

An investigation into the value of
undertaking a higher qualification in
clinical education: a social capital
perspective

A thesis submitted to Edge Hill University for the degree of
Doctor of Philosophy

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Declaration

The work in this PhD thesis is entirely my own and has not previously been submitted, in full or in part, for the award of a higher degree. Sections of this thesis have been published in a peer reviewed journal and presented at conferences or meetings as indicated below.

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Publication

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Presentations

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Abstract

Professionalisation of medical education has led to expectations that educators have appropriate professional development. Accordingly, there has been a global expansion in the number of institutions offering master's degrees in clinical education. To date, the literature on understanding the value of these programmes has been limited and does not consider the important socio-cultural context of the educator.

To address this gap in the literature, the aim of this study is to understand the value of a master's degree in clinical education in terms of the social capital of graduates as it relates to their work as a medical educator. Mapping of the participants' educator support networks permits measurement and understanding of social capital. Lin's network theory of social capital provides the theoretical foundations for a mixed methods social network analysis study of 12 medically qualified graduates from the Edge Hill University master's programme in clinical education.

The study demonstrates that medical educators are reliant on social capital to carry out their educator roles and that a master's degree in clinical education contributes towards this social capital. Medical educators make new relationships whilst undertaking their master's programme and these relationships last and evolve for years after graduation. New contacts provide resources not available elsewhere in the networks of medical educators, including help with day-to-day teaching activities, career progression and academic activities in addition to providing collegial and personal support.

This is the first study to understand the value of these programmes from a socio-cultural perspective by identifying new network connections arising from educators' participation in a master's programme in clinical education. These findings have informed the development of a new theoretical model, which can be used to inform future policy and practice for the development and evaluation of master's degrees in clinical education.

Keywords: Social network analysis; social capital; evaluation; medical education; doctors

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Abbreviations

AoME	Academy of Medical Educators
ARCP	Annual Review of Competency Progression
BMA	British Medical Association
CESAT	Clinical Educator Support Assessment Tool
COPMed	Conference Of Postgraduate Medical Deans
CPD	Continuing Professional Development
CS	Clinical Supervisor
CT	College Tutor
DME	Director of Medical Education
EHU	Edge Hill University
ES	Educational Supervisor
FDP	Faculty Development Programme
FTF	Face-to-face
FY1	Foundation Year 1 doctor
FY2	Foundation Year 2 doctor
GMC	General Medical Council
HEE	Health Education England
HPE	Health Professions Education
MA	Refers to the master's degree in clinical education at Edge Hill University
MBA	Master of Business Administration
MCE	Master's degree in clinical education from institutions other than Edge Hill University
MDR	Mean Dyadic Redundancy
MEF	Medical Education Fellowship
MMR	Mixed Methods Research
MMSNA	Mixed Methods Social Network Analysis
NHS	National Health Service
OECD	Organisation for Economic Co-operation and Development
PGCert	Postgraduate Certificate
PGDip	Postgraduate Diploma
PIS	Participant Information Sheet
SAS	Staff grade, associate specialist and specialty doctors
SC	Social Capital
SNA	Social Network Analysis
SRT	Self-Report Template
TPD	Training Programme Director
UK	United Kingdom
UNESCO	United Nations Educational, Scientific and Cultural Organization
US	United States of America
WFME	World Federation for Medical Education
WHO	the World Health Organization

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CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

Medical education has become a 'discipline in its own right' (Mclean, Cilliers and Wyk, 2008: 555), with increasing professionalisation of teaching practice. Developing a body of professional and competent teachers, researchers and leaders for their new roles and responsibilities in medical education requires focussed professional development. As a result, master's degrees in clinical education are increasingly in demand from clinical educators as an approach to professional development, and there has been a worldwide marked increase in the number of institutions offering these qualifications over the past two decades (Tekian and Artino, 2013). In the UK, within the current context of an underfunded and overstretched National Health Service (NHS), it is now timely to understand the value of this approach to professional development to inform a wide range of different stakeholders, including accreditation bodies, funders and participants.

Value is a multidimensional concept, which has different contextual meanings. Hence, it is important to specify from whose perspective value is being considered (Sandars and Walsh, 2016, Foo et al., 2020), these points being discussed in detail in section 2.5 of this thesis. The World Health Organization (WHO) has identified the crucial need to upskill faculty who provide training for healthcare professionals, with the ultimate driver of accreditation in medical education being patient safety (HEE, 2015, WFME, 2020). The impact of master's degree programmes in clinical education is, therefore, potentially far-reaching. Better trained medical educators should arguably produce better doctors, an outcome which would be of value to healthcare employers, the doctors in receipt of the training and, ultimately, the patients who receive higher quality care. At the core of such wide-ranging ramifications is the medical educator, hence their perspective on the value of these qualifications is key and will be the focus for this thesis.

