on hospital placement and has sought to define a community of 'hospital medicine' practice. It provides a way to conceptualise student development based on the students' journey through hospital placements in their undergraduate degree and suggests how this development may continue after graduation as students become more central to this community of practice. Within this other learning theories may have a place and can perhaps be used to describe aspects of the students' learning and development. In the opinion of the author, it does not seem that all these theories are contradictory, but rather they can be seen to serve together to give a better understanding of both the nature of the support available to students and the students' developmental processes taking place. Finally, it should be recognized that learners, individuals, or students, do not simply exist within the community of practice and, as has been explained elsewhere in this thesis, have lives and interests outside the community in which they will also be developing. How this development outside the community affects development within it is both difficult to determine and outside the scope of this thesis. This may be the subject of broader studies on identity development and perhaps of professional identity formation.

9.5 Themes from the scoping review

In this section, key themes emerging from the scoping review are discussed in relation to the results of the research undertaken as part of this thesis.

The first two sub-sections are in many ways a commentary on the educational environment.

9.5.1 **Welcome and access**

A key component of the educational environment is how welcoming and supportive it is (Roff et al., 1991; Gruppen et al., 2019). This was seen in the studies contributing to the Scoping review (Chapter 3). Given the nature of this thesis, being made welcome and being provided access to opportunities were attributed to particular roles, rather than comments made about the overall environment. The ‘provider of opportunities’ is a particular theme identified in the student responses, and is returned to in Section 9.7.3. This thesis provides further evidence that encountering a welcoming environment is important to students and encouraged engagement in learning.

9.5.2 **Management and organisation of learning**

Studies looking at student experience using a social theory of learning lens report that the way the curriculum is organised is acknowledged to be an important component of the educational environment (Genn, 2001), as are the physical spaces and timetables in how the curriculum is interpreted and delivered at a local level (Gruppen et al., 2019). This can perhaps be seen in students’ perceptions of fairness and a concern that they will have an equal opportunity to others in examinations. Certainly a concern about assessment is seen in this thesis. The importance of staff being familiar with and understanding the curriculum is seen in this study when SATs and CMGDs are perceived as either not understanding their role or of being a bit out of touch with students’ learning needs. Similarly, comments about how staff can be too busy to teach echo previous reports of support roles lacking the time to fulfil their commitments (Hagg-Martinell et al., 2014; Naidoo et al., 2019). The way the

MBChB curriculum is organised is suggested as a reason for some of the results seen in this study, particularly in the decreased perceptions of support in Year 4 (Chapter 8).

9.5.3 Role modelling and observation

The importance attached to role modelling and observation on hospital placement is reported in several studies that were selected for the scoping review (Adema et al., 2019; Goldie et al., 2015; Lindquist et al., 2006; Naidoo et al., 2019). While it may be expected that this theme might be predominantly reported by studies using a social cognitive lens, and there are some, many studies use a communities of practice or situated learning lens.

Interestingly, it is noted that students move from an uncritical stance to a more questioning one of what they observe, and this perhaps reflects the ideas of self-authorship. It is suggested that observing senior clinicians can be an exercise in exerting bio-power and the desire to fit in (a feature of cognitive developmentalism) can lead to a community that does not progress and where hierarchies are entrenched (Jaye et al., 2010). Role modelling and observing clinicians at work, were not much reported in the research for this study. This may be for a number of reasons. There is an expressed desire for 'teaching' and this seems to be prized more than spending time on the wards. The reasons for this are most likely linked to a focus on the requirement to pass assessments and are discussed elsewhere. It may, however, be that the way the question to the students was framed in terms of how roles 'support' their learning, may have encouraged students to report the more active examples of support. Finally, it is plausible that students used different terminology to reference the same thing. It is arguable that shadowing FGDs is similar to observing role models. This is something the students in year 5 of the MBChB report very favourably.

9.5.4 Engagement in activity

In the studies selected for the scoping review 'engagement in activity' is often framed within ideas of a CoP (Adema et al., 2019; Bartlett et al., 2018). The studies report ideas of engagement in patient care and some also discuss ideas of authentic activity with students being granted some autonomy and responsibility in relation to patient care. Certainly, one potential criticism of using CoP theory as a way to consider medical student experience is that they are not doing the job and are therefore not genuinely involved in patient care in the way that perhaps nursing students are. However, in the research for this thesis, there are reports of students reporting favourably about being invited to theatres and being 'scrubbed in'. While such experiences may be a bit contrived and lacking in autonomy, being provided with the opportunity to undertake clinical procedural skills is in a sense undertaking the tasks important within the community and is real and authentic in that it does involve real patients. FGDs are reported to allow students to undertake some of their tasks such as clerking patients, so again, in what might perhaps be regarded as a peripheral way, students are learning and participating in the shared endeavour of the community.

9.5.5 Feedback

In the scoping review, feedback was discussed using a number of theoretical positions. These included feedback from supervisors that helps students learn the profession and become part of the community (Fredholm et al., 2019; Hagg-Martinell et al., 2014). Feedback from what might be described as teachers or more knowledgeable others was aimed at supporting students' skill development (Beck et al., 2018; Dyer et al., 2019). These

could be more knowledgeable peers as well as other support roles. It is also suggested that longer term developmental relationships are important in ensuring students receive useful feedback.

In this study, feedback is not often specifically mentioned. However, CTFs are valued for providing feedback during teaching sessions, and it is noted that more senior students are useful teachers of practical skills, and this type of teaching is likely to incorporate feedback on performance. There is very little in the results about longer term developmental feedback. This is occasionally attributed to CTFs who have got to know the students well, and occasionally a SAT is noted for this. However, there is a sense in the first phase of this study that SATs don't really get to know students well enough to provide useful feedback, and since they do not observe them in the clinical area, cannot really comment on performance.

It is recognised that students' orientation to feedback can change, with students seeking it from more senior staff, and a desire for the feedback to be 'increasingly frank' (Dyar, 2019). This latter sentiment was expressed in Phase 1 during the focus groups in relation to the SAT role. Perhaps this change in orientation towards feedback suggests the value of self-authorship and cognitive developmental theory in supporting the explanation of the results of this thesis.

9.5.6 Peer learning

In agreement with published studies a number of themes related to peer learning or support are also evident in the research for this thesis. These are related to near peers teaching each other core skills and supporting each other in finding opportunities to practice these skills. Interestingly, the scoping review notes how students can work together to construct a shared identity, as is seen in the notions of co-authorship by Bergh (2016). Students in year 5 report providing support to each other and discussing experiences, which can perhaps be seen to be a similar undertaking.

9.5.7 Professional Identity formation

Students in the research undertaken for this thesis do not specifically discuss professional identity formation. However, this is perhaps implicit in how they begin to learn the repertoire of the community and engage in its shared endeavours since identity formation is part of becoming a fuller member of a CoP. Certainly, there is some reporting of discussions about career intentions and support roles are seen to discuss cases and reflect on their experiences. Adema et al. (2019) note how students initially engage in learning and activity to enable them to align with their perceptions of what it is to be a medical student, but progress in this to a desire to align more fully with the role of doctor. Perhaps that can be seen in this study, in the changing orientations students show between year 3 and year 5.

9.5.8 Summary

Many of the themes that emerged from the scoping review were supported by the results of this research project. For example, further evidence was provided for the importance of a

welcoming, supportive and well managed educational environment. Students benefit from role modelling, though this is seen in relation to FGDs; those whose roles the students will soon occupy. Later in the programme being engaged in the authentic activity of the community becomes important to students as they become concerned to learn 'the job'.

9.6 The support matrix

This section provides a novel view of the matrix of support provided by the six roles studied in this research project. The support matrix can be characterized in terms of where or how this support is provided and the primary function(s) carried out by each support role within the framework provided by the CoP of hospital medicine.

9.6.1 Off-stage and on-stage support

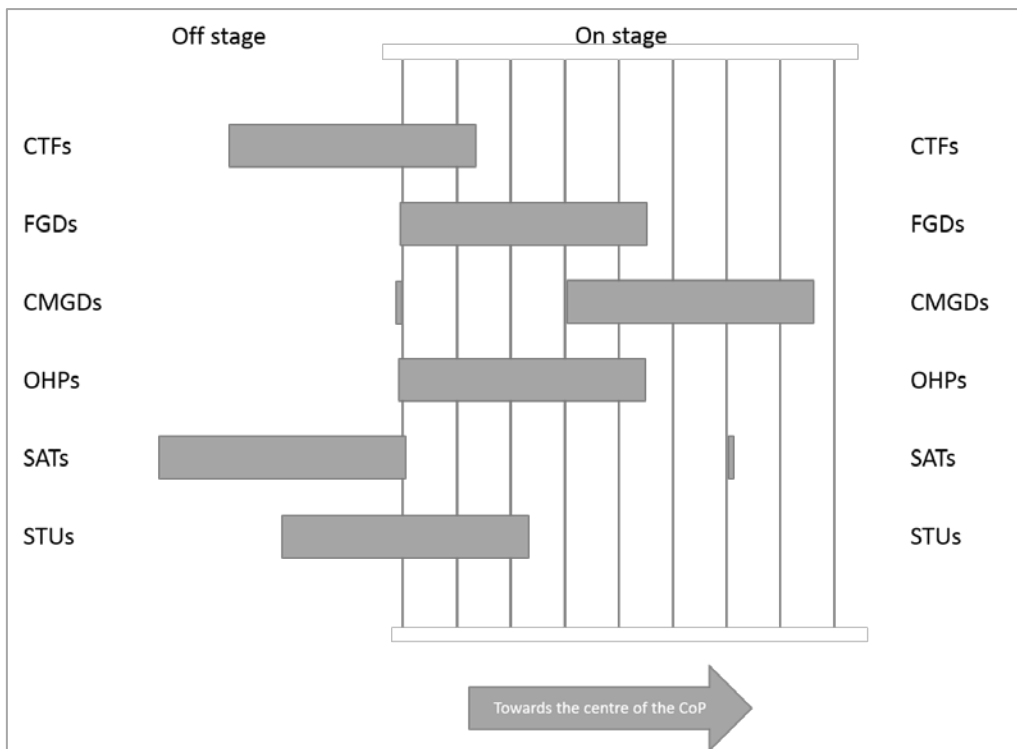


Figure 25: Support perceived by students according to role and where provided

Figure 25 above provides a pictorial representation of how the various roles provide support to students. The diagram borrows from Sinclair's (1997) notion of the 'on stage' and 'back stage' arenas where students are engaged in activities. Here, on-stage is the clinical environment or other areas where students may be engaged in the activities of the hospital CoP. The further to the right the closer to the centre of the CoP it becomes. The off-stage arena includes places like classrooms, common rooms or libraries, where students will be engaged in activity relevant to their learning, perhaps in preparation for performance on stage, or in reflecting on it. The placement of the bars on the diagram does not use numerical data, but uses the free text comments in the questionnaire survey in Phase 2 to determine the nature of the support received, for example for FGDs "*Allowing hands on experience of clerking, writing in notes, discharge notes. Gives practical advice*", suggest activity happening on-stage, whereas for SATs "*Useful meetings to review progress,*" suggests activity happening off-stage.

9.6.1.1 Off-stage

Two roles do most of their work with students off-stage, CTFs and SATs. However, while perhaps supporting students with some similar outcomes such as the skills of developing differential diagnoses and interpreting investigations, the way this is done is quite different. CTFs provide a lot of teaching, much of it on basic skills and in a sense spend much of their time preparing, or rehearsing students for their performances on stage. CTFs also take students on-stage and provide 'bed-side teaching' often identifying suitable patients for students to practise the skills that they have recently taught them. This provides a supported penetration of or introduction to the CoP.

SATs, while also providing students with some learning skills support off-stage, mainly get students to reflect on their on-stage experiences, either through discussing cases the students have seen or exploring other experiences. The small bar on-stage represents the fact that sometimes, if a SAT is working in a specialty that students need experience of, then they do spend time on-stage with the SAT.

9.6.1.2 On stage

Three roles, CMGDs, FGDs and OHPs mostly engage with students on stage. CMGDs are almost entirely encountered on-stage, often in the course of their job. However, they are reported to provide some bedside teaching and also on occasion to provide some 'classroom' teaching as part of students' timetabled sessions. CMGDs are usually closer to the centre of the CoP. Perhaps because they are encountered in clinical areas and are responsible for patient management, the students are able to gain understanding about some outcomes from them that is less available elsewhere, for example about formulating management plans, and supporting patients in making decisions about their care.

FGDs and OHPs may be described as having similar functions in that they are mostly noted for providing students with opportunities on-stage to engage in clinical activity. Students encounter OHPs when they are on the ward or other clinical areas and OHPs are noted only to provide support with a specific range of outcomes, and in particular support with clinical procedural skills. Some OHPs such as nurses who work as clinical skills trainers support the students off-stage by teaching procedural skills. Some also accompany students to clinical areas and support the students in identifying suitable patients to practice procedural skills

on and observe them doing it. In this way OHPs can also provide some support with helping students enter the CoP. However, as the skills OHPS support are considered to be 'basic' skills, even though they are practised on-stage this cannot perhaps be seen as drawing students very far towards the centre of the CoP.

FGDs are also noted for providing opportunities to practice procedural skills, but the support they provide students with on-stage goes beyond procedural skill practice and encompasses many of the activities that are part of the FGD's role. This extends from the skills and procedures needed to meet formal learning objectives to the less formal aspects of learning the job, and involves both teaching and allowing students to shadow them. For this reason they are seen to be drawing the students closer to the centre of the community than OHPs. FGDs are noted to provide some support to students off-stage as they do provide some 'classroom-based' sessions, but this is not a major component of the support noted by students.

It is more difficult to represent students on the diagram. They are seen to support each other with some of the basic skills, particularly those that will be assessed in OSCEs. Some of this support is done off-stage in common rooms or classrooms, but students also support each other on-stage as they work together in small groups and provide each other with feedback on patient interactions. However, in the fifth year this peer support is less directly to do with acquiring required knowledge and skills and becomes more about discussion experiences and patients seen.

Clearly, while there is much overlap in what the various roles provide support for, this support is often provided in different ways and with a different emphasis.

- CTFs: Off-stage teaching and introduction to the community
- SATs: Off-stage reflection and discussion about onstage activity
- CMGDs: Providing an insight into some of the more complex endeavours of the community
- OHPs: Some off-stage teaching in specific areas and provision of on-stage opportunities
- FGDs: Provision of on-stage opportunities and guidance further into the community of practice
- STUs: Peer teaching, sharing experiences and moral support

This suggests a complex but complementary matrix of support for students on hospital placement.

9.7 Role function

This section uses the free-text comments collected from students in Phase 2 of the study to further explore the type of support provided by the different roles that make up the matrix of support. When looking at the nature of these comments it is perhaps possible to discern four functions that the six support roles have when supporting students. These functions are: supervisor, teacher, provider of opportunities and provider of support (Figure 26). This

figure is not to scale but provides a graphical representation of the characteristics of the support roles. The four support roles are shown at the corners of the diagram, and the further towards the corner the role's line is pictured as being, the more it is perceived as undertaking that function. Therefore the taking the student as an example, it is seen as providing quite a bit of 'support', and 'teaching'. Students are only perceived to provide a few opportunities as the student line does not move far from the centre towards the opportunities corner and are not perceived to exercise a supervisory role as the line does not move from the centre to the supervision corner at all.

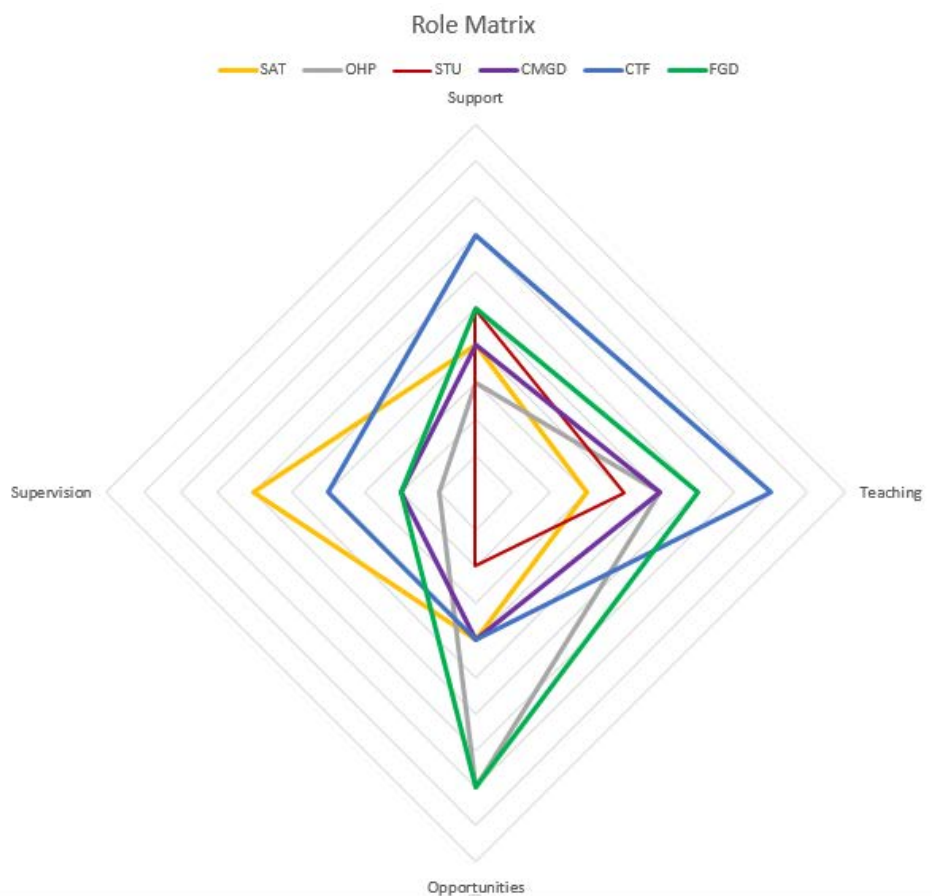


Figure 26: The support matrix

9.7.1 The supervisor

This function is seen particularly noticeably in two of the support roles; SATs and CTFs. The SAT role was created to provide supervision, and this is confirmed by student comments which suggest that some SATs do check students' progress, meet with them regularly, and engage them in reflective conversations about their experiences. Similar comments are also made about CTFs. How does such a strongly supportive role fit within a CoP? Perhaps in ensuring those new to the community are making progress in those things they need to learn to become fuller members. This may involve checking students are developing their shared repertoire, but perhaps also importantly are learning more about the relationships that form part of mutual engagement and also getting a better understanding of the tasks involved in the community's joint enterprise. At the opposite extreme, students, perhaps naturally, are not perceived to provide supervision. When students are engaged in practising their skills, however, they will need to be observed and supervised, with FGDs and OHPs providing this type of supervision. CMGDs perhaps, undertake a supervisory role when students are in their clinical or on the ward round.