Over the past three decades, understanding the value of professional development of medical educators has shifted from solely focussing on content knowledge, such as how to structure a teaching session based on education theories and evidence, to the more holistic development of the educator (Irby and O'Sullivan, 2018). The nature of medical educator professional development programmes is therefore complex, with outcomes, and associated value, varying according to the differing socio-cultural contexts of the programme and the learner (Proctor, Leeder and Mattick, 2020). Previous critical understanding and demonstration of the value of professional development has retained a narrow focus, and the socio-cultural context in which the learning takes place and is to be implemented is frequently overlooked. (O'Sullivan and Irby, 2011, Steinert et al., 2016).

There has been a call for more research studies that consider the rich socio-cultural contexts of medical educator professional development programmes (O'Sullivan and Irby, 2011, Steinert et al., 2016). To date, only a limited number of studies have critically researched master's degree level programmes in clinical education, which provide an academic opportunity for medical educator professional development. Six of these studies observed that graduates valued the networking opportunities offered to them by the courses, but these findings were not formally studied or further elaborated upon. Studies of other postgraduate medical professional development interventions have demonstrated a positive contribution to the social networks of participants (Steinert et al., 2006, Moses et al., 2009) and medical educators have been shown to actively build their formal and informal social networks to support them in their work role and ongoing learning (Lieff and Albert, 2012, Browne, Webb and Bullock, 2018). However, there is currently no published research investigating the contribution a master's in clinical education may make to a graduate's social relationships.

The ability of individuals to benefit from social relationships is conceptualised by various authors as social capital (see, for example, Portes (1998), Coleman (2000), Burt (2001), Lin (2001), Crossley et al. (2015)). Social capital obtained from social relationships is important for both learning and the implementation of learning (see, for example, Jippes et al., 2013,

Vaughan et al, 2015). Hence, social capital gained from a master's degree programme could represent added value for the medical educator. Understanding value from the perspective of the social capital of the medical educator can help to uncover non formal learning, or the 'hidden curriculum', an area which is difficult to investigate and often ignored (REF). Important in understanding and measuring SC is social network analysis (SNA) (Lin, 2001, Borgatti and Lopez-Kidwell, 2011), which comprises elements of both theory and method (Marin and Wellman, 2011).

Within this study, I aim to address two problems raised within the literature. Firstly, social capital accessed via social networks is important to medical educators, but, as will be illustrated by the literature review, we do not currently understand how a master's degree in clinical education contributes to a medical educator's social capital. Secondly, the study aims to answer the call within the professional development literature to develop new models of evaluation which consider the socio-cultural context of the educator. Within this thesis, I aim to develop a new means of evaluating master's degree programmes in clinical education by investigating the value of undertaking a higher qualification in clinical education in terms of the SC of graduates as it relates to their work as a medical educator. SNA is used to provide enhanced understanding and measurement of SC. The master's (MA) in Clinical Education at Edge Hill University (EHU) is used as a case study, nested within which are the individual case studies of graduates of this course.

1.2 POSITIONING AND REFLEXIVITY

My background is in neither education nor sociology, but in clinical medicine. Prior to commencing my PhD, I was a Consultant in Old Age Psychiatry and had little knowledge of educational and non-medical sociological theories. During my senior postgraduate clinical training, I had considered studying for a master's-level educational qualification. However, a colleague had studied on one of these programmes and the volume of work they were required to undertake was such that it left very little time for them to develop other aspects of their career. I therefore decided against undertaking one of these qualifications, opting instead to read review articles as and when I felt the need. In short, I weighed up the pros

and cons of undertaking a postgraduate educational qualification, and, for me, there was insufficient value in doing so.

When I started to plan this PhD study, I set about investigating the many ways in which I could approach the problem placed before me; namely 'What is the value of a higher qualification in clinical education?' During my clinical years, the research methods training I received was largely based on a 'positivist tradition' (Creswell and Poth, 2018), which had a major influence on the research approach I was considering. Accordingly, I had been exploring methods which required large numbers of participants. However, early on in this process I met with a large stumbling block; due to data protection laws, the only participants I could access were individuals with whom the programme lead had kept in personal contact. Thus, the size of the pool of potential participants was substantially reduced. Initially, I viewed this as a major setback. However, I began to wonder why people had kept in touch in this manner. I reflected upon the postgraduate courses I had taken over the years. The academic content could be useful, but what I usually found to be of more, or at least equal, benefit was the networking aspect. Generally, this was not about climbing the career ladder, but more mundane day-to-day discussions: benchmarking my practice against others; sharing problems; bouncing ideas; seeking reassurance; getting information. A straw poll of my medical friends confirmed comparable experiences. These reflections led me to postulate that perhaps those undertaking a higher qualification in clinical education had gained similar benefits.