9.7.2 The teacher

All support roles are regarded as providing teaching. They do so, however, in different ways, particularly with respect to orientation to the CoP. There is that teaching which occurs in practice and as part of practice on the ward or in other clinical areas, and that teaching which takes place away from practice, in classrooms or simulation centres.

Much of the contact students have with CMGDs will be in clinical areas though, particularly in Year 3, there is some classroom-based teaching. Teaching in the clinical areas allows students to observe CMGDs in their place of work, enables students to see how those towards the centre of the community behave and therefore absorb something of ways the community is mutually engaged in the practice of hospital medicine.

CTFs provide both classroom- and ward-based teaching. Much of the CTF input in Year 3 is classroom-based and takes place away from the ward, but CTFs also 'take' students to the ward and provide bedside teaching and observe students practising their newly acquired skills. Comments suggest that CTFs are valued for their teaching and that they know what students need to know. This is usually related to what the students need to know in order to pass exams. This points us to consider the motives of students in their learning. Are they learning as part of the process of entering the community of practice or are they learning to pass exams?

OHPs in their teaching role fill a similar role to that of the CTFs. Most OHP teaching commented upon, and where the Likert-type scales questions show OHPs to be supportive is, with learning clinical procedural skills. Teaching is done away from clinical areas to allow students to learn on manikins prior to undertaking the procedures on patients. Some clinical skills trainers also take students to the wards, and help them identify suitable patients and observe the students performing the procedure. These procedures are clearly part of the shared repertoire of the community, but whether students are keen to do them as part of

their journey into the community, or whether they are keen to do them in order to meet Medical School requirements is perhaps less easy to determine.

FGDs provide most of their teaching while based on the ward, as this is where most of the interaction between students and FGDs occurs. This teaching is not always structured and didactic in nature, but rather is about the day to day tasks undertaken by an FGD. Perhaps FGDs are providing support with learning some of the shared repertoire of the community. However, there are comments, particularly by third years that suggest FGDs are useful because they have recently experienced the curriculum, have graduated from Birmingham and know what medical students need to know. Therefore, in part FGDs are helping students break into the community, but they are also helping students with concerns around needing to pass examinations.

SATs are not noted for teaching in clinical areas. Any teaching provided is usually done as part of the regular meetings with students. However, this teaching seems to be more about the issues of mutual engagements and more about the discourses and knowledge of the shared repertoire rather than the skills. This is seen in the coding of the comments which suggest the meetings are used for reflection and feedback and teaching about patient management rather than more practical skills of taking history, examining a patient or reaching a differential diagnosis.

STUs are noted for their role in teaching. Primarily this is fifth year students teaching third year students. The teaching provided by fifth years is seen as useful as fifth years know the

curriculum. It is also noted as being useful as it is very examination focused, often directed towards helping third years pass their OSCE examinations. So whether this teaching can be said to be directly related to enabling students to gain access to the community of practice is perhaps debateable.

In summary a range of teaching activities are undertaken by support roles designed to either provide students with the initial basic skills they need or to prepare them for their roles as junior doctors. These activities range from formal classroom based teaching sessions, to timetable beside or clinic-based sessions to ad hoc, on the job teaching. Students appear to value more formal teaching earlier in the course, and as they become more self-sufficient, their reliance on formal teaching reduces.

9.7.3 The provider of opportunities

Three support roles are particularly noted for providing opportunities. These are the FGDs, the OHPs and CMGDs. It is perhaps obvious as these are the three roles that students encounter when they are in clinical areas on placement, while these roles are undertaking their clinical duties. In many ways FGDs and OHPs perform a similar function. They are primarily ward-based, they know the patients and can advise students on which patients need procedures undertaking or which would be happy to be approached by students wanting to practice their skills. This familiarity with the domain of the community is useful to students looking to practice their skills. However, in Year 5 a more overt attempt by students to learn the ways of the community is detectable. More of the comments about

FGDs are about shadowing, and about learning the skills needed for the 'job'. Perhaps this shows students' focus changing from being more concerned with passing exams and meeting the requirements of the medical school, to learning about the joint endeavours of the community and the repertoire needed to participate in these endeavours. CMGDs provide opportunities in a slightly different way. CMGDs enable students to attend theatre sessions or to be in clinics. This might be described as giving students access to some of the activities undertaken by those at the centre of the community. Perhaps these opportunities provide insight for students into the potential trajectories they can take within the community, and allows them to share more of the discourse of the community.

9.7.4 The provider of support

How to define support? In this instance, as we have looked at supervision, teaching and providing opportunities, perhaps what remains is what might be broadly termed emotional support. This seems to be provided in two ways, pastoral support and peer support. The first is that SATs and CTFs are seen to provide what students term pastoral support and show concern for student welfare in the new environment. This is more evident in the comments provided by the Year 3 students. Perhaps this shows that students in Year 3 are more concerned about being on hospital placements and value encouragement and support. Comments of this nature are less commonly made by Year 5 students. However the change in orientation towards fellow students is worth a comment. In Year 5 students value their peers for the support they provide. This may be true in Year 3, but is not mentioned. In Year 5 there is some acknowledgement that students will have different experiences and

different knowledge. This is seen as advantageous, perhaps as it is a way of learning the stories and discourse of the community.

One of the main themes in the free text comments is how members of all roles are seen as approachable and friendly. The question the students were asked did not specifically aim to elicit comments about approachability or friendliness, so as students chose to comment about this it might be seen as significant and that this support is clearly valued. This suggests that the environment students encounter is not universally welcoming. Hospitals can be intimidating places for medical students. They are busy, and the necessities of service provision have to take priority over student teaching. Medical students can even find it difficult to know where they can go, or who they should talk to. Getting in the way is a worry. It is noted that any CoP, if it is to be sustaining needs to be welcoming to new participants (Wenger et al., 2002). In the case of a CoP such as hospital medicine, which can appear confusing, busy and unwelcoming to students seeing a friendly face providing a welcome to clinical areas can make a big difference. One that can orient a student's learning focus, from thinking that exams can best be prepare for through classroom learning and study, to one where practice in the domain of the community is seen as valuable.

9.7.5 Summary

In this section, each of the six support roles investigated in this study were characterised in terms of the type of support provided to students; supervision, teaching, opportunities and emotional support. The roles differed in the types of support they provided, however, all roles provided teaching support, although where the teaching took place in clinical areas or

more classroom based tended to be role specific. CTFs and SATs were also seen as providing the most supervisory and emotional forms of support. FGDs, OHPs and CMGDs were regarded as providing the most opportunities.

Therefore, it can be seen that the students, through their interactions with a matrix of support roles are potentially provided with a useful framework of support. Perhaps this suggests that a well-functioning matrix is more important than expecting all roles to be providing support in all areas.

9.8 Summary of main points in the discussion

In this discussion, a CoP has been proposed as a useful way to conceptualise the students' changing orientation to learning and to how their relationship with support roles develops. Other learning theories have been called upon to complement this analysis. These theories help provide other perspectives upon how students orientations to learning may change as they progress through their hospital placement experiences, but do not suggest that a CoP is not a useful way to conceptualise the students' changing orientation to learning. It is the only theory which provides an idea of trajectory, and this is appropriate for students on a vocational degree. It is seen that students are not immediately driven to join in the activities of the community, as they have other foci for their learning, most importantly to pass exams, and they also lack the confidence to engage in the activities until they have acquired away from the community knowledge and skills that will enable them to participate more fully. Therefore, students participate only peripherally in the activities of the community to

begin with, but as confidence increases and proximity to graduation nears, students begin to engage more fully. Studies using social theories of learning to explain student experience have highlighted similar themes to those seen in this thesis, and perhaps that suggests that while this is a case study, the findings are to some extent generalisable beyond the local context.

10 CONCLUSION

10.1 Introduction

In this conclusion, I will summarise the main findings from the research and suggest how this new knowledge can be used to inform future developments of the MBChB curriculum. The limitations of the study will be acknowledged and suggestions made for future research to consolidate and further develop the findings. Taking a wider view, the main contributions to knowledge in the context of social theories of learning will be identified and a view taken about how these theoretical insights may be applied to other, similar higher educational institutions. I will end with a reflection on the research process and on what I have learnt about my own orientations to educational research.

10.2 Review of Findings

10.2.1 Phase 1: An investigation into the role of the Senior Academy Tutor (SAT) from the perspective of both SATs and students

10.2.1.1 Original contributions to Knowledge

Three important themes emerged from the Phase 1 research. The first theme focuses on inter-related discoveries about students' evolving learning needs and the multi-faceted support that is, or could be, provided by a single role - in this case, the SAT. It appears that students' learning needs change, and consequently so do their requirements for support, as they progress through the MBChB programme, and there was some evidence that the SAT

role adapts, or could adapt, to meet these changing needs. The second theme, centres on the finding that SATs are but one of the support roles that students rely on, thereby implying that there is a larger matrix of support for students to draw on. The third theme relates to how the attributes, attitudes and 'fitness for purpose' of the individual acting in a supportive capacity appear to affect how students perceive and value the support provided.

10.2.1.2 Summary of supporting findings

There were several areas of agreement between Year 5 students and SATs about what the SAT role currently involves and how potentially it could develop. While a number of possible roles a SAT could undertake were identified, the most important was to facilitate learning in a supportive but supervisory capacity. There was also a recognition that as students progress through the MBChB programme their learning needs broaden and become more nuanced. In Year 3 students were thought to be more focused on acquiring basic skills and knowledge, while in Years 4 and 5 students start to develop a greater interest in 'non-technical' skills and practical knowledge that will help them as junior doctors. It was suggested that the driving force behind this shift in emphasis was the development of students' self-regulatory capacity. Other support needs when placements are 'difficult' were also identified, casting the SAT in the role of champion or fixer to ensure that appropriate learning opportunities are available. However, primarily SATs see themselves as facilitators, discussing clinical cases and helping students think about their learning and put it in the context of hospital medicine. There was emerging evidence of some tacit recognition by SATs of the differing student needs across year groups, for example by providing ad hoc teaching sessions to fill 'knowledge gaps'. Similarly, there were indications that students

may perceive the SAT role more positively when the provided support more closely matches their learning needs. Both of these points were noted as being worthy of further study in Phase 2. Finally, it became apparent that students only value someone in this type of supervisory role, if the role is undertaken enthusiastically with the students' learning needs in mind and sufficient time is afforded to the interaction. This was also noted as something that could be explored further in Phase 2.

10.2.1.3 Implications for future development of the MBChB

What then should we take from this when considering how the SAT role could perhaps develop? It was clear from the student interviews that more teaching would be welcomed. However, both students and SATs were united in thinking that in general SATs are not best placed to provide this, although a limited teaching role in Year 3 was mooted. Similarly, there was little enthusiasm from either group for a more active pastoral care role for SATs or for SATs to be involved in student assessment. Instead, where SATs feel most comfortable, and where they appear to be most valued by students, is as facilitators, for example discussing case presentations, optimising learning opportunities, or passing on tacit or explicit knowledge that helps students think about their future practice as doctors. Clearly then the SAT role, while addressing some of the support needs of students does not currently, and is unlikely to in future, meet the myriad types of support needs of medical students on placement. The question of which other clinical roles support students on hospital placement, thereby providing a 'matrix of support', was investigated in Phase 2 of the study.

10.2.2 Phase 2: An investigation into the matrix of support for students on hospital placements.

10.2.2.1 Original contributions to Knowledge

The Phase 2 research provided further evidence of the evolving learning needs of students as they progress through the MBChB programme, and supported the concept, postulated in Phase 1, of a matrix of support for students on hospital placement. Framing the Phase 2 research in the context of pre-determined GMC outcomes representative of the skills, values and knowledge domains, meant it was possible to tease out more precisely the nature of this support matrix. Defining the matrix in terms of learning needs, support role, outcomes supported and types of support perceived by students both overall and by year group, gender and ability, reveals a complex matrix of support. Importantly, this matrix can, or has the potential to, respond to the changing learning needs of students.

Five new themes emerged from the Phase 2 research. The first theme further develops the finding from Phase 1 that students' orientation to how they learn and to how they perceive the support provided, evolves as they progress through the MBChB programme. It transpires that not only can students articulate their learning needs at different stages of their development, exemplified by how the teaching noted as useful changes from Years 3 to 5, but they also have a good idea of which support roles can best satisfy these needs. This is evidenced by the key finding of the importance students attach to Foundation grade doctors (FGDs) and Clinical Teaching Fellows (CTFs) in the furthering of their personal and professional development. A second, closely related theme, which is evident in Year 4 of the

MBChB, concerns the seemingly negative impact a 'poor' educational climate or curriculum issues can have on students' experience, and how this can lead to lower perceptions of support or on the value placed on a supporting role. Conversely, the student experience appears to be more positive when the educational climate and curriculum are regarded as favourable. There are two aspects to the third theme. First, an apparent inherent variability in the range of support provided by individual roles, with some roles providing support across a broad range of outcomes and others offering more limited support. The second aspect is that individual roles may tailor their support to suit the learning needs of the year group. This possibility was intimated in Phase 1 and is supported here. The fourth theme concerns the discovery of differences in coverage of the three outcome domains. It was notable that students do not perceive as much support with values domain outcomes as they do with skills domain outcomes. This is important to know given the increasing emphasis on values in Outcomes for Graduates (GMC, 2018, and in professional identity formation. The final theme relates to the development and successful use of a novel, kinaesthetic consensus building method to inform the Phase 2 survey.

10.2.2.2 Summary of supporting findings

Overall, students perceived more support with skills domain outcomes, than with values domain outcomes and perceived the least support for knowledge based outcomes. This is a perception of support and does not necessarily mean that students lack the required knowledge or do not develop appropriate values. Several findings support and expand upon the Phase 1 conclusions about the evolving learning needs of students. The student free text comments reveal a greater focus on learning skills and on learning how to pass exams in

Year 3, whereas those in Year 5 value support with more complex activities such as patient management and have a greater focus on learning about the FGD role. Specifically, the comments change from saying how important teaching is, and the importance of having teachers who know what students need to know to pass exams, to highlighting the usefulness of shadowing, and learning about and practising, in simulation, the FY1 role. Students also value those in support roles having good curriculum knowledge and stress that this knowledge is most helpful when it is recent. Again, this concurs with the finding from Phase 1, where SATs, who are senior doctors with specialisms, were thought to be too distant from the MBChB programme to be able to pitch teaching at the correct level for students. There seems to be no significant difference in gender when considering the perception of support roles. However, while difficult to show statistically, there do appear to be minor differences, worthy of further investigation, when a student's academic ability is taken into account. For example, students in the top half appear to feel they receive more support in Years 3 and 4, and less in Year 5.

When the perceived support is characterised by role, the roles were seen to provide differing levels of support across four activities; providing support, providing opportunities, teaching and supervision. Three roles, CTFs, FGDs and Consultant and Middle Grade Doctors (CMGDs) provide support across a broad range of outcomes, whereas Other Healthcare Professionals (OHPs) only seem to provide support with learning clinical procedural skills and team work, and SATs are not seen to support the development of practical skills. Students (STUs) are commented upon positively, but do not receive high helpfulness ratings on the Likert scales, suggesting that students are not expecting their peers to provide much support

with these outcomes. Students in all three years comment positively on the two roles, FGDs and OHPs, which provide them with opportunities to learn or to practice their skills. CTFs and, more surprisingly, FGDs were the roles perceived to provide the most support in the Likert-type scale questions and also the roles that drew the most comments in the free text part of the survey. These roles are good examples of how individual roles can tailor their support. Year 3 CTFs can pitch teaching at the right level, but have more of a support role in Year 5 helping students learn the role of the FY1. Similarly, FGDs in Year 3 provide appropriate learning opportunities to develop clinical skills, but allow the more experienced fifth year students to shadow them and learn, under their supervision, many of the jobs an FY1 has to undertake. These two roles are also seen to work in tandem in that students in Year 5 see simulation, supported by CTFs, as a useful way of preparing for the FY1 role but also value being supported by the FGDs through shadowing and clinical supervision. It is clear that Year 4 is perceived very differently by students to Year 3 and Year 5. It is suggested that this is a reflection of the different curriculum which has more fragmented placements which do not appear to allow for the establishment of supportive learning relationships. Not only do students perceive less overall support, but they specifically mention the lack of CTF support in the fourth year. As was found in Phase 1, all students appreciate it when those who provide support are approachable and friendly. All roles are perceived in this way. Students have positive perceptions about approachability, friendliness and helpfulness in support roles whilst being negative about rudeness, disinterest, and lack of availability.

An early stage in the Phase 2 research required an expert panel to form a consensus view about which GMC outcomes should be included in the survey. Since none of the consensus building methods looked at prior to conducting the expert panels were suitable, a novel approach was taken. The activity devised required participants to sort the GMC outcomes into four groups and ensure that each group had a minimum number of outcomes in it. Thirty-seven outcomes needed to be sorted. This is quite a difficult activity to do, but a physical sorting activity which provided the participants with the means to sort and re-sort before making decisions worked well. A further advantage of the sorting activity is that the participants were able to become sufficiently familiar with the outcomes to allow for useful discussions about the wording of these after the sorting activity, and this helped improve the wording of outcomes for use in the survey.

10.2.2.3 Implications for future development of the MBChB

What then are the implications of this research for the future development of the MBChB? There are three main considerations. First, the fact that students perceive there to be more support with skills domain outcomes than with the other two domain outcomes. This does not mean that students lack the necessary knowledge or do not develop appropriate values. Perhaps it is easier for students to identify the learning for skills-based outcomes on hospital placement. Perhaps much knowledge is learnt in a more self-directed way, away from hospital placements. The learning for the more values-based outcomes is not perhaps quite so formalised, and relies on experiential learning. It is therefore likely to be opportunistically learnt, students will potentially have different experiences which will affect their learning,

and values based outcomes are those often more likely to be regarded as being influenced by the 'hidden curriculum'. There is no evidence to suggest that students are developing inappropriate values, but a consideration for this context may be to consider how values-domain outcomes are 'taught' in the MBChB programme to ensure all students have appropriate learning opportunities. Second, although none of the three outcomes in the knowledge domain is perceived to be well supported, the outcome which has the worst perception of helpfulness rating is to understand the relationship between hospital care and primary and social care. It is not known from this survey whether students are supported in this outcome during their primary care placements, but this is something that should be followed up on. Third, students in Year 4 are appreciably less satisfied with their experience of support on clinical placement than are students in Year 3 and Year 5. Perhaps a message for this context is to consider whether the advantages of students experiencing a wide range of specialties is worth the disjointed nature of the experience and whether the focus on specialty related learning is worth the reduction in focus on continuing professional development.

10.3 How social learning theories can be used to frame the results

While individual and cognitive theories of learning have informed this thesis, communities of practice (CoP), and to some extent the zone of proximal development aspect and the concept of 'More Knowledgeable Other', of Vygotsky's social constructivist theory, are used in this thesis to explain what is seen on hospital placements in the MBChB programme. CoP theory is used to describe the trajectory of medical students from the periphery of the community towards fuller membership and helps to explain how a student learns how to 'do

the job' of a doctor. The motivation to begin this journey is not fully seen until students are in the fifth year. Earlier in the MBChB programme students appear more concerned with learning knowledge and skills. Here the idea of the More Knowledgeable Other, who understands what more junior students need to learn and can support students learning in this is used to explain the relationship between students and support roles. The matrix of support described in this thesis is an important part of the CoP of hospital medicine, in that it is instrumental in bringing new members into the community.

10.4 Proposed new model of student support

This research suggests the following model of support which assumes that the aim of students is to join and then begin their journey towards the centre of the hospital medicine CoP. This model does not mention the specific roles that provide the support at Birmingham Medical School, but rather focuses on the nature of the support and where it is provided.

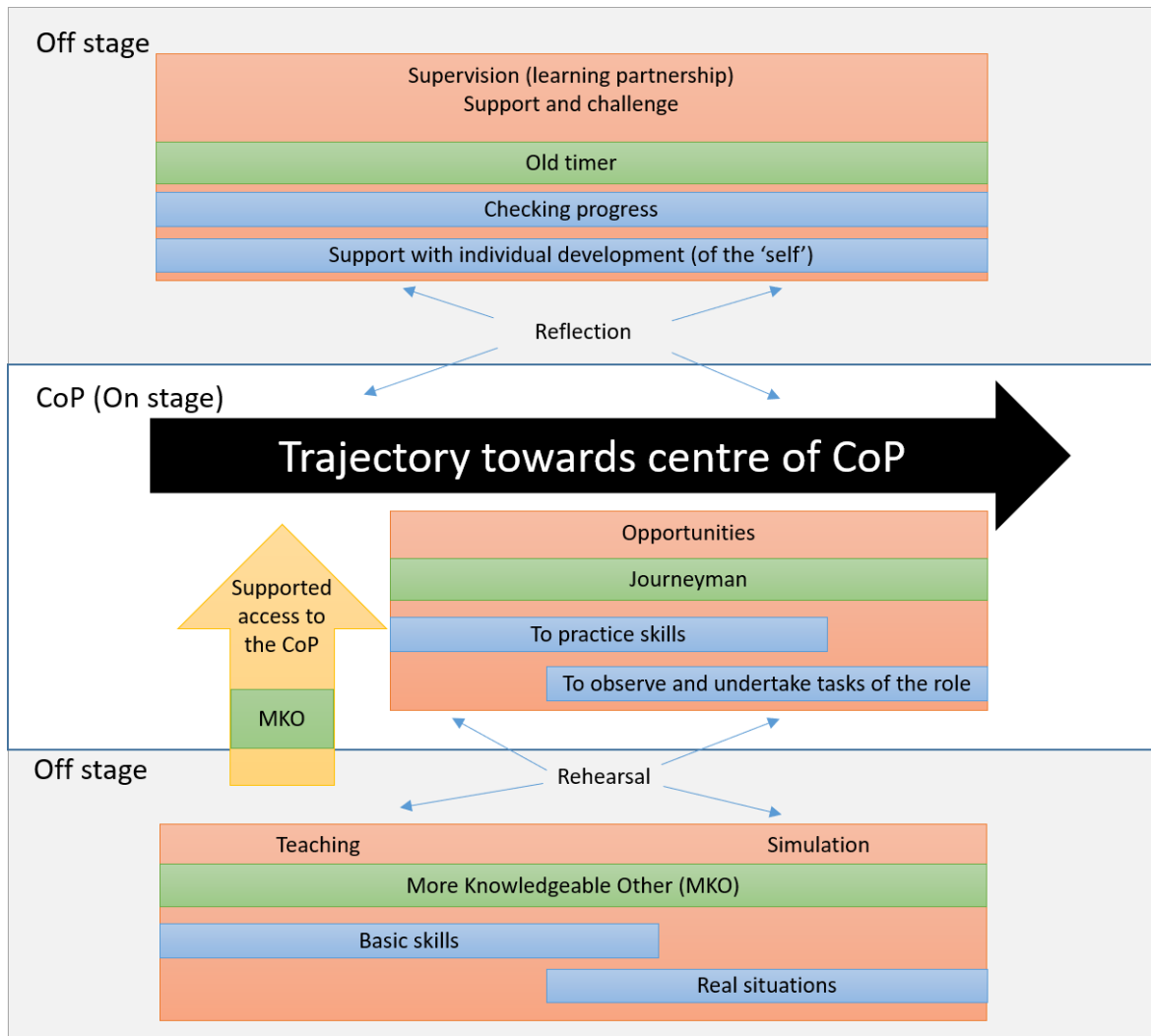
When students begin their hospital placements they appear to lack the skills, and hence the confidence and motivation to engage in the activities of the CoP. Therefore, support with acquiring basic skills that are part of the CoP's shared repertoire is required. This support can be provided off-stage, peripheral to the CoP, or on-stage, within the CoP. Off-stage support, away from the on-stage clinical areas, allows the students to rehearse where there is little danger of having their competence, (and perhaps legitimacy) challenged. Students at this point also appear to benefit from supported appearances on-stage, accompanied by those who provide teaching off-stage, so that they can practice their skills in the CoP and learn a little about the environment itself. Here the support roles are acting as More

Knowledgeable Others. It is important to the students that those in this role understand what students need to learn and are aware of their level of competence. This allows the supported learning to take place in the students' Zone of Proximal Development. On-stage, it is important that students encounter approachable members of the CoP who are prepared to provide students with opportunities to practice their skills. In doing this the support roles are acting as 'Journeymen' providing the students with opportunities to share the experiences and acquire some of the repertoire of the CoP. It is important that students also have enthusiastic, interested off-stage supervision (perhaps by 'Old timers'). This learning partnership should provide both support and challenge aimed at encouraging a student's individual development or self-authorship. This will involve checking student progress with the development of knowledge and skills, but should also focus on the student's developmental stage. Here reflection on experiences on-stage may help as supervisors can help students appreciate that there are often multiple perspectives about many issues and students have to begin to determine their own viewpoints. Support will be important here as developing students' self-confidence in the new environment, and hence their self-efficacy, will be key to future efforts (and persistence) within the community. The reflection on experience can also help students begin to develop their self-regulatory capacity and supervisors can support students in developing plans for their learning.

As the students progress along their trajectory towards the centre of the community the need for off-stage teaching of basic skills and for supported access to the community by More Knowledgeable Others is likely to diminish. While, the requirement for Journeymen willing to provide opportunities to engage in the tasks of the CoP remains strong the nature

of this support changes. Providing students with more opportunities to observe and take part in the activities of the roles in the CoP they will soon assume, and towards providing the tacit knowledge necessary to engage successfully in these activities begins to take precedence. Meanwhile, off-stage support is still required. The need for support with basic skills is reduced, but enabling students to rehearse activities that take place on-stage remains important, although this now moves to rehearsing more complex tasks of patient management using methods such as high-fidelity simulation. Supervisory support also remains important, but the emphasis changes a little in line with student needs and their developmental stage. This will involve continuing to check student progress and engaging them in reflection about their experiences. While students will develop at different rates, it might be expected that later in the course, students will be less reliant on authority figures and looking less for certainties, and will be more aware of multiple perspectives about various issues. The supervisor's role at this stage in the learning partnership might be to support students development of their own views and to encourage students to accept and acknowledge that others may have useful viewpoints to share. To some extent this is moving the focus away from developing as a medical students to considerations about the transformation into the role of a doctor.

As can be seen in Figure 30, the off-stage and on-stage environments form a matrix of support which provides the students with teaching, supervision, opportunities and support. It is hoped this model will be useful to others in similar institutions when considering how students are supported while on hospital placements.



- Domain of activity
- Purpose of activity
- Role in CoP

Figure 30: The matrix of support in the hospital medicine CoP

10.5 Limitations to this study

The main limitation is that it is possible to only measure perceptions of support, rather than actual support.

For pragmatic reasons, only Year 5 students and SATs were involved in the first phase of the study. A better understanding of how the role is perceived may have been achieved if it had been possible to conduct focus groups and interview students and SATs in Years 3 and 4.

The data gives only a snap shot of what was happening in one year. It would be interesting to follow up the same cohort of students across three years to see how the data changes. This would help to negate inherent variability between different year groups as years are known to have 'characters'.

A 50% response rate is reasonable for a questionnaire study, but those who choose not to complete questionnaires may have different opinions which may change how the results are viewed.

While the researcher's knowledge of the field may be an advantage in helping interpret the data, it is possible that how the data is interpreted is coloured by the researcher's 'biases' in order to fit with prior conceptions. The researcher is aware of this potential and this acknowledgement is at least a step in preventing too much colouration of the interpretation. A short discussion about the positionality of the researcher is included in the next section

10.6 Positionality of the researcher

In Chapter 4, I argued that in the context of this research project I could be considered the 'researcher in the middle' (Breen, 2007) occupying the space 'between' the insider and outsider roles (Corbin et al., 2009). In this section the role of the researcher will be further

discussed in relation to how this may have afforded opportunities in undertaking the research for this project and also how this may have affected both the way the research was undertaken and the interpretation of results.

10.6.1 The opportunities afforded

My role at work requires me to interact with the various support roles investigated as part of this thesis. This will likely have had a number of positive influences on this research. Firstly, it may have provided access (Greene, 2014) and encouraged participation in the research. The SATs who I contacted all agreed to participate in phase 1, and also the students who participated in the research at this stage did so readily. In the second phase of the research as the matrix of roles was investigated, I was able to recruit significant numbers of people to participate in the expert panels. Whether this is as a result of their relationship to me, or due to their perceived value of the research is difficult to determine. Finally, the participation rates of the students in the questionnaire survey was good. Again, being known to the students may have helped, and it is possible that the students thought the research was useful. Certainly, a number mentioned this to me. Finally, my part in the development of the MBChB curriculum may have played a part in encouraging good response rates. Both, because I was able to negotiate 'prime time' slots to undertake the survey, but also in the sense that the participants in all stages perceived that the research was practical in nature, and I would be in a position to influence change, dependent on the results.

10.6.2 The design of the research

It is likely that the design of a research project will stem from the ontological and epistemological viewpoints of the researcher. My orientations towards interpretivism (Bunnis and Kelly, 2010) meant that it was more natural to use qualitative methods to gather data and interpret these using inductive reasoning. Much of this research has revolved around the use of qualitative data such as comments on routine module evaluations, focus groups and interviews and comments on survey questionnaires. These have helped answer the more interesting questions of how and why. The Likert scale questions on the survey helped answer the important, questions of when, who, what and how much, and helped in the interpretation of the comments provided on the survey. However, qualitative data need interpretation, whereas numerical data require statistical analysis. The way results are interpreted is influenced by the views of the person doing the interpreting.

10.6.3 The interpretation of the results

One of the dangers, perhaps in interpreting results is interpreting the data to fit preconceived notions of what we would expect to see. This is perhaps doubly difficult for researchers who are part of or close to the phenomenon being researched. Is it possible that I may have interpreted the results to fit what I already think I know about how students learn on hospital placement, and who supports them? Clearly it is. Being aware of this is important. One way to do this is to reflect carefully on the interpretations being made and to ask and challenge oneself to generate alternative possibilities (Greene, 2014). Another way is to share the interpretations with others (Blythe et al., 2013), or to ask others to analyse the data with you, to see if you are agreed both in the coding of data and the

conclusions drawn. Given that this is a thesis and therefore the work of one person, as opposed to a team of researchers, others were not involved in the analysis of the primary data. However, I am fortunate to work in an environment where educational research is freely discussed and also to work with many people who represent the support groups discussed in the research. This allowed me to check if my conclusions resonated with support roles, including students. This was not done in a formal way, but usually in conversations, for example with clinical teaching fellows in the breaks between teaching on a postgraduate certificate in education course they attend. I have also given some informal presentations of my conclusions to various groups interested in medical education research, and again I do not seem to be making conclusions that others think odd. Finally, I avoided applying theory too early, running the risk of interpreting data to fit the theory. I was keen to see what themes I saw in the research, and then to use theory to help explain what I was seeing. There is a danger that theory is selected according to the views of the researcher, but in this thesis, while a dominant theoretical perspective has emerged, that of CoP, other theories have been employed to help explain the results too.

10.6.4 Summary

If it is impossible to remove the person and hence the 'position' from the researcher, then perhaps the most valuable thing in research is to acknowledge ones position as a researcher so that others interested in your research can determine whether your position has influenced the study in any way (Jaffer, 2018). I hope that I have managed to do this though as Rooney (2005) puts it, *"can we only aspire to an ever-elusive concept of validity in qualitative research?"*

10.7 Generalisability of finding to practice and policy

This is a case study, and as such is firmly rooted in the experience of medical students who attend hospital placements organised by the University of Birmingham Medical School.

However, in this short section it will be contended that the experience and characteristics of Birmingham medical students is in many ways representative of the experience of medical students elsewhere, and certainly at UK medical schools.

10.7.1 Similarity of overarching curricula

In the UK, all medical schools are required to develop their own curriculum that enables their students to meet the requirements of Outcomes for Graduates 2018 (GMC, 2018).

Therefore, students will all need to master the same set of learning outcomes, and in order to facilitate this medical schools will organise their programmes in broadly similar ways.

Furthermore, medical schools will all make use of local hospitals to provide teaching and experience for their students. Granted, there will be differences in how hospital placements are organised, and also when students have their first hospital placements, but most will include more hospital placement in the final three years of their programmes. Turning to assessment, many medical schools use similar forms of assessment, and in fact in the UK this is now also being influenced by the introduction of the Medical Licensing Assessment. What may be different is the extent to which workplace-based learning assessments (WPBA) are used. In Birmingham at the time of the research for this thesis, there was very little WPBA, and it is likely this has had some effect on students' motivations and orientation to learning.

It would be interesting to see if similar or divergent trends are seen at medical schools which

make more use of WPBA and this is a possible area of collaborative work in the future.

Another potential area for collaboration with other UK medical schools concerns the length of hospital placements. In general, in the UK, medical students are perhaps a little peripatetic in that they rotate around different areas in the hospital, often in search of opportunities to meet the requirements of their learning outcomes. A theme arising from the scoping review that forms part of this thesis is that students become more engaged in the work of the CoP when they are on longer placements. There may be medical schools in the UK which require medical students to spend a longer period attached to a single ward or specialty with the expectation that they do become more engaged. Should this be the case, it would be interesting to see if this changes the students' perceptions of support.

Despite these differences, given the overarching similarities and commonality of purpose shared by UK medical schools it is anticipated that the findings of this research project will be of interest to most of them. For example, the effect of the way the programme is organised by Birmingham on students' experience of support may allow decisions about whether to introduce or avoid similar structures to be made in a more informed way.

Internationally, many curricula could now be described as outcomes-based, and the domains of knowledge, skills and values, or behaviours are widely seen. It is therefore likely that the findings about support for different domains of learning will similarly be of some interest.

10.7.2 Similarity of students

The majority of students in the UK are direct entrants from school, and all have been through similar prior educational experiences. Most medical schools have similar entry requirements. It is therefore likely that there will be some degree of similarity between medical students wherever they are located. However, there are perhaps two significant factors that may suggest students at different medical schools may have different orientations to learning. Firstly, it is plausible that students who apply to programmes advertised as having a programme based on problem-based learning, may have different orientations to their learning than students who apply to medical schools with more traditionally didactic approaches. Secondly, there are schools which recruit graduates to their medical programmes. While at Birmingham the numbers are too small to detect any great differences between direct entrance students and those with a previous degree, it may be that other schools with a higher graduate intake would see a different response to the survey instruments. This may also mean that the findings of this research would need careful consideration in American medical schools which are graduate entry only.

Given, at least in the UK, the reasonably similar background of many students, the findings of this research project about student developmental levels or stages may be broadly applicable to medical schools' curriculum plans in terms of considering how better to support and challenge students appropriately.

10.7.3 Similarity of roles

Hospitals anywhere will contain similar groups of staff to the roles discussed in this research project and are likely to interact with medical students. It is anticipated that the results and discussion about how MBChB students interact with different staff groups will therefore be of wider interest. In this section the relevance to a wider audience of the results pertaining to three roles will briefly be covered.

10.7.3.1 Clinical Teaching Fellows

The number of doctors employed as CTFs has expanded significantly in recent years in the UK. However, the nature of the CTF role will vary from place to place in terms of whether they are employed by the medical school or the hospital, and the grade of doctor that undertakes the CTF role. The way that contracts are structured means that there will also be variance in the proportion of educational to clinical time in a CTF's contract. Having said this, most CTFs working in a hospital context will be undertaking broadly similar roles. Therefore, it is envisaged that these research findings may enable local employers to consider how best to utilise their CTFs and to consider the nature of faculty development for CTFs.

10.7.3.2 Foundation Grade Doctors

The research undertaken for this thesis highlights the importance of junior doctors to medical students' learning. Given the paucity of published research about the way FGDs support medical students this is something that other medical schools is likely to find useful as they may wish to harness FGDs in the education of medical students to greater effect.

10.7.3.3 Senior Academy Tutors

It is undoubtedly likely that the roles and responsibilities of those who 'supervise' medical students while on placement will vary considerably from medical school to medical school. However, the research conducted as part of this thesis may help others think how those occupying these roles can better support medical students.

10.7.4 Similarity of hospital environment

The hospital environment is likely to be perceived by medical students unused to it as busy and forbidding. In common with published studies, it is suggested in this thesis that in order to engage in the activities of the CoP students appreciate a welcoming atmosphere. Further that students need both this welcome, and also a sense of confidence in the skills they have acquired before they are likely to engage significantly in clinical activity. Understanding this may help the clinical teams students spend time with understand how best to support them.

10.7.5 Summary

The similarities between the contexts in which students learn while on hospital placement should make the research contained in this thesis applicable, at least in part to those engaged in planning and delivering undergraduate medical education. This is particularly true for UK medical schools which make use of local hospitals to provide clinical experience for their students. Institutions in other countries who are involved in medical education may also find this research of interest given the prevalence of outcomes-based curricula and the likely similarity in the support roles encountered by students. However, it will be up to

individual universities and institutions to judge how applicable this research is to their own situation.

10.8 Future research

In this section a series of possible research avenues are identified that seek to focus on and extend aspects of this thesis. Where there are multiple possible questions for a research theme, these are identified separately.

10.8.1 An exploration into how the CTF role supports students on hospital placement.

There is little as yet in the literature about the CTF role, though the Birmingham CTF study is underway. However, this looks more at the motivations of CTFs rather than their perceptions of student requirements. The research for this thesis has shown that CTFs do provide different support for students at different stages of their learning journey in hospital medicine.

10.8.1.1 How do CTFs adapt their teaching and interactions to take into account the students' developmental stage?

Learning more about the CTF view on what they perceive students' needs are at different stages would be useful as would information about how CTFs accommodate students' changing learning needs as they progress through the curriculum. This may work well as an interview, possibly using a framework similar to that used in Phase 1 to investigate the role of the SAT. The results of this research would add to what is known about the CTF role, and

may have practical use during induction and training of future cohorts of CTFs as most only undertake the role for a year. It would also help curriculum planners understand student development and needs a little better.

10.8.1.2 Can CTFs supports students in developing their self-regulatory learning capacity?

From a theoretical perspective trying to tease out how CTFs support students in developing their self-regulatory learning capacity could be useful. Perhaps working with CTFs as they use the SRL-MAT model during teaching may be illuminating as they teach and practise skills with students off-stage and also take students on-stage to the ward where they provide supported teaching and observed practice with patients, often followed by a debrief off-stage. The forethought, performance and self-reflection stages of self-regulated learning are potentially amenable to support from CTFs.

10.8.1.3 How do CTFs support students with value domain items?

The results show that the CTFs provide a lot of support for learning in the skills domain, but also some support for items in the values domain. It is not clear from the supporting comments how CTFs provide support for students with values domain items and this could be a topic for a more focused questionnaire given to students. Many items in the values domain have not been taught explicitly in the past, and medical schools are still considering the best way to ensure students have the necessary teaching and experiences to meet the learning requirements. Knowing how CTFs support students in this domain would enable

curriculum planners to determine where there may be gaps in support and target these as appropriate.

10.8.2 An investigation into how the FGD role supports students on hospital placement.

There is very little published research on how FGDs support medical students.

10.8.2.1 How do FGDs perceive they support medical students learning on hospital placement?

Understanding this may help curriculum designers to harness FGD motivation and also to identify areas not well dealt with in the formal curriculum. There is potential for this to be a multi-centre study, as the FGD role is governed by the foundation programme curriculum, and hence should be comparable from place to place. A potential group to support this study would be the ASME Midland Group of Medical Schools.

10.8.2.2 How do students perceive FGDs support their learning on hospital placement?

In addition to asking FGDs how they support students, it might also be useful to gauge how students perceive the role of the FGD, and a survey instrument more focused on the FGD role could be developed for this purpose. The results of this might be useful to feedback to students, to give them some insight in to how FGDs might support their learning, and perhaps could be seen as a scaffold for self-regulated learning. The results could also be

provided to FGDs who may use the results to help them consider how to support students on placement.

10.8.3 An investigation into peer and near peer relationships.

While there is some research into formal near peer and peer teaching, and a range of formal schemes have been reported, there is little in the literature about how medical students support one another in less formal ways.

10.8.3.1 How do senior students support more junior students?

What motivates medical students to provide teaching for more junior peers, and what do they perceive their more junior colleagues need? This might be useful if more formal peer support programmes are to be established, but it may also give some insight into both the hidden curriculum and also gaps in provision by other support roles.

10.8.3.2 How do more senior students support each other?

It would also be interesting to look at how final year students support each other as the relationships do not appear to be about formal teaching. How do they support each other's learning in less formal ways? How do they provide 'moral' support for each other? This might be best addressed through focus groups or interviews. Here the idea of co-authorship could potentially be investigated.

10.8.4 An investigation into students' changing orientations to learning on hospital placement

From the research undertaken for this thesis it is possible to detect a change in students' orientation to learning, but it is not possible to know quite when this happens and what it is that changes the orientation. Is it the acquisition of sufficient learning (learning capital) that changes the students' orientation, or is it simply the proximity to their first job? Could it be something outside the main part of the programme, such as learning self-reliance and joining in with clinical activities during the elective that facilitates this change?

10.8.5 What factors influence students' motivations to engage with the activities of the hospital community of practice?

Perhaps issues around learning capital along with motivations and barriers to learning in clinical settings within hospital placements could be investigated via a questionnaire survey. This may contain a mixture of confidence rating questions and motivation ranking questions that would seek to investigate whether there is a link between confidence in clinical skills (activities of the community) and motivation to take part in these activities in the clinical environment. Pre-existing rating scales used on questionnaires could possibly be used or adapted to support this investigation. For PIF, Tagawa (2020), and Crossley and Vivekananda-Schmidt (2009) may provide inspiration, and for self-efficacy a range of measurement tools are evaluated by Klassen and Klassen (2018). The results of this research could help inform faculty training specifically around the need to provide support and scaffolding at crucial moments, and also in providing a welcome to ensure students are not put off engaging in activity in the clinical area.

10.8.6 An investigation into the effect of student prior attainment on perceptions of support during hospital placements

Is there a real difference between prior attainment and students' perception of support? If there is a difference, what (if anything) should be done about it? Data from other proposed research initiatives (above) could help in providing information that would help answer this question - providing data about previous academic performance on the MBChB were gathered. Further information could possibly be gained through the use of interviews with students. To provide more granular data than available in this thesis, perhaps rather than using dichotomous groups, the students could be segmented into for example quartiles for this research. The results of this research could inform bespoke interventions for different groups of students.

10.8.7 An investigation into the progression of students towards self-authorship while on hospital placement.

It would be interesting to investigate the extent to which students do advance in their degree of self-authorship during their time on hospital placements. The questionnaires designed to measure self-authorship developed by Creamer et al. (2010) could perhaps be employed for this purpose. However, given that there is a degree of context dependency to self-authorship, it may be necessary to consider adapting the questions to a hospital medicine environment, as Faller et al. (2019) have done previously. The survey could be applied at the beginning of the first hospital placement and then at the end of each academic year. As with this thesis, it may be possible to do with cohorts of students. A richer data set might be obtained by consideration of whether other factors, such as prior educational attainment on the MBChB programme or other demographic factors such as age

or gender have any influence on the results. As with the research into students changing orientations this research could help inform faculty development.

10.8.8 An investigation into students' development of their capacity for self-regulated learning on hospital placement.

As with self-authorship there are scales which purport to measure the self-regulated learning behaviour. Winne and Perry (2000) provide useful commentary on the methods for doing this. If administered to each year, this could provide information about whether students do develop their self-regulated learning capacity over time. Again, it would be interesting to look at other factors such as prior educational attainment, age and gender to see if these can be seen to influence the scores. The results from this research could inform faculty development work, but could potentially inform curriculum design to ensure students have the opportunities to develop self-efficacy at points in their hospital placements that allow or encourage them to go on to practice their skills in the clinical environment

10.8.9 Can the role of the Senior Academic Tutor engage in Learning Partnerships with students that facilitate a student's progress through the phases of self-authorship?

The role of the Senior Academy Tutor is seen to operate mostly off-stage in a supervisory role, checking on students' progress and providing support and guidance. Can the Learning Partnership Model provide some insight into how this support relationship could be developed? On-stage students will be exposed to challenges and will learn that knowledge is complex. Students will find this new knowledge challenges existing perceptions and

possibly their values. Senior Academy Tutors may be in a good position to share their wisdom and expertise. Looking at how Senior Academy Tutors challenge and crucially support learners in their development could be enlightening. It would seem that this could be undertaken through interviews with both SATs and students. The findings could have useful application in future faculty development for SATs.

10.8.10 Summary

The focus of the proposed research outlined above is very much based in the context of the thesis, as it seeks to look at the experience of medical students on hospital placement both in terms of their changing relationships to support roles and their changing orientations to learning. This research would build on the research contained within the case study presented in this thesis, inform curriculum development processes and faculty development plans.

Clearly, at this stage the ideas discussed above are simply indications of the direction that future research could take rather than fully worked up research projects. However, a preliminary literature review has been undertaken to confirm that such areas of research would address current gaps in the published literature.

10.9 Recommendations for the Birmingham MBChB context

- To consider whether providing some basic pedagogic support for FGDs may be useful and formalising /encouraging some of the already existing schemes that Trusts have in place to encourage FGDs to support medical students.
- To continue to support and provide faculty development to SATs as the role is appreciated when undertaken well.
- To consider providing more support for peer teaching schemes or providing more support with teaching skills.
- Investigate more closely how students acquire the knowledge and behaviours necessary to meet the values outcome requirements.
- To look further into how students' learning on hospital placements and on primary care placements links together to provide a coherent picture for medical students.
- Consider how the structure of hospital placements in Year 4 could facilitate greater student integration into clinical activities. This may encourage students to begin their journey along the trajectory towards membership of the CoP of hospital medicine.

10.10 Reflection on thesis

This reflection will focus on the research process, and my part in it, rather than on the results themselves.

The practicalities of research. It became very apparent to me that a pragmatic approach to research is required. For example, it would have been interesting to have been able to conduct interviews with SATs and students in Years 3, 4 and 5, but this was not practically

possible. As there was time to work with only one group, it was decided to work with Year 5 SATs and students, as these would be able to provide perspectives of earlier years. Nevertheless, I would still have like to have had time to have actually interviewed students and staff in earlier years.

I would have liked to have included more items on the questionnaire survey, but this was not possible. There were two things to be borne in mind. Firstly, the pragmatics of creating a questionnaire that could be scanned to allow for data extraction, which limited the number of questions that could be asked. Secondly, the respondents' likelihood of completing the survey had to be borne in mind. The longer the survey instrument is the more likely that either potential respondents will not complete it at all, or will leave the survey unfinished. It is not known why students did not complete the survey, and it is clear that a few did not make it to the end. Running a pilot group to evaluate the survey via a trial run was invaluable and helped in a number of ways. It enabled me to make the survey quicker to complete, through the simple expedient of reducing the size of the lozenges to be shaded. It also allowed me to time how long it took the students in the pilot group to complete the survey. Of personal importance was the fact that I was able to draw confidence from the fact that the pilot students obviously found the survey interesting and commented on how the research seemed useful and would be likely to engage students.

My orientation to research. Before beginning this research journey, I would have described myself as having a strong inclination towards qualitative research. This remains true and I thoroughly enjoyed interviewing students and SATs, and working with expert panels and

pilots groups. I also enjoyed thematically analysing the interviews or the data from the questionnaire, and developing the theories that emerged from the analysis. I have, however, surprised myself by also being enthralled by the patterns emerging in the numerical data from the survey and have derived satisfaction from discovering whether something is or is not statistically significant. I have therefore learnt that pursuing mixed methods research in future is something that I should consider.

With regard to future development needs, I am aware that there remains much to learn about qualitative and quantitative research. This is not just about the methodology, but also about the practicalities of using the software. For example, NVivo and SPSS are hugely powerful pieces of software and I have merely scratched the surface with both. I have realised that learning how to use the software is an enabler and that the most important thing is to know why to use them and what you want them to do. This is particularly true for SPSS. I have as a result of undertaking this research developed a very rudimentary understanding of a very limited range of statistical tests. I am now emboldened to believe I may have the capability of extending my competence and understanding in this area.

The rewards of research. It is very rewarding to see the results of research being acted upon. The first phase of the research led to guidance documents being produced for circulation to all SATs. The results also helped inform a series of SAT focused faculty development sessions that have been run since Phase 1 of the research concluded. It will be just as rewarding if the findings from Phase 2 are able to inform curriculum development discussions.

In summary, I have had the good fortune to learn an enormous amount through undertaking this research, both in the interesting findings, but also about the nature and processes of research itself.

10.11 Summary

This thesis has explored the support roles available to MBChB students in Years 3 to 5 while on hospital placement and the students' perceptions of these roles. The change in students' orientation to their learning has been explained using social learning theories. Students in the third year are more concerned to ensure they learn what is on the curriculum and that they have people in support roles who will teach them according to these needs. Final year students while still concerned to pass exams, seem less preoccupied with finding support roles to help them do this, but more concerned to have support with learning the role of the doctor they will become in the coming year.

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12 APPENDICES

12.1 Appendix A: Self authorship stages

Magolda (2004)	Magolda (2008)	Johnson (2013) Based on Magolda (2004)	Taylor and Haynes (2008)	Kegan (1994) Constructive developmentalist
External Formulas Knowledge as certain, reliance on authority, inability to evaluate external knowledge claims. Little awareness of own social identity and values	Trusting the internal voice taking ownership of reactions to, and creating meaning from, external occurrences	Following formulas Easily influenced by authority and peers Desire for approval Uncritical of authority	Tier 1 Passive view of knowledge and reliance on authority figures	Instrumental stage Following rules to achieve reward or avoid punishment
Crossroads Evolving acceptance of uncertainty and acceptance of multiple perspectives. Development of ability to evaluate knowledge claims and values. Tension between emerging personal values and external influences	Building the internal foundation Greater self-knowledge and self-acceptance. Aspirations to act on personal values	The crossroads Begin to recognise role of 'internal voice' in their lives Nascent desire for self-definition Beginning to evaluate knowledge and beliefs independently	Tier 2 Reduction in reliance on authority figures role of peer perspectives more important	Socialisation stage concerned how to fit in and meet expectations
Self-authorship Knowledge seen as contextual. Use personal values to evaluate and make judgements. Values and identity used to interpret experience	Securing internal commitment Living in accordance with values, the development of wisdom	Becoming the author of one's life Critical construction of own identity Define own knowledge and value Accept the perspectives of others See knowledge as contextual and not fixed	Tier 3 Acceptance that knowledge is complex development of own values	Self-authorship stage Build own internal values to guide behaviour
		Internal foundations Able to engage with different perspectives Evaluate knowledge in context Use own perspectives to construct knowledge.		Self-transformative stage Able to see gaps in own value systems and development of openness to other's values

12.2 Appendix B: Scoping review data

Study	Country	Context of study	Study type	Which social learning theories have been used?	Have the relationships with those who support student learning been described in this context	How does students' orientation to learning change over time?	Main findings
Abbey et al. (2010)	USA	Medical student Geriatric house calls	Survey - open ended questions	Bandura – social learning Observational learning	Yes, as role models	Not discussed	Students influenced by quality of care witnessed. Students wanted more active role in consultation.
Adema et al. (2019)	Netherlands	Medical students on hospital placements	Audio diaries	Wenger – CoP	Yes, welcoming (or not) to community. Learning from observation and participation. Role modelling	A longitudinal study, but little on students' changing orientations	An exploration of professional identity formation. Results framed in terms of engagement, imagination and alignment.
Bartlett et al. (2018)	UK	Community placements Medical students	Focus groups	CoP Situated learning Self-efficacy, Bandura Professional identity formation	In terms of being welcoming and having time to spend with students.	Single 15-week placement – some evidence of change over 15-week period	Students benefit from experience as get to be more responsible for care, but need support from centre too.
Beattie et al. (2019)	Australia	Australia rural placements medical students LIC (GP)	Semi-structured interviews	Not explicit, but elements of CoP and situated learning are apparent	Yes, in that learning group is a range of levels hence Vertical Integration (VI).	Not specifically, though time is found to support development	Near peer learning cultivated with registrars. Friendly environment promoted learning.

						of supportive supervisory relationships	
Beck et al. (2018)	Switzerland	Elective placements (mostly hospital-based) Medical students	Interviews	Social learning theories not used as a lens (situated learning used as key word, but not discussed in article)	In part, in terms of being welcoming, or not, issues of communication and giving students responsibility or feedback	A range of placements make up the Clinical Elective Year (CEY), but no learning changes discussed	Main factors perceived to be facilitating for this phase of the CEY were (a) to be an active part of a professional team, (b) to be responsible for certain units of professional work, and (c) to receive high quality feedback, well-structured formal teaching and supervision.
Bennett et al. (2015)	Ireland	Peer learning Medical students on hospital placement	Evaluation of experience forms	Activity theory, but also references CoP and Vygotsky	Yes, with peers and with clinicians	No	Even with peer assisted learning students want access to experts. Students concerned about exams. Difference between GEC and main cohort
Chen et al. (2014)	USA	Community clinical placements – but medical students as volunteers	Interview students and faculty	CoP	Very limited discussion of supervisory role	Not mentioned	Difference between observation and exposure and legitimate peripheral participation. Discusses affordances -focussed mission -focussed training.
Cope et al. (2000)	UK	Nursing students two cohorts, before and after Project 2000	Structured Interviews based on a	CoP and cognitive apprenticeship	Mentors as experts who contextualise theoretical learning	Not part of study	Acceptance to community is social and professional

		implementation	questionnaire		and who provide support, fading as appropriate		(based on skills)
Dolmans et al. (2002)	Netherlands	Medical students' experiences in outpatients	Evaluation survey of OPD experience using Likert scale type questions	Cognitive apprenticeship	The nature of support is not discussed, but stated to be central to effectiveness of OPD for student learning	Not part of study, but generally short hospital placements	Developing a model to show how a range of factors such as supervision, patient mix affect student experience
Dyar et al. (2019)	Sweden	Nurse student teaching ward	Ethnographic observational approach	CoP	COP supported by dedicated time for supervision	No, short experiences	Student ownership of space promotes active engagement in tasks.
Eggleton et al. (2019)	New Zealand	Community attachments Two weeks duration Medical students	Questionnaire study (open ended questions)	Legitimate peripheral participation CoP	Welcoming and inclusive. Keen to teach. Insight into personal lives	Short experiences	Negative experiences curtail inbound trajectory. Marginalisation through lack of hospitality. Give students guidance on types of activities they can engage in and strategies to negotiate way into participation.
Fredholm (2019)	Sweden	Primary healthcare– reflections on experience – fifth year medical students	Interviews (narrative enquiry)	Communities of practice	Supervisors provide feedback, security, and opportunities for reflection	Not part of study	Actions need to have consequences for patients. Authenticity contributes to professional identity formation. Good relationship with clinical supervisor important in feeling authentic? Promotes feeling of belonging.
Goldie et al.	UK	Medical students	Interviews and	CoP	Focus on student	Not part of	Range of grades and

(2015)		Hospital placements	focus groups	Role modelling	rather than supervisory behaviour	the study	professions can help. Welcoming, providing opportunity (entrée to CoP). However students need to be enthusiastic to join.
Groot et al. (2020)	Netherlands	Medical students prior to hospital placement experience	Interviews	ZPD	As part of simulation debrief	Not part of study	The study reports pushing students to the frontier of their ZPD. It looks at how taking students out of their comfort zone can motivate future learning.
Hägg-Martinell et al. (2017)	Sweden	Hospital students and supervisors	Ethnographic observational	CoP	Interaction rather than relationship	Short stay on one ward	Increased situational understanding allows students to move from nervousness to curiosity. Individual supervisors more or less inclined to involve students in ward business. Short placements cause fragmentation and exclusion.
Hägg-Martinell et al. (2014)	Sweden	Hospital – medical and nursing students	Questionnaire + interview with medical students in last semester of studies	CoP	Supervisory relationships discussed in relation to providing support and encouraging independence and providing feedback	Not discussed	Management of and organisation for learning important, e.g. time and space. Culture important – involved students felt more wanted. Hierarchical issues Students valued feedback and

							interested competent supervisors
Hägg-Martinell et al. (2016)	Sweden	Medical and nursing students placed on wards in hospitals	Ethnography – observation and informal conversations	CoP	Not specifically reported on and the CoP reported to be fluid.	Medical students on shorter stays tended to be viewed as observers rather than participants	Students try to adapt to the community, routines of the community help in difficult situations, the community is fluid as staff change, and students benefit from incomers to the community and experiences outside it.
Hunukumbure et al. (2017)	UK	Medical students	Semi structured interviews	ZPD	Simulation and supported self and peer reflection	Not part of study	Students can support each other in their ZPD, but there is a difference between students who are more collaborative and those who are more competitive.
Jaye et al. (2010)	New Zealand	Medical students, first year clinical training surgical attachment	Ethnography – observation of ward rounds	CoP Foucault biopower and bio politics	As role models and teachers	Students adapt to the CoP	Transience leads to peripherality. Students adapt to the repertoire and norms of CoP. This can lead to perpetuation of CoP
Lewis and Kelly (2018)	UK	Nursing students	Semi structured interviews	CoP	As a role model for potential career choice	Not discussed though placements tend to promote positive attitude to GPN	This is about the establishment of a Community of practice. Preconceived perceptions can be hard to alter, but experience can do this
Lindquist et al.	Sweden	Physiotherapy	Longitudinal	CoP (but not overtly)	Supported reflection	Development	Students become more

(2006)			qualitative (interviews)	used)	Feedback on performance	of self-critical and self-assessment behaviours	self-directed towards the end of the programme. Students become more critical of their own and others' practice as they progress through the programme.
Molesworth (2016)	UK	Nursing students	Semi-structured interviews or focus groups	CoP	Mentors crucial to experiences of peripherality or marginality	Not discussed	Peripherality within CoP can lead to anxiety especially if student is not supported. Professional capital developed within communities. CoPs can be a source of distress. Students have to pull their weight and contribute to be accepted. This can impede learning
Montacute et al. 2016)	USA	Medical students on hospital placement	Analysis of open ended written reflections	Not specified	Looks in particular at relationship with junior doctors. Importance of setting safe learning environment.	Not discussed	Setting a safe learning environment regarded as more important than other attributes. Being seen as a team member and feedback also seen as important.
Naidoo (2019)	South Africa	Occupational therapy (South Africa)	Qualitative case study design 2012 cohort unit of analysis. Multiple sources of data – focus group	ZPD	Need for understanding of level of student Role modelling Giving students space and autonomy	No, 6-week placements	Three factors important; individual enablement, placement and organisation. Supporting interaction with supervisors and peers.

			discussions, interviews document analysis				
Roberts et al. (2017)	Australia	Community placements medical students	Interviews with students (18)	Situated learning COP Formal versus informal learning	Little about specific developmental relationships, but note that connectivity is important Role modelling	Developing sense of professional identity, developed confidence, and more contextual awareness.	Two themes emerge – connectivity and preparedness for practice.
Stalmeijer et al. (2009)	Netherlands	Medical students in sixth year Netherlands Hospital placements	Focus group interviews	Situated Learning Cognitive apprenticeships	Discussed in relation to the types of ‘teaching’ activities undertaken.	No, but teachers engage in scaffolding and reflection on longer placements	Students appreciate support in all dimensions of cognitive apprenticeship from supervisors, but in good educational climate. Training of supervisors important.
Steven et al. (2014)	UK	Medical students in clinical years (UK). Multiple locations	Audio diary followed by either focus group and/or interview	CoP, but discusses Vygotsky in framing the importance of dialogue	In respect to learning outside or within care or providing care Role modelling and observation Facilitating participation, question and guide	Developing sense of legitimacy, sometimes after surviving rites of entry	Nature of interactions described. Clinicians can be preoccupied Confidence required to interact with some doctors. Most learning informal. Participation rather than acquisition model of learning.

12.3 Appendix C: SAT study participant information sheet

Evaluation of the role of the Senior Academy Tutor in Years 3-5. Does or should the role change depending upon the rotation or the year the student is in?

Background and description of proposed study

Clinical supervision, tutoring, mentoring, preceptorship and other similar roles have been extensively described in both the medical education and the general education literature. This study seeks to discover the views of students and of staff about the recently introduced role of Senior Academy Tutor, which was instituted to provide students with some support, guidance and supervision while on clinical placements. The study will attempt to help inform debate about whether the role and the needs of the students change as they progress through the MBChB. Given that a portfolio was introduced at the same time, the study will need to explore its use and its effect on the meetings between students and Senior Academy Tutors. It is also hoped that this study will provide some guidance about whether Senior Academy Tutors would feel prepared to more formally assess their students and whether this would be acceptable to students.

Invitation to participate

If you are a student in Year 3, 4 or 5 of the MBChB, or if you are a Senior Academy Tutor then you are eligible to participate in this study.

If you agree to participate you will be asked to take part in focus groups (students) and individual interviews (staff). The groups involving students will be formed to ensure each group contains students who are in the same year of the MBChB.

All interviews and focus groups will be recorded, so that they can be analysed and in the cases of individual interviews transcribed. It is anticipated that the small group interviews will typically take about 45 minutes – one hour to complete, and the individual interviews no more than half an hour. All data will be held by the principle researcher/interviewer. For analysis and presentation in the report, all data will be anonymised.

Contact details

Please contact David Morley if you have any questions about this research project

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12.4 Appendix D: SAT study student focus group schedule

Introduction

Participants will be given the participant information sheet, which provides a background to the study and details of how the research will be conducted. Participants will then be given a consent form. Participants will be asked to read this and initial next to each statement to indicate they understand what it means to participate. The participants will be asked to sign and date the form to indicate their consent to take part. The form will be countersigned by the investigator. (David Morley)

Audio

The audio recording device will be switched on when everyone involved in the focus group has read the leaflet, has had any questions answered and signed the consent forms.

Session Content

The session will be organised to explore the following themes. Suggested questions that can be used as prompts are shown next to the themes.

Theme	Possible Questions (Prompts)
Back ground and description of contact with Senior Academy Tutor (SAT)	<ol style="list-style-type: none"> 1. How often did you meet your SAT? 2. Please describe a typical meeting with your SAT. (Did you have group or individual meetings?)
Support for learning	<ol style="list-style-type: none"> 1. Did you find your meetings with your SAT useful, please say why/why not? 2. What would you like an SAT to do to support your learning? 3. What sort of feedback have you received from your SAT? 4. What sort of feedback would you like from your SAT?
Difference between role of Senior Academy Tutor in different years of the MBChB	<ol style="list-style-type: none"> 1. Now you are in Year 4, Year 5 do you think the role of the SAT changes as you progress? Should the role be carried out differently in different years?
The potential for Senior Academy Tutors to be involved in formally assessing students	<ol style="list-style-type: none"> 1. Do you think the SAT is in a good position to sign you off and to complete your PBA form? 2. Do you think it would be possible, or fair for a SAT to grade or mark your performance while on placement?
The use of a portfolio	<ol style="list-style-type: none"> 1. What do you think the purpose of introducing the portfolio is? 2. What are the benefits of having the portfolio? 3. What are the main issues with the portfolio? 4. Should SATs spend more time discussing your portfolio with you? 5. Some students have complained that the portfolio is not assessed. Do you think it should be? If so how? (Prompt – by SAT, handed in for marking, as an OSCE station?)

12.5 Appendix E: SAT study SAT interview schedule

Introduction

Participants will be given the participant information sheet, which provides a background to the study and details of how the research will be conducted. Participants will then be given a consent form. Participants will be asked to read this and initial next to each statement to indicate they understand what it means to participate. The participants will be asked to sign and date the form to indicate their consent to take part. The form will be countersigned by the investigator. (David Morley)

Audio

The audio recording device will be switched on when the interviewee has read the leaflet, has had any questions answered and signed the consent form.

Session Content

The session will be organised to explore the following themes. Suggested questions are shown next to the themes.

Theme	Possible Questions (Prompts)
Back ground and description of contact with Senior Academy Tutor (SAT)	<ol style="list-style-type: none"> 1. How often do you meet your students? 2. Describe a typical meeting with your students. Did you have group or individual meetings with your students?
Support for learning	<ol style="list-style-type: none"> 1. Do you see it as your role to provide feedback to students? If so, what sort of feedback do you provide?
Difference between role of Senior Academy Tutor in different years of the MBChB	<ol style="list-style-type: none"> 1. If you are a SAT in more than one year, can you describe how the role is different. What would you attribute this difference to?
The potential for Senior Academy Tutors to be involved in formally assessing students	<ol style="list-style-type: none"> 1. How do you feel about signing the student off at the end of the rotation by completing their PBA form? 2. Do you think you know your students well enough to grade or mark them on aspects of their performance?
The use of a portfolio	<ol style="list-style-type: none"> 1. What do you think to the portfolio of activities we ask the students to undertake? How could it be improved? 2. Do you discuss the students' portfolio with them? If not why not, and would you like to? 3. Do you think the portfolio should be assessed? If not, why not, and if yes, why and how? (Prompt – by SAT, handed in for marking, as an OSCE station?)
Summary of benefits of having a Senior Academy Tutor	<ol style="list-style-type: none"> 1. What do you think the main benefit of the Senior Academy Tutor role is, or could be?

12.6 Appendix F: Expert Panel – statements to rank

1	To understand and apply ethical and professional principles
2	In understanding the needs of patients from diverse social and cultural backgrounds
3	To apply principles of quality assurance, clinical governance and risk management to medical practice
4	To understand the need to adapt management proposals and strategies for patients with complex needs, multiple morbidities and long term conditions
5	To be an effective learner
6	To communicate verbally with patients
7	To elicit clinical information from patients through taking a history and performing a physical examination
8	To synthesis information to define the likely differential diagnoses
9	To prescribe safely, effectively and economically
10	To record patient information correctly
11	To apply biomedical scientific principles and knowledge to medical practice
12	To apply principles, methods and knowledge of population health to medical practice
13	To support and facilitate patients to make decisions about their care
14	To understand the clinical roles and responsibilities of a doctor
15	To understand the importance of raising and escalating concerns
16	To support patients and carers as the patient approaches the end of life
17	To act as a mentor and teacher
18	To communicate in professional situations with colleagues
19	To explain things to and advise patients
20	To formulate plans for treatment, management and discharge
21	To use medical devices safely
22	To understand how hospitals are organised to deliver care
23	To integrate psychological principles, methods and knowledge into medical practice
24	To understand how scientific methods and medical research can influence decisions about patient care.
25	To understand how to act when a patient lacks capacity
26	To maintain health and safety in the workplace and understand how errors can happen in practice
27	To deal with uncertainty through reflection, debriefing or asking for help
28	To recognise the factors suggestive of patient vulnerability and know how to take action in response, including safeguarding
29	To understand the importance of teamwork in clinical practice
30	To communicate in writing
31	To interpret findings from investigations and diagnostic tests
32	To provide immediate care in medical emergencies
33	To perform clinical procedural skills safely and effectively
34	To understand the relationship between hospital care and primary and social care
35	To apply social science principles, methods and knowledge to medical practice
36	To use computer and information technology needed to support clinical practice
37	To understand the career and working pattern of a doctor

12.7 Appendix G: Expert Panel Participant Information Sheet

Participant Information Sheet

An investigation into the relative influence of different roles on the development of Medical students during hospital placements. (MChB years 3-5) ERN_14-0545A

Background and description of proposed study

Students are supported in their professional development in a variety of different ways by people occupying many different roles. While some of these are formally instituted roles, designed to support students in their development, others are not, and provide students with informal guidance and support. This study seeks to explore how the support received from different roles differs, and how it contributes to students' professional development during their hospital placements.

The purpose of this expert panel

A questionnaire is being developed to discover students' views about the above. This expert panel is convened to ensure that the questionnaire will ask the right questions about students' professional development.

Invitation to participate

You have been invited to participate in this expert panel as a result of your interest and experience in medical student education and professional development.

If you agree to participate you will be asked to take part in a focus group formed to help develop the questionnaire. This will involve:

1. Ranking a series of objectives. These are drawn from the Outcomes for Graduates draft for consultation
2. Suggesting whether there are any outcomes that should be included, but which are not, or whether any of those included need to be rewritten or perhaps divided into two separate outcomes.

Data cannot be removed retrospectively from the conclusions of the Expert Panel as it will simply inform ranking and of objectives.

All data will be held by the principle researcher/interviewer. For analysis and presentation in the report, all data will be anonymised.

If participants would like access to the final report this will be available as part of the finished thesis via the e-thesis portal.

Contact details

Please contact David Morley if you have any questions about this research project

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12.8 Appendix H: Slides for the Expert Panel Sessions

“An investigation into the relative influence of different roles on the development of medical students during hospital placements. (MBChB years 3-5)”

Ethical Review number ERN_14-0545A
 University of Birmingham

An investigation into the relative influence of different roles on the development of Medical students in hospital placements. (MBChB years 3-5)

The roles are:

- Consultant and middle grade doctor
- Education Fellow
- Foundation Grade Doctor
- Member of other profession
- Senior Academy Tutor
- Student

An investigation into the relative influence of different roles on the development of Medical students in hospital placements. (MBChB years 3-5)

The task

1. To rank a series of objectives. These are drawn from the Outcomes for Graduates draft for consultation.
2. To suggest whether there are any outcomes that should be included, but which are not, or whether any of those included need to be rewritten or perhaps divided into two separate outcomes.

An investigation into the relative influence of different roles on the development of Medical students in hospital placements. (MBChB years 3-5)

Participant Information Sheet

Investigation into the relative influence of different roles on the development of Medical students in hospital placements. (MBChB years 3-5)

Introduction

The purpose of this research is to investigate the relative influence of different roles on the development of Medical students in hospital placements. (MBChB years 3-5)

Objectives

1. To rank a series of objectives. These are drawn from the Outcomes for Graduates draft for consultation.

2. To suggest whether there are any outcomes that should be included, but which are not, or whether any of those included need to be rewritten or perhaps divided into two separate outcomes.

Contact

Dr. [Name]

Dr. [Name]

Dr. [Name]

Consent Form - (Human Groups)

Investigation into the relative influence of different roles on the development of Medical students in hospital placements. (MBChB years 3-5)

Introduction

The purpose of this research is to investigate the relative influence of different roles on the development of Medical students in hospital placements. (MBChB years 3-5)

Objectives

1. To rank a series of objectives. These are drawn from the Outcomes for Graduates draft for consultation.
2. To suggest whether there are any outcomes that should be included, but which are not, or whether any of those included need to be rewritten or perhaps divided into two separate outcomes.

Contact

Dr. [Name]


Dr. [Name]

Dr. [Name]

An investigation into the relative influence of different roles on the development of Medical students in hospital placements. (MBChB years 3-5)

- Please rank the objectives based on how important it is that students develop their abilities in them while on hospital-placement.
- Importance in general.
 - **Not** asking about the importance placed on them by the Birmingham MBChB,
 - **Not** asking about specific modules or placements,
 - **Not** about the possibility and opportunities afforded at particular hospitals.
- It is a general question about importance while on hospital placement.

An investigation into the relative influence of different roles on the development of Medical students in hospital placements. (MBChB years 3-5)



Minimum of 6 objectives in each category.

An investigation into the relative influence of different roles on the development of Medical students in hospital placements. (MBChB years 3-5)

Professional Development Objectives for Medical Students during Hospital Placements

Most important	Important
Minimum of 3	Minimum of 3
Of lesser importance	Least important
Minimum of 3	Minimum of 3

An investigation into the relative influence of different roles on the development of Medical students in hospital placements. (MBChB years 3-5)

Please select your role - tick all that apply

Please select your specialty, by ticking your final college

Professional Development Objectives for Medical Students during Hospital Placements

Most important	Important
Of lesser importance	Least important

1. To understand and apply ethical and professional principles	26. To identify gaps in theoretical, management and technology
2. To understand the needs of patients from diverse cultural backgrounds	27. To take feedback seriously
3. To appreciate the health care team, their positions and the management of medical practice	28. To understand how feedback is captured and used
4. To understand the need to adopt management approaches to practice with complex tasks, multiple activities and long term outcomes	29. To integrate professional principles, methods and knowledge into medical practice
5. To be self-reflective	30. To understand how scientific evidence and medical research can influence decisions about patient care
6. To communicate readily with patients	31. To understand how to set and control performance targets
7. To identify and discuss their own strengths and weaknesses in a clinical environment	32. To understand health and safety in the workplace and understand how to set targets in practice
8. To provide information to inform the Multi-Professional Report	33. To deal with complaints through reflection, listening & taking the lead
9. To provide advice, information and resources	34. To integrate the basic principles of patient safety, including how to identify risks, improve, & identify responsibility
10. To record patient information accurately	35. To understand the importance of consent in clinical practice
11. To apply knowledge of health professional knowledge to clinical practice	36. To communicate writing
12. To appreciate, understand and knowledge of specialist health care services	37. To understand the importance of diagnosis and management plan
13. To support and help patients to make decisions about their care	38. To provide immediate care in medical emergencies
14. To understand the Medical Council requirements in a clinical setting	39. To perform clinical procedures effectively and efficiently
15. To understand the requirements of being a working doctor	40. To understand the relationship between higher level and primary care services
16. To support patients and teams in the clinical environment the use of IT	41. To apply evidence based practice, methods and knowledge in medical practice
17. To act as a mentor and teacher	42. To use evidence and scientific knowledge to inform patient care
18. To communicate in professional situations with colleagues	43. To understand the value and working pattern in a clinical
19. To handle litigation and other patients	

An investigation into the relative influence of different roles on the development of Medical students in hospital placements. (MBChB years 3-5)

- Are there any items to be added?
- Are there any items that need to be reworded?



An investigation into the relative influence of different roles on the development of Medical students in hospital placements. (MBChB years 3-5)

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12.9 Appendix I: Correlations between statements based on Expert Panel ranking

Statement	Number	Number	Statement	Correlation coefficient	significance
To record patient information correctly	10	30	To communicate in writing	0.439	0
To support and facilitate patients to make decisions about their care	13	32	To provide immediate care in medical emergencies	0.429	0
To apply biomedical scientific principles and knowledge to medical practice	11	24	To understand how scientific methods and medical research can influence decisions about patient care.	0.404	0.001
To support and facilitate patients to make decisions about their care	13	25	To understand how to act when a patient lacks capacity	0.389	0.001
To use medical devices safely	21	33	To perform clinical procedural skills safely and effectively	0.382	0.001
To understand how to act when a patient lacks capacity	25	28	To recognise the factors suggestive of patient vulnerability and know how to take action in response, including safeguarding	0.371	0.002
To support patients and carers as the patient approaches the end of life	16	32	To provide immediate care in medical emergencies	0.361	0.002
To understand how hospitals are organised to deliver care	22	37	To understand the career and working pattern of a doctor	0.351	0.004
To prescribe safely, effectively and economically	9	31	To interpret findings from investigations and diagnostic tests	0.343	0.004
To support and facilitate patients to make decisions about their care	13	19	To explain things to and advise patients	0.34	0.005
To understand the importance of raising and escalating concerns	15	29	To understand the importance of teamwork in clinical practice	0.324	0.007
To explain things to and advise patients	19	32	To provide immediate care in medical emergencies	0.324	0.008
To support and facilitate patients to make decisions about their care	13	16	To support patients and carers as the patient approaches the end of life	0.319	0.008
To understand and apply ethical and professional principles	1	28	To recognise the factors suggestive of patient vulnerability and know how to take action in response, including safeguarding	0.31	0.012
To synthesis information to define the likely differential diagnoses	8	11	To apply biomedical scientific principles and knowledge to medical practice	0.304	0.012
To support patients and carers as the patient approaches the end of life	16	25	To understand how to act when a patient lacks capacity	0.303	0.011
To support patients and carers as the patient approaches the end of life	16	36	To use computer and information technology needed to support clinical practice	0.302	0.011
To apply biomedical scientific principles and knowledge to medical practice	11	27	To deal with uncertainty through reflection, debriefing or asking for help	0.298	0.013
To synthesis information to define the likely differential diagnoses	8	34	To understand the relationship between hospital care and primary and social care	0.297	0.013
To be an effective learner	5	32	To provide immediate care in medical emergencies	0.295	0.015
To be an effective learner	5	18	To communicate in professional situations with colleagues	0.295	0.016
To integrate psychological principles, methods and knowledge into medical practice	23	35	To apply social science principles, methods and knowledge to medical practice	0.294	0.017
To apply biomedical scientific principles and knowledge to medical practice	11	37	To understand the career and working pattern of a doctor	0.288	0.017
To communicate in professional situations with colleagues	18	29	To understand the importance of teamwork in clinical practice	0.28	0.016
In understanding the needs of patients from diverse social and cultural backgrounds	2	16	To support patients and carers as the patient approaches the end of life	0.268	0.015
To understand the need to adapt management proposals and strategies for patients with complex needs, multiple morbidities and long term conditions	4	15	To understand the importance of raising and escalating concerns	-0.286	0.017
To prescribe safely, effectively and economically	9	16	To support patients and carers as the patient approaches the end of life	-0.299	0.013
To communicate in professional situations with colleagues	18	31	To interpret findings from investigations and diagnostic tests	-0.311	0.01
To understand the clinical roles and responsibilities of a doctor	14	32	To provide immediate care in medical emergencies	-0.317	0.008
To understand the need to adapt management proposals and strategies for patients with complex needs, multiple morbidities and long term conditions	4	5	To be an effective learner	-0.335	0.006
To understand how scientific methods and medical research can influence decisions about patient care.	24	33	To perform clinical procedural skills safely and effectively	-2.99	0.014

12.10 Appendix J: Ranking of items by Expert Panel

Number	Statement	Domain	Average
7	To elicit clinical information from patients through taking a history and performing a physical examination	Skills	2.97
32	To provide immediate care in medical emergencies	Skills	2.71
6	To communicate verbally with patients	Skills	2.67
33	To perform clinical procedural skills safely and effectively	Skills	2.61
9	To prescribe safely, effectively and economically	Skills	2.46
8	To synthesise information to define the likely differential diagnoses	Skills	2.41
31	To interpret findings from investigations and diagnostic tests	Skills	2.38
14	To understand the clinical roles and responsibilities of a doctor	Values and behaviours	2.36
20	To formulate plans for treatment, management and discharge	Skills	2.33
29	To understand the importance of teamwork in clinical practice	Values and behaviours	2.28
18	To communicate in professional situations with colleagues	Skills	2.25
19	To explain things to and advise patients	Skills	2.21
10	To record patient information correctly	Skills	2.14
1	To understand and apply ethical and professional principles	Values and behaviours	2.08
15	To understand the importance of raising and escalating concerns	Values and behaviours	2.06
27	To deal with uncertainty through reflection, debriefing or asking for help	Values and behaviours	1.87
28	To recognise the factors suggestive of patient vulnerability and know how to take action in response, including safeguarding	Values and behaviours	1.86
25	To understand how to act when a patient lacks capacity	Values and behaviours	1.75
13	To support and facilitate patients to make decisions about their care	Values and behaviours	1.68
5	To be an effective learner	Values and behaviours	1.57
30	To communicate in writing	Skills	1.55
26	To maintain health and safety in the workplace and understand how errors can happen in practice	Values and behaviours	1.51
4	To understand the need to adapt management proposals and strategies for patients with complex needs, multiple morbidities and long term conditions	Values and behaviours	1.51
16	To support patients and carers as the patient approaches the end of life	Values and behaviours	1.43
21	To use medical devices safely	Skills	1.41
11	To apply biomedical scientific principles and knowledge to medical practice	Knowledge	1.33
2	In understanding the needs of patients from diverse social and cultural backgrounds	Values and behaviours	1.27
37	To understand the career and working pattern of a doctor	Knowledge	1.06
34	To understand the relationship between hospital care and primary and social care	Knowledge	0.99
3	To apply principles of quality assurance, clinical governance and risk management to medical practice	Values and behaviours	0.93
22	To understand how hospitals are organised to deliver care	Knowledge	0.93
23	To integrate psychological principles, methods and knowledge into medical practice	Knowledge	0.81
36	To use computer and information technology needed to support clinical practice	Knowledge	0.79
24	To understand how scientific methods and medical research can influence decisions about patient care.	Knowledge	0.73
17	To act as a mentor and teacher	Values and behaviours	0.63
35	To apply social science principles, methods and knowledge to medical practice	Knowledge	0.49
12	To apply principles, methods and knowledge of population health to medical practice	Knowledge	0.32

12.11 Appendix K: Ranking of survey items by Expert Panel and inclusion in final questionnaire

Number	Question	Domain	Average	Included
7	To elicit clinical information from patients through taking a history and performing a physical examination	S	2.97	Yes
32	To provide immediate care in medical emergencies	S	2.71	No
6	To communicate verbally with patients	S	2.67	No
33	To perform clinical procedural skills safely and effectively	S	2.61	Yes
9	To prescribe safely, effectively and economically	S	2.46	Yes
8	To synthesis information to define the likely differential diagnoses	S	2.41	Yes
31	To interpret findings from investigations and diagnostic tests	S	2.38	Yes
14	To understand the clinical roles and responsibilities of a doctor	V	2.36	Yes
20	To formulate plans for treatment, management and discharge	S	2.33	Yes
29	To understand the importance of teamwork in clinical practice	V	2.28	Yes
18	To communicate in professional situations with colleagues	S	2.25	No
19	To explain things to and advise patients	S	2.21	No
10	To record patient information correctly	S	2.14	Yes
1	To understand and apply ethical and professional principles	V	2.08	Yes
15	To understand the importance of raising and escalating concerns	V	2.06	Yes
27	To deal with uncertainty through reflection, debriefing or asking for help	V	1.87	Yes
28	To recognise the factors suggestive of patient vulnerability and know how to take action in response, including safeguarding	V	1.86	Yes
25	To understand how to act when a patient lacks capacity	V	1.75	No
13	To support and facilitate patients to make decisions about their care	V	1.68	Yes
5	To be an effective learner	V	1.57	No
30	To communicate in writing	S	1.55	No
26	To maintain health and safety in the workplace and understand how errors can happen in practice	V	1.51	No
4	To understand the need to adapt management proposals and strategies for patients with complex needs, multiple morbidities and long term conditions	V	1.51	No
16	To support patients and carers as the patient approaches the end of life	V	1.43	No
21	To use medical devices safely	S	1.41	No
11	To apply biomedical scientific principles and knowledge to medical practice	K	1.33	Yes
2	In understanding the needs of patients from diverse social and cultural backgrounds	V	1.27	No
37	To understand the career and working pattern of a doctor	K	1.06	No
34	To understand the relationship between hospital care and primary and social care	K	0.99	Yes
3	To apply principles of quality assurance, clinical governance and risk management to medical practice	V	0.93	No
22	To understand how hospitals are organised to deliver care	K	0.93	Yes
23	To integrate psychological principles, methods and knowledge into medical practice	K	0.81	No
36	To use computer and information technology needed to support clinical practice	K	0.79	No
24	To understand how scientific methods and medical research can influence decisions about patient care.	K	0.73	No
17	To act as a mentor and teacher	V	0.63	No
35	To apply social science principles, methods and knowledge to medical practice	K	0.49	No
12	To apply principles, methods and knowledge of population health to medical practice	K	0.32	No

12.12 Appendix L: Ranking of survey items by grade

Number	Statement	Domain	Average	Senior	CTF
7	To elicit clinical information from patients through taking a history and performing a physical examination	Skills	2.97	2.96	2.97
32	To provide immediate care in medical emergencies	Skills	2.71	2.72	2.72
6	To communicate verbally with patients	Skills	2.67	2.76	2.64
33	To perform clinical procedural skills safely and effectively	Skills	2.61	2.41	2.69
9	To prescribe safely, effectively and economically	Skills	2.46	2.46	2.39
8	To synthesis information to define the likely differential diagnoses	Skills	2.41	2.42	2.41
31	To interpret findings from investigations and diagnostic tests	Skills	2.38	2.64	2.18
14	To understand the clinical roles and responsibilities of a doctor	Values and behaviours	2.36	2.20	2.51
20	To formulate plans for treatment, management and discharge	Skills	2.33	2.48	2.26
29	To understand the importance of teamwork in clinical practice	Values and behaviours	2.28	2.12	2.32
18	To communicate in professional situations with colleagues	Skills	2.25	2.25	2.18
19	To explain things to and advise patients	Skills	2.21	2.43	2.03
10	To record patient information correctly	Skills	2.14	2.44	1.95
1	To understand and apply ethical and professional principles	Values and behaviours	2.08	1.96	2.16
15	To understand the importance of raising and escalating concerns	Values and behaviours	2.06	1.92	2.10
27	To deal with uncertainty through reflection, debriefing or asking for help	Values and behaviours	1.87	1.76	2.00
28	To recognise the factors suggestive of patient vulnerability and know how to take action in response, including safeguarding	Values and behaviours	1.86	1.72	1.97
25	To understand how to act when a patient lacks capacity	Values and behaviours	1.75	1.83	1.74
13	To support and facilitate patients to make decisions about their care	Values and behaviours	1.68	1.84	1.61
5	To be an effective learner	Values and behaviours	1.57	1.63	1.50
30	To communicate in writing	Skills	1.55	1.76	1.34
26	To maintain health and safety in the workplace and understand how errors can happen in practice	Values and behaviours	1.51	1.43	1.47
4	To understand the need to adapt management proposals and strategies for patients with complex needs, multiple morbidities and long term	Values and behaviours	1.51	1.71	1.46
16	To support patients and carers as the patient approaches the end of life	Values and behaviours	1.43	1.60	1.33
21	To use medical devices safely	Skills	1.41	1.24	1.54
11	To apply biomedical scientific principles and knowledge to medical practice	Knowledge	1.33	1.48	1.18
2	In understanding the needs of patients from diverse social and cultural backgrounds	Values and behaviours	1.27	1.20	1.41
37	To understand the career and working pattern of a doctor	Knowledge	1.06	0.88	1.16
34	To understand the relationship between hospital care and primary and social care	Knowledge	0.99	0.96	1.05
3	To apply principles of quality assurance, clinical governance and risk management to medical practice	Values and behaviours	0.93	1.17	0.74
22	To understand how hospitals are organised to deliver care	Knowledge	0.93	0.74	1.11
23	To integrate psychological principles, methods and knowledge into medical practice	Knowledge	0.81	0.96	0.71
36	To use computer and information technology needed to support clinical practice	Knowledge	0.79	0.72	0.85
24	To understand how scientific methods and medical research can influence decisions about patient care.	Knowledge	0.73	0.76	0.72
17	To act as a mentor and teacher	Values and behaviours	0.63	0.80	0.51
35	To apply social science principles, methods and knowledge to medical practice	Knowledge	0.49	0.54	0.43
12	To apply principles, methods and knowledge of population health to medical practice	Knowledge	0.32	0.54	0.21

12.13 Appendix M: Ranking of survey items by specialty

Number	Statement	Domain	Average	Anaesthetists	GPs	Physicians	Surgeons
7	To elicit clinical information from patients through taking a history and performing a physical examination	Skills	2.97	3.00	3.00	2.95	3.00
32	To provide immediate care in medical emergencies	Skills	2.71	2.63	2.62	2.90	2.63
6	To communicate verbally with patients	Skills	2.67	2.38	2.54	2.77	2.88
33	To perform clinical procedural skills safely and effectively	Skills	2.61	2.38	2.58	2.65	3.00
9	To prescribe safely, effectively and economically	Skills	2.46	2.63	2.64	2.36	2.25
8	To synthesis information to define the likely differential diagnoses	Skills	2.41	2.25	2.83	2.27	2.25
31	To interpret findings from investigations and diagnostic tests	Skills	2.38	2.25	2.75	2.09	2.50
14	To understand the clinical roles and responsibilities of a doctor	Values and behaviours	2.36	2.38	2.46	2.55	2.38
20	To formulate plans for treatment, management and discharge	Skills	2.33	2.13	2.69	2.27	2.63
29	To understand the importance of teamwork in clinical practice	Values and behaviours	2.28	2.25	2.38	2.52	1.75
18	To communicate in professional situations with colleagues	Skills	2.25	2.63	2.08	2.29	2.00
19	To explain things to and advise patients	Skills	2.21	2.38	2.08	2.20	2.38
10	To record patient information correctly	Skills	2.14	2.13	2.17	2.05	2.50
1	To understand and apply ethical and professional principles	Values and behaviours	2.08	1.86	1.92	2.23	1.88
15	To understand the importance of raising and escalating concerns	Values and behaviours	2.06	2.00	1.92	2.05	1.75
27	To deal with uncertainty through reflection, debriefing or asking for help	Values and behaviours	1.87	2.00	2.23	1.95	1.63
28	To recognise the factors suggestive of patient vulnerability and know how to take action in response, including safeguarding	Values and behaviours	1.86	2.00	2.15	1.81	1.88
25	To understand how to act when a patient lacks capacity	Values and behaviours	1.75	1.50	1.92	1.90	1.63
13	To support and facilitate patients to make decisions about their care	Values and behaviours	1.68	2.00	1.69	1.91	1.13
5	To be an effective learner	Values and behaviours	1.57	1.50	1.50	1.36	1.88
30	To communicate in writing	Skills	1.55	2.00	1.23	1.23	2.00
26	To maintain health and safety in the workplace and understand how errors can happen in practice	Values and behaviours	1.51	1.75	1.42	1.33	1.29
4	To understand the need to adapt management proposals and strategies for patients with complex needs, multiple morbidities and long term	Values and behaviours	1.51	1.00	2.00	1.73	1.13
16	To support patients and carers as the patient approaches the end of life	Values and behaviours	1.43	1.00	1.46	2.00	0.88
21	To use medical devices safely	Skills	1.41	1.38	0.77	1.50	2.13
11	To apply biomedical scientific principles and knowledge to medical practice	Knowledge	1.33	1.63	1.42	1.18	1.00
2	In understanding the needs of patients from diverse social and cultural backgrounds	Values and behaviours	1.27	1.00	1.54	1.45	1.00
37	To understand the career and working pattern of a doctor	Knowledge	1.06	1.25	1.25	1.14	1.88
34	To understand the relationship between hospital care and primary and social care	Knowledge	0.99	0.88	1.54	1.00	1.25
3	To apply principles of quality assurance, clinical governance and risk management to medical practice	Values and behaviours	0.93	1.00	0.77	0.95	1.00
22	To understand how hospitals are organised to deliver care	Knowledge	0.93	1.13	0.83	1.29	1.13
23	To integrate psychological principles, methods and knowledge into medical practice	Knowledge	0.81	0.75	0.92	0.90	0.25
36	To use computer and information technology needed to support clinical practice	Knowledge	0.79	1.13	0.77	0.68	1.13
24	To understand how scientific methods and medical research can influence decisions about patient care.	Knowledge	0.73	0.50	0.69	0.73	0.63
17	To act as a mentor and teacher	Values and behaviours	0.63	0.88	0.38	0.68	0.63
35	To apply social science principles, methods and knowledge to medical practice	Knowledge	0.49	0.50	0.67	0.45	0.25
12	To apply principles, methods and knowledge of population health to medical practice	Knowledge	0.32	0.50	0.17	0.27	0.14

12.14 Appendix N: Pilot Group Participant Information Sheet

Participant Information Sheet

A study into student perceptions of how they are supported in their professional development goals while on hospital placement.

Background and description of proposed study

Students are supported in their professional development in a variety of different ways by people occupying many different roles. While some of these are formally instituted roles, designed to support students in their development, others are not, and provide students with informal guidance and support. This study seeks to explore how the support received from different roles differs, and how it contributes to students' professional development during their hospital placements.

The purpose of this pilot group

A questionnaire is being developed to discover students' views about the above. This group is convened to ensure that the questionnaire will be acceptable to students and to help ensure that when the questionnaire is distributed to all students, they will not be any questions or statements that cause confusion, or which may be interpreted in ways other than intended.

Invitation to participate

If you are a student in Year 3 - 5 of the MBChB, you are eligible to participate in this pilot.

If you agree to participate you will be asked to take part in a focus groups formed to help develop the questionnaire. This will involve:

- Completing the questionnaire while being timed
- Discussing the questionnaire to ascertain whether students understand the questions in the same way, and if not to consider how a questions can be reworded to ensure a common understanding of intent.

The discussion that takes place after the questionnaire has been completed will be recorded, so that it can be transcribed and analysed. It is anticipated that the pilot group will take about 30 minutes to complete.

Data cannot be removed retrospectively from the focus group due to the interactive nature of the activity. However, if you decide to withdraw up to 14 days after the focus group took place, no direct quotations containing your data will be used in the report.

All data will be held by the principle researcher/interviewer. For analysis and presentation in the report, all data will be anonymised.

If participants would like access to the final report this will be available as part of the finished thesis via the e-thesis portal.

Contact details

Please contact David Morley if you have any questions about this research project

David Morley
Education Development Specialist
College of Medical and Dental Sciences,
University of Birmingham
Tel: 0121 414 2891
Email: d.morley@bham.ac.uk

12.15 Appendix O: Support Role Questionnaire Survey

An investigation into the relative influence of different roles on the development of medical students during hospital placements (MBChB years 3-5)


The development outcomes shown on this survey are drawn from Outcomes for Graduates. It is hoped this survey will help understand which outcomes students feel more or less supported in, and who is supporting students with which outcomes.

All results from the survey will be reported anonymously in a way that will not allow attribution. All the data contained in the surveys will be stored securely.

Please use a dark pen to fill the circles completely:



Cross through a filled circle if you want to change your answer:

Year 4 

Please tell me any of the details you would like to about yourself by filling in the relevant circles for the questions below:

1. Are you Male Female
2. Which course are you on? 5 year course GEC course (including Dentists)
3. Are you a Home student EEC student Overseas student
4. What age band are you in? 21 or less 22-25 26-30 31+

Which Academy were you at for:

- | | | | | | | | | | | | | |
|--------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | ALX | BCH | BHH | BWH | DUD | GHO | HER | SWBH | UHB | WMA | WNC | WOS |
| 5. Spec Medicine (SPM) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 6. Surgery & PeriOp Care (SPC) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Key

ALX = The Alexandra	BCH = Birmingham Children's	BHH = Heartlands	BWH = Birmingham Women's
DUD = Russells Hall	GHO = Good Hope	HER = Hereford	SWBH = Sandwell and City
UHB = University Hospital	WMA = Walsall Manor	WNC = Wolverhampton New Cross	WOS = Worcester

7. Which decile do your results to date suggest you are in?

- | | | | | | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | Top |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Section 1 – During the past academic year, which roles have supported you in your professional development on hospital placement?

Please shade the most appropriate circle for each profession in relation to each statement

① Not relevant ② Not helpful/no impact ③ Slightly helpful ④ Reasonably helpful ⑤ Very helpful

	The professions helped me learn how:	Clinical Teaching Fellow (CTF)	Foundation Grade Doctor	Other healthcare professional	Consultant and middle grade doctor	Senior Academy Tutor (SAT)	Student
		① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤
1	To elicit clinical information from patients through taking a history and performing a physical examination	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○
2	To perform clinical procedural skills safely and effectively	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○
3	To prescribe safely and effectively	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○
4	To synthesise information to define the likely differential diagnoses	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○
5	To interpret findings from investigations and diagnostic tests	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○
6	To formulate plans for treatment, management and discharge	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○
7	To record patient information correctly	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○
8	To understand the clinical roles and responsibilities of a doctor	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○

Please shade the most appropriate circle for each profession in relation to each statement

① Not relevant ② Not helpful/no impact ③ Slightly helpful ④ Reasonably helpful ⑤ Very helpful

		Clinical Teaching Fellow (CTF)	Foundation Grade Doctor	Member of other profession	Consultant and middle grade doctor	Senior Academy Tutor (SAT)	Student
		① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤	① ② ③ ④ ⑤
9	To understand the importance of teamwork in clinical practice	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○
10	To understand and apply ethical and professional principles	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○
11	To understand the importance of raising and escalating concerns	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○
12	To deal with uncertainty through reflection, debriefing or asking for help	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○
13	To recognise patient vulnerability and know how to respond, including safeguarding	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○
14	To support and facilitate patients to make decisions about their care	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○
15	To apply biomedical scientific principles and knowledge to medical practice	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○
16	To understand the relationship between hospital care and primary and social care	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○
17	To understand how hospitals are organised to deliver care	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○

Section 2

Was your experience of support for your professional development different on different placements – if so, please briefly indicate how?

--

Please write a brief comment about three of the support roles, outlining how these roles have been particularly helpful in supporting you. Please shade the circle to the right of the role you are commenting on

Clinical Teaching Fellow (CTF)	<input type="radio"/>	
Foundation Grade Doctor	<input type="radio"/>	
Other healthcare professional	<input type="radio"/>	
Consultant or Middle Grade Doctor	<input type="radio"/>	
Senior Academy Tutor (SAT)	<input type="radio"/>	
Student	<input type="radio"/>	

Clinical Teaching Fellow (CTF)	<input type="radio"/>	
Foundation Grade Doctor	<input type="radio"/>	
Other healthcare professional	<input type="radio"/>	
Consultant or Middle Grade Doctor	<input type="radio"/>	
Senior Academy Tutor (SAT)	<input type="radio"/>	
Student	<input type="radio"/>	

Clinical Teaching Fellow (CTF)	<input type="radio"/>	
Foundation Grade Doctor	<input type="radio"/>	
Other healthcare professional	<input type="radio"/>	
Consultant or Middle Grade Doctor	<input type="radio"/>	
Senior Academy Tutor (SAT)	<input type="radio"/>	
Student	<input type="radio"/>	

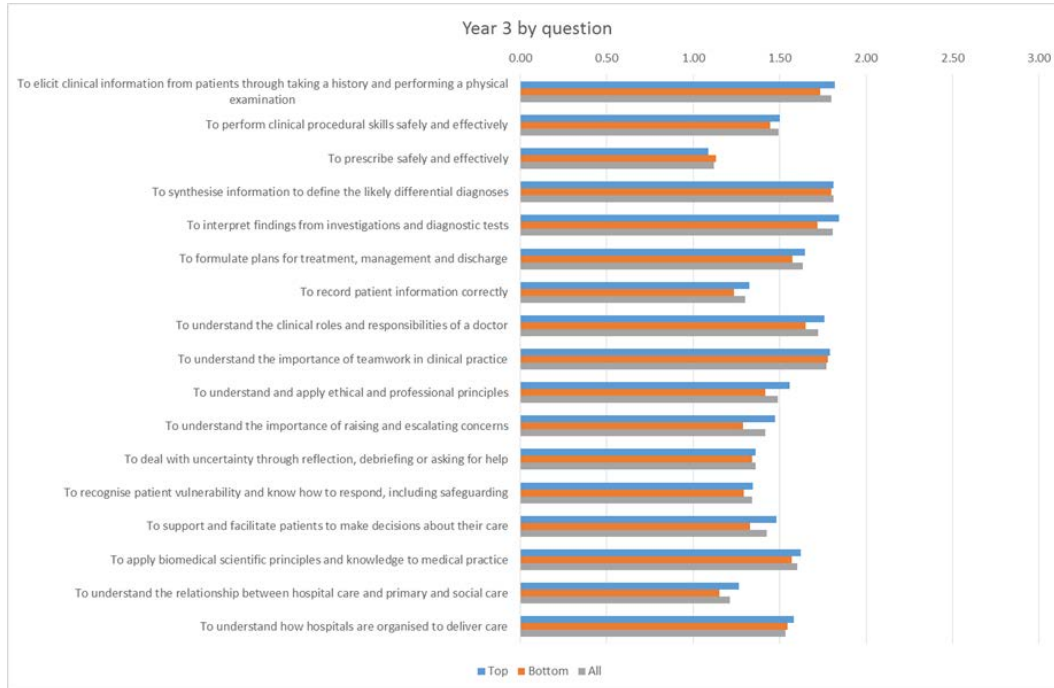
<p>If there are any other comments you'd like to make about the roles you have encountered while on hospital placement please write them here</p>

Thank you very much for taking the time to complete this questionnaire.

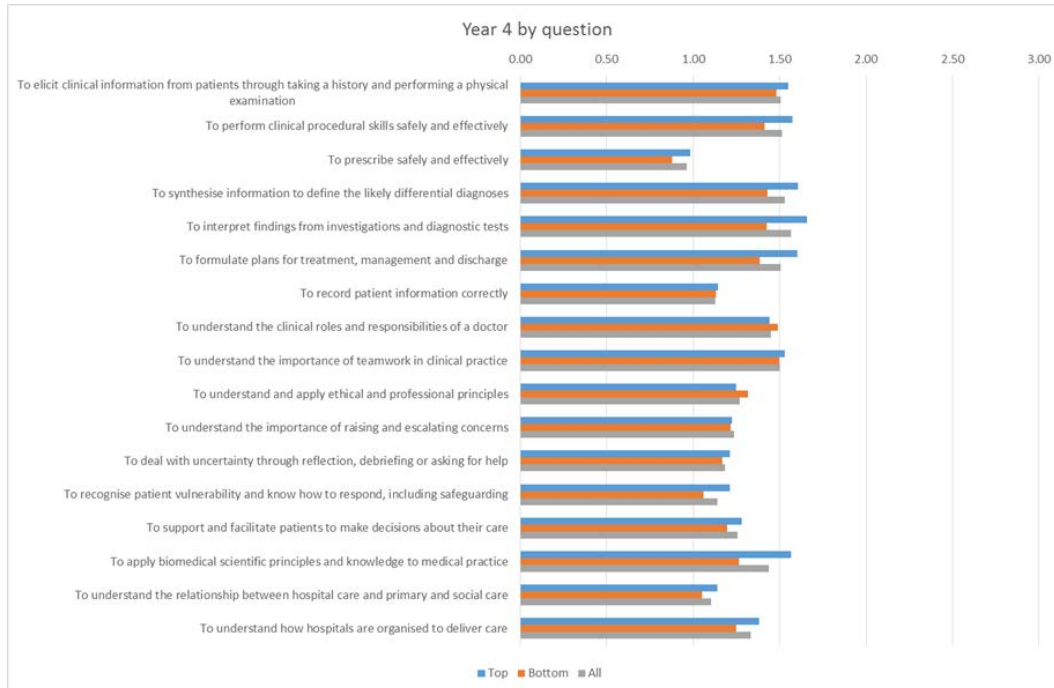
If you have any questions or comments, please contact David Morley d.morley@bham.ac.uk

12.16 Appendix P: Support perceived for each outcome by half by prior performance

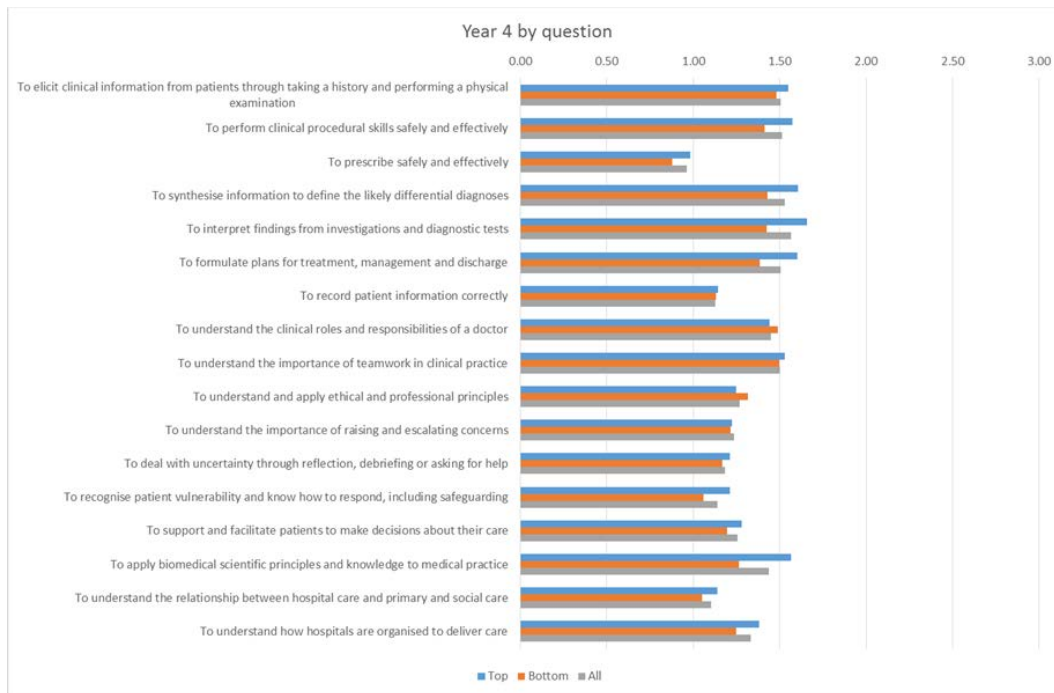
Year 3



Year 4



Year 5



12.17 Appendix Q: Tables showing mean helpfulness rating by role

12.17.1 Year 3

		Year 3: Mean helpfulness rating by role					
Domain	Outcome	CTF	FGD	OHP	CMGD	SAT	STU
Skills	1 To elicit clinical information from patients through taking a history and performing a physical examination	2.70	1.86	0.86	2.02	1.63	1.73
Skills	2 To perform clinical procedural skills safely and effectively	1.96	2.08	2.40	0.68	0.63	1.20
Skills	3 To prescribe safely and effectively	1.38	1.43	1.03	1.26	0.96	0.65
Skills	4 To synthesise information to define the likely differential diagnoses	2.59	2.00	0.72	2.22	1.90	1.44
Skills	5 To interpret findings from investigations and diagnostic tests	2.57	2.12	0.90	2.05	1.64	1.56
Skills	6 To formulate plans for treatment, management and discharge	2.24	1.88	0.78	2.06	1.65	1.19
Skills	7 To record patient information correctly	1.38	1.96	1.48	1.20	0.92	0.86
Values	8 To understand the clinical roles and responsibilities of a doctor	2.15	2.37	1.16	1.96	1.78	0.91
Values	9 To understand the importance of teamwork in clinical practice	1.73	2.13	2.19	1.74	1.61	1.21
Values	10 To understand and apply ethical and professional principles	1.66	1.56	1.42	1.66	1.59	1.04
Values	11 To understand the importance of raising and escalating concerns	1.75	1.57	1.36	1.25	1.56	1.01
Values	12 To deal with uncertainty through reflection, debriefing or asking for help	1.74	1.49	1.00	1.14	1.68	1.10
Values	13 To recognise patient vulnerability and know how to respond, including safeguarding	1.54	1.52	1.51	1.27	1.27	0.92
Values	14 To support and facilitate patients to make decisions about their care	1.49	1.72	1.35	1.71	1.45	0.83
Knowledge	15 To apply biomedical scientific principles and knowledge to medical practice	2.27	1.72	0.65	1.78	1.60	1.59
Knowledge	16 To understand the relationship between hospital care and primary and social care	1.41	1.26	1.25	1.23	1.21	0.91
Knowledge	17 To understand how hospitals are organised to deliver care	1.75	1.76	1.75	1.62	1.52	0.80

Table 81: Year 3 Outcome four-point mean score by role.

12.17.2Year 4

		Year 4: Mean helpfulness rating by role					
Domain	Outcome	CTF	FGD	OHP	CMGD	SAT	STU
Skills	1 To elicit clinical information from patients through taking a history and performing a physical examination	1.85	1.68	0.75	1.99	1.24	1.53
Skills	2 To perform clinical procedural skills safely and effectively	1.85	1.93	2.07	1.38	0.73	1.12
Skills	3 To prescribe safely and effectively	1.18	1.48	0.64	1.13	0.82	0.53
Skills	4 To synthesise information to define the likely differential diagnoses	1.88	1.67	0.60	2.27	1.50	1.25
Skills	5 To interpret findings from investigations and diagnostic tests	1.95	1.77	0.84	2.19	1.38	1.24
Skills	6 To formulate plans for treatment, management and discharge	1.83	1.73	0.68	2.22	1.44	1.13
Skills	7 To record patient information correctly	1.05	1.91	1.06	1.27	0.74	0.75
Values	8 To understand the clinical roles and responsibilities of a doctor	1.38	2.04	1.03	2.02	1.57	0.65
Values	9 To understand the importance of teamwork in clinical practice	1.11	1.90	2.06	1.82	1.05	1.07
Values	10 To understand and apply ethical and professional principles	1.21	1.25	1.18	1.68	1.33	0.95
Values	11 To understand the importance of raising and escalating concerns	1.17	1.22	1.04	1.37	1.67	0.95
Values	12 To deal with uncertainty through reflection, debriefing or asking for help	1.26	1.18	0.72	1.20	1.72	1.02
Values	13 To recognise patient vulnerability and know how to respond, including safeguarding	0.93	1.23	1.40	1.45	1.17	0.64
Values	14 To support and facilitate patients to make decisions about their care	1.05	1.51	1.32	1.98	1.07	0.60
Knowledge	15 To apply biomedical scientific principles and knowledge to medical practice	1.70	1.38	0.62	2.12	1.48	1.32
Knowledge	16 To understand the relationship between hospital care and primary and social care	0.98	1.04	1.41	1.59	0.97	0.61
Knowledge	17 To understand how hospitals are organised to deliver care	1.12	1.56	1.61	1.76	1.34	0.61

Table 82: Year 4 Outcome four-point mean score by role

12.17.3Year 5

		Year 5: Mean helpfulness rating by role					
Domain	Outcome	CTF	FGD	OHP	CMGD	SAT	STU
Skills	1 To elicit clinical information from patients through taking a history and performing a physical examination	2.42	1.85	0.87	1.82	1.25	1.53
Skills	2 To perform clinical procedural skills safely and effectively	1.71	2.33	1.90	1.13	0.68	1.11
Skills	3 To prescribe safely and effectively	2.63	1.78	0.75	1.10	0.81	0.90
Skills	4 To synthesise information to define the likely differential diagnoses	2.46	1.93	0.79	2.07	1.48	1.37
Skills	5 To interpret findings from investigations and diagnostic tests	2.49	1.96	0.82	1.99	1.30	1.27
Skills	6 To formulate plans for treatment, management and discharge	2.42	2.02	0.78	1.99	1.32	1.13
Skills	7 To record patient information correctly	2.00	2.25	1.07	1.38	0.84	0.84
Values	8 To understand the clinical roles and responsibilities of a doctor	2.26	2.32	1.01	1.69	1.38	0.89
Values	9 To understand the importance of teamwork in clinical practice	1.88	2.07	1.91	1.55	1.17	1.25
Values	10 To understand and apply ethical and professional principles	1.70	1.34	1.04	1.47	1.21	1.02
Values	11 To understand the importance of raising and escalating concerns	2.24	1.92	1.18	1.49	1.37	0.98
Values	12 To deal with uncertainty through reflection, debriefing or asking for help	1.91	1.55	0.91	1.20	1.32	1.16
Values	13 To recognise patient vulnerability and know how to respond, including safeguarding	1.71	1.46	1.40	1.50	1.10	0.89
Values	14 To support and facilitate patients to make decisions about their care	1.71	1.73	1.33	1.78	0.97	0.66
Knowledge	15 To apply biomedical scientific principles and knowledge to medical practice	1.92	1.44	0.66	1.81	1.25	1.25
Knowledge	16 To understand the relationship between hospital care and primary and social care	1.45	1.40	1.36	1.40	0.87	0.90
Knowledge	17 To understand how hospitals are organised to deliver care	1.79	1.71	1.54	1.52	1.07	0.89

Table 83: Year 5 Outcome four-point mean score by role

12.18 Appendix R: Tables showing not relevant ratings by role

12.18.1 Year 3

Domain	Outcome	Year 3: Number of not relevant (NR) ratings by role					
		CTF	FGD	OHP	CMGD	SAT	STU
Skills	1 To elicit clinical information from patients through taking a history and performing a physical examination	0	6	46	2	13	20
Skills	2 To perform clinical procedural skills safely and effectively	15	12	4	61	83	43
Skills	3 To prescribe safely and effectively	75	66	90	71	81	109
Skills	4 To synthesise information to define the likely differential diagnoses	1	4	64	1	10	22
Skills	5 To interpret findings from investigations and diagnostic tests	0	3	53	4	21	26
Skills	6 To formulate plans for treatment, management and discharge	6	10	70	10	25	55
Skills	7 To record patient information correctly	25	15	35	35	61	79
Values	8 To understand the clinical roles and responsibilities of a doctor	3	4	45	4	12	64
Values	9 To understand the importance of teamwork in clinical practice	6	3	5	3	16	49
Values	10 To understand and apply ethical and professional principles	6	14	16	10	19	51
Values	11 To understand the importance of raising and escalating concerns	6	14	16	15	14	54
Values	12 To deal with uncertainty through reflection, debriefing or asking for help	2	18	32	15	13	42
Values	13 To recognise patient vulnerability and know how to respond, including safeguarding	8	16	12	16	23	56
Values	14 To support and facilitate patients to make decisions about their care	9	9	20	6	20	63
Knowledge	15 To apply biomedical scientific principles and knowledge to medical practice	1	7	36	8	14	24
Knowledge	16 To understand the relationship between hospital care and primary and social care	7	13	18	14	23	57
Knowledge	17 To understand how hospitals are organised to deliver care	7	5	12	5	16	50

Table 84: Year 3 student perceptions of outcome 'Not Relevant' by role

12.18.2Year 4

		Year 4: Number of not relevant (NR) ratings by role					
Domain	Outcome	CTF	FGD	OHP	CMGD	SAT	STU
Skills	1 To elicit clinical information from patients through taking a history and performing a physical examination	26	5	22	2	24	13
Skills	2 To perform clinical procedural skills safely and effectively	27	6	5	14	48	27
Skills	3 To prescribe safely and effectively	44	24	42	23	42	56
Skills	4 To synthesise information to define the likely differential diagnoses	25	5	29	1	15	20
Skills	5 To interpret findings from investigations and diagnostic tests	26	6	26	2	18	23
Skills	6 To formulate plans for treatment, management and discharge	25	5	27	1	18	25
Skills	7 To record patient information correctly	36	7	19	11	38	48
Values	8 To understand the clinical roles and responsibilities of a doctor	28	5	27	3	13	50
Values	9 To understand the importance of teamwork in clinical practice	30	2	3	6	17	37
Values	10 To understand and apply ethical and professional principles	32	12	12	5	15	36
Values	11 To understand the importance of raising and escalating concerns	33	15	14	11	13	33
Values	12 To deal with uncertainty through reflection, debriefing or asking for help	38	18	25	10	11	29
Values	13 To recognise patient vulnerability and know how to respond, including safeguarding	37	13	13	6	20	41
Values	14 To support and facilitate patients to make decisions about their care	35	9	8	4	24	42
Knowledge	15 To apply biomedical scientific principles and knowledge to medical practice	28	12	29	3	16	26
Knowledge	16 To understand the relationship between hospital care and primary and social care	40	14	13	3	21	36
Knowledge	17 To understand how hospitals are organised to deliver care	35	9	9	6	14	41

Table 85: Year 4 student perceptions of outcome 'Not relevant' by role

12.18.3Year 5

		Year 5: Number of not relevant (NR) ratings by role					
Domain	Outcome	CTF	FGD	OHP	CMGD	SAT	STU
Skills	1 To elicit clinical information from patients through taking a history and performing a physical examination	2	4	43	4	23	30
Skills	2 To perform clinical procedural skills safely and effectively	9	3	12	29	54	36
Skills	3 To prescribe safely and effectively	1	5	51	19	45	49
Skills	4 To synthesise information to define the likely differential diagnoses	0	2	54	3	19	29
Skills	5 To interpret findings from investigations and diagnostic tests	1	1	41	1	20	32
Skills	6 To formulate plans for treatment, management and discharge	1	1	46	2	24	34
Skills	7 To record patient information correctly	4	2	43	11	39	53
Values	8 To understand the clinical roles and responsibilities of a doctor	1	2	41	7	22	62
Values	9 To understand the importance of teamwork in clinical practice	2	1	11	2	27	35
Values	10 To understand and apply ethical and professional principles	6	9	29	11	23	49
Values	11 To understand the importance of raising and escalating concerns	2	5	27	7	16	42
Values	12 To deal with uncertainty through reflection, debriefing or asking for help	7	10	34	10	15	37
Values	13 To recognise patient vulnerability and know how to respond, including safeguarding	4	5	19	7	22	49
Values	14 To support and facilitate patients to make decisions about their care	9	9	23	9	32	59
Knowledge	15 To apply biomedical scientific principles and knowledge to medical practice	4	10	41	9	21	38
Knowledge	16 To understand the relationship between hospital care and primary and social care	7	9	23	7	27	54
Knowledge	17 To understand how hospitals are organised to deliver care	5	5	17	3	19	48

Table 86: Year 5 student perceptions of outcome 'Not relevant' by role

12.19 Appendix S: Descriptive statistics

12.19.1 Comparing effect of role and year on perceived helpfulness

Descriptive Statistics				
	Year	Mean	Std. Deviation	N
CTF	3	1.9320	.5553	219
	4	1.3836	.8123	116
	5	2.0544	.5128	186
	Total	1.8536	.6596	521
FGD	3	1.7947	.6498	219
	4	1.5633	.5997	116
	5	1.8328	.6214	186
	Total	1.7568	.6364	521
OHP	3	1.3524	.5919	219
	4	1.1649	.5424	116
	5	1.1468	.5970	186
	Total	1.2373	.5903	521
CMGD	3	1.6237	.5905	219
	4	1.7374	.5189	116
	5	1.5700	.5961	186
	Total	1.6299	.5797	521
SAT	3	1.4780	.7135	219
	4	1.2646	.7770	116
	5	1.0974	.7655	186
	Total	1.2946	.7640	521
STU	3	1.1479	.6490	219
	4	.9572	.6462	116
	5	1.0365	.6719	186
	Total	1.0656	.6598	521

Table 87: Comparing effect of role and year on perceived helpfulness – descriptive statistics

12.19.2 Comparing the effect of domain and half on perceived helpfulness

Descriptive Statistics				
	Recoded half	Mean	Std. Deviation	N
Skills	Bottom	1.6089	.4519	164
	Top	1.5800	.4415	314
	Total	1.5899	.4448	478
Values	Bottom	1.4788	.5648	164
	Top	1.4509	.5632	314
	Total	1.4605	.5633	478
Knowledge	Bottom	1.4453	.6092	164
	Top	1.3991	.5954	314
	Total	1.4150	.5999	478

Table 88: Comparing the effect of domain and half on perceived helpfulness – descriptive statistics

12.19.3 Comparing the effect of role and half on perceived helpfulness

Descriptive Statistics				
	Recoded half	Mean	Std. Deviation	N
CTF	Bottom	1.8767	.6508	155
	Top	1.8366	.6951	293
	Total	1.8505	.6796	448
FGD	Bottom	1.7425	.6302	155
	Top	1.7607	.6451	293
	Total	1.7544	.6393	448
OHP	Bottom	1.2919	.5998	155
	Top	1.2066	.5836	293
	Total	1.2361	.5900	448
CMGD	Bottom	1.6030	.5994	155
	Top	1.6446	.5729	293
	Total	1.6302	.5819	448
SAT	Bottom	1.2977	.7498	155
	Top	1.2891	.7888	293
	Total	1.2921	.7747	448
STU	Bottom	1.1125	.6947	155
	Top	1.0449	.6499	293
	Total	1.0682	.6658	448

Table 89: Comparing the effect of role and half on perceived helpfulness – descriptive statistics

12.19.4 Comparing the effect of domain and gender on perceived helpfulness

Descriptive Statistics				
	Recoded gender	Mean	Std. Deviation	N
Skills	Female	1.5841	.4486	369
	Male	1.5721	.4372	173
	Total	1.5803	.4446	542
Values	Female	1.4664	.5604	369
	Male	1.4275	.5689	173
	Total	1.4540	.5629	542
Knowledge	Female	1.3618	.6016	369
	Male	1.4777	.5956	173
	Total	1.3988	.6016	542

Table 90: Comparing the effect of domain and gender on perceived helpfulness – descriptive statistics

12.19.5 Comparing the effect of role and gender on perceived helpfulness

Descriptive Statistics				
	Recoded gender	Mean	Std. Deviation	N
CTF	Female	1.8613	.6623	354
	Male	1.8231	.6537	161
	Total	1.8494	.6592	515
FGD	Female	1.7569	.6348	354
	Male	1.7440	.6385	161
	Total	1.7529	.6354	515
OHP	Female	1.2751	.6005	354
	Male	1.1451	.5662	161
	Total	1.2345	.5925	515
CMGD	Female	1.6611	.5784	354
	Male	1.5638	.5763	161
	Total	1.6307	.5790	515
SAT	Female	1.3086	.7779	354
	Male	1.2558	.7375	161
	Total	1.2921	.7652	515
STU	Female	1.0606	.6529	354
	Male	1.0731	.6857	161
	Total	1.0645	.6627	515

Table 91: Comparing the effect of role and gender on perceived helpfulness – descriptive statistics

12.20 Appendix T: Redundant themes

The tables below show any theme which has not received a comment in any of the three years.

Consultants and Middle Grade Doctors

		Year 3	Year 4	Year 5
Characteristic	Organised	1 (1)	1 (1)	0 (0)
	Curriculum knowledge	0 (0)	1 (1)	0 (0)
	Recent experience	0 (0)	0 (0)	0 (0)
Interaction type	Careers support	0 (0)	1 (1)	3 (3)
	Examination practice	0 (0)	0 (0)	0 (0)
	Provide challenge	1 (1)	0 (0)	1 (1)
	Role of doctor and other professions	1 (1)	0 (0)	0 (0)
	F1 Preparation	0 (0)	0 (0)	1 (1)
	Peer support	0 (0)	0 (0)	0 (0)
	Reflection or discuss experiences	0 (0)	0 (0)	3 (3)
	Resources	0 (0)	0 (0)	0 (0)
	Shadowing		0 (0)	0 (0)
	Simulation		0 (0)	0 (0)
	Teaching (non-specific comment)	0 (0)	0 (0)	7 (8)
	Small groups or tutorials or lectures		2 (2)	2 (2)
	Trouble shooting	0 (0)	0 (0)	0 (0)
	Welfare or pastoral support	0 (0)	0 (0)	0 (0)
	Teaching Content	Data interpretation	2 (3)	2 (2)
Patient journey or hospital organisation		2 (3)	0 (0)	1 (1)
Practical procedures		0 (0)	2 (2)	1 (1)
Prescribing			2 (2)	0 (0)
Professional skills		1 (1)		1 (1)

Clinical Teaching Fellows

		Year 3	Year 4	Year 5
Interaction type	Careers support	1 (0)	0 (0)	2 (1)
	Provide challenge	0 (0)	1 (1)	1 (0)
	Role of doctor and other professions	0 (0)	0 (0)	2 (1)
	F1 Preparation	0 (0)	3 (2)	34 (12)
	Support and progress checking	35 (11)	0 (0)	0 (0)
	Peer support	0 (0)	0 (0)	0 (0)
	Reflection or discuss experiences	0 (0)	1 (1)	2 (1)
	Providing opportunities for practice	0 (0)	5 (3)	3 (1)
	Teaching (non-specific comment)	12 (4)	0 (0)	8 (3)
	Resources	4 (1)	1 (1)	0 (0)
	Shadowing		2 (1)	0 (0)
	Simulation		3 (2)	35 (12)
	Small groups or tutorials or lectures		4 (3)	10 (3)
	Trouble shooting	1 (0)	3 (2)	0 (0)
Teaching Content	Patient journey or hospital organisation	0 (0)	1 (1)	1 (0)
	Prescribing		1 (1)	29 (10)
	Professional skills	0 (0)		12 (4)

Foundation Grade Doctors

		Year 3	Year 4	Year 5
Characteristic	Knowledgeable	0 (0)	0 (0)	1 (0)
	Organised	0 (0)	1 (1)	0 (0)
Interaction type	Careers support	1 (0)	0 (0)	1 (0)
	Examination practice	10 (5)	0 (0)	1 (0)
	Feedback	3 (1)	0 (0)	8 (4)
	Provide challenge	0 (0)	0 (0)	0 (0)
	Support and progress checking	9 (4)	0 (0)	0 (0)
	Peer support	0 (0)	0 (0)	0 (0)
	Reflection or discuss experiences	0 (0)	1 (1)	2 (1)
	Teaching (non-specific comment)	6 (3)	1 (1)	0 (0)
	Resources	1 (0)	0 (0)	0 (0)
	Simulation		0 (0)	0 (0)
	Small groups or tutorials or lectures		1 (1)	0 (0)
	Trouble shooting	0 (0)	0 (0)	0 (0)
	Welfare or pastoral support	0 (0)	0 (0)	0 (0)
Teaching Content	Data interpretation	5 (2)	0 (0)	0 (0)
	Patient journey or hospital organisation	0 (0)	1 (1)	0 (0)
	Prescribing		1 (1)	1 (0)
	Professional skills	2 (1)		16 (7)

Senior Academy Tutors

		Year 3	Year 4	Year 5
Characteristic	Organised	2 (1)	0 (0)	1 (1)
	Curriculum knowledge	0 (0)	0 (0)	1 (1)
	Recent experience	0 (0)	0 (0)	0 (0)
Interaction type	Careers support	0 (0)	2 (2)	6 (5)
	Examination practice	1 (1)	1 (1)	0 (0)
	Provide challenge	1 (1)	2 (2)	0 (0)
	F1 Preparation	0 (0)	0 (0)	3 (3)
	Peer support	3 (2)	0 (0)	0 (0)
	Teaching (non-specific comment)	3 (2)	0 (0)	9 (8)
	Bedside or clinic teaching	0 (0)	2 (2)	2 (2)
	Resources	7 (5)	0 (0)	0 (0)
	Shadowing	15 (11)	0 (0)	1 (1)
	Simulation		1 (1)	1 (1)
	Small groups or tutorials or lectures		1 (1)	5 (4)
	Trouble shooting		6 (7)	2 (2)
Welfare or pastoral support		5 (6)	7 (6)	
Teaching Content	Physical examination	7 (5)	1 (1)	0 (0)
	Link theory to practice	3 (2)	1 (1)	0 (0)
	Differential diagnoses	4 (3)	0 (0)	0 (0)
	Patient journey or hospital organisation	4 (3)	1 (1)	0 (0)
	Practical procedures	0 (0)	2 (2)	2 (2)
	Prescribing		1 (1)	1 (1)
Professional skills	3 (2)		1 (1)	

Other Healthcare Professionals

		Year 3	Year 4	Year 5
Characteristic	Approachable or friendly or helpful	10 (15)	5 (8)	18 (25)
	Organised	0 (0)	0 (0)	0 (0)
	Curriculum knowledge	0 (0)	0 (0)	0 (0)
	Recent experience	0 (0)	0 (0)	0 (0)
Interaction type	Careers support	0 (0)	0 (0)	0 (0)
	Examination practice	1 (1)	0 (0)	0 (0)
	Feedback	0 (0)	0 (0)	0 (0)
	Provide challenge	0 (0)	0 (0)	0 (0)
	F1 Preparation	0 (0)	0 (0)	0 (0)
	Support and progress checking	0 (0)	0 (0)	0 (0)
	Peer support	0 (0)	0 (0)	0 (0)
	Reflection or discuss experiences	0 (0)	0 (0)	1 (1)
	Teaching (non-specific comment)	0 (0)	0 (0)	0 (0)
	Bedside or clinic teaching	0 (0)	0 (0)	2 (3)
	Resources	0 (0)	0 (0)	0 (0)
	Shadowing		0 (0)	1 (1)
	Simulation		0 (0)	2 (3)
	Small groups or tutorials or lectures		0 (0)	0 (0)
	Trouble shooting	0 (0)	0 (0)	0 (0)
	Welfare or pastoral support	0 (0)	0 (0)	0 (0)
	Teaching Content	Data interpretation	1 (1)	0 (0)
History taking		1 (1)	1 (2)	0 (0)
Physical examination		0 (0)	2 (3)	0 (0)
Link theory to practice		1 (1)	0 (0)	1 (1)
Differential diagnoses		0 (0)	0 (0)	1 (1)
Prescribing			0 (0)	1 (1)
Professional skills		1 (1)		2 (3)

Students

		Year 3	Year 4	Year 5
Characteristic	Knowledgeable	0 (0)	0 (0)	0 (0)
	Organised	1 (2)	0 (0)	0 (0)
	Recent experience	3 (5)	1 (3)	0 (0)
Interaction type	Careers support	0 (0)	0 (0)	0 (0)
	Feedback	1 (2)	2 (5)	0 (0)
	Provide challenge	0 (0)	0 (0)	0 (0)
	Role of doctor and other professions	0 (0)	0 (0)	0 (0)
	F1 Preparation	0 (0)	0 (0)	0 (0)
	Support and progress checking	0 (0)	0 (0)	0 (0)
	Providing opportunities for practice	0 (0)	1 (3)	1 (3)
	Teaching (non-specific comment)	0 (0)	6 (16)	4 (11)
	Bedside or clinic teaching	0 (0)	0 (0)	0 (0)
	Resources	0 (0)	0 (0)	0 (0)
	Shadowing		0 (0)	0 (0)
	Simulation		0 (0)	0 (0)
	Small groups or tutorials or lectures		0 (0)	0 (0)
	Trouble shooting	0 (0)	0 (0)	0 (0)
	Welfare or pastoral support	0 (0)	0 (0)	0 (0)
Teaching Content	Data interpretation	6 (9)	0 (0)	1 (3)
	Link theory to practice	3 (5)	0 (0)	0 (0)
	Differential diagnoses	1 (2)	0 (0)	1 (3)
	Patient management	0 (0)	0 (0)	1 (3)
	Patient journey or hospital organisation	0 (0)	0 (0)	0 (0)
	Practical procedures	1 (2)	1 (3)	0 (0)
	Prescribing		0 (0)	0 (0)
	Professional skills	1 (2)		0 (0)
Negative	0 (0)	0 (0)	0 (0)	