As a researcher, I have status as both an 'outsider' and an 'insider' in this study (Trowler, 2011). I have not studied on the same programme as the participants, nor have I studied for any master's in clinical education, and therefore I have outsider status in that regard. Conversely, having worked as an NHS consultant, I can appreciate the complexities of the clinical environment and the challenges of balancing clinical and educational work and the accompanying dual identities. Like my participants, I have experienced being a Postgraduate student at EHU, having studied for my PhD at the university. I am also an insider from the perspective of the institution I am studying. I am sponsored by the

programme lead of the MA in Clinical Education and am also a member of staff, although do not teach on the MA programme. Being an insider from the perspective of both the participants and the institution I am studying, I therefore occupy somewhat conflicting positions. As an 'insider', I am potentially more 'culturally literate' and therefore able to produce an account which has more meaning to those involved (Trowler, 2011). However, my insider status may cause me to lose impartiality or fail to see aspects of the culture I am studying because, for me, these have been normalised (ibid). Such contradictory positions could, therefore, potentially lead to bias.

Mindful of my multiple, conflicting roles in relation to the study, I took steps to maintain a reflexive approach, following the advice given by Savin-Baden and Howell Major (2013). I kept a diary of my thought processes at regular intervals throughout the study, including following each piece of data collection. My monthly supervision sessions provided the opportunity to discuss any issues that arose from this diary, enabling me to unite seemingly random entries into a coherent structure. My supervisors would occasionally identify links between myself and the participants that I had not personally made, thus alerting me to potential pitfalls in my analysis and interpretation of the data. At times, these sessions were like the weekly hour-long supervision sessions I had as a trainee psychiatrist, with similar processes of analysing how thoughts and feelings affect actions. Working in this way therefore felt like a natural process.

As a psychiatrist, I was frequently confronted with the difficulty of attaining an objective 'truth' when assessing a patient. Quantitative biological investigations are of limited use in psychiatry; hence, 'reality' was often socially constructed. In addition to interviewing patients, I would obtain additional perspectives from families and carers. For inpatients, there were the varying reports from multiple healthcare professionals to add to the mix. Quite frequently, each person would have a slightly different story to tell when describing the same event. By integrating these discourses, I would attempt to arrive at the 'truth', or at least the closest approximation of the 'truth' that was within my power to achieve. I would examine the different accounts given to me, look for consistencies and differences and consider, for each case, what this might mean. These socially constructed 'truths' were

frequently all I had on which to base a patient's diagnosis and management. I have adopted a similar approach in this PhD study. Each participant has provided an account of the world the way they saw it at the time that they completed a form and when they were interviewed for the study. This 'reality' may have changed had I collected their data on a different day, or, indeed, had a different person collected their data. Maintaining an awareness of these issues via ongoing reflexivity throughout all stages of the study has therefore been essential.

CHAPTER 2: CONTEXT

2.1 INTRODUCTION

To understand the value of a master's degree in clinical education, it is important to understand the context within which such programmes are delivered. The chapter opens by establishing the global and local need for trained healthcare professions' educators. Continuing with an international perspective, there follows a critical discussion of professional development in medical education, and an overview of master's degree level programmes in clinical education. To provide national context for the EHU master's in clinical education, there is an overview of medical education within the UK. The term 'medical educator' is examined and defined and there is a synopsis of potential medical educator roles within the UK, to provide grounding for the study findings. An outline of the EHU master's in clinical education is provided, alongside a summary of related programmes at the university. The chapter concludes with a consideration of value and evaluation in the professional development of medical educators. It is contested that there is a need to move beyond the traditional Kirkpatrick Model (Kirkpatrick Partners, 2018) to develop new models of evaluation capable of capturing the differing concepts of value inherent to the social world of the medical educator.

2.1.1 A NOTE ON TERMINOLOGY

The master's programme at EHU that serves as a case study is an MA in Clinical Education. Similar courses at other institutions have different nomenclature; for example, 'master's in medical education' or 'master's in healthcare professions' education'. These courses have very similar content and are all viewed under the same umbrella (Tekian and Harris, 2012, Tekian and Artino, 2013). Hence, when master's degrees in 'clinical education' are referred to within this document, other, similar master's degree level programmes are subsumed into the same category. These are referred to collectively as 'MCE'. To distinguish

discussion of the EHU programme from other MCEs, the EHU programme is referred to throughout the thesis as 'the MA'.

Throughout the thesis, reference will be made to different educational and training positions which are relevant to the work of the medical educator in the UK. A glossary of terms utilised is provided in section 12.1.

2.2 THE INTERNATIONAL AND LOCAL NEED FOR TRAINED HEALTH PROFESSIONS EDUCATORS

The provision of a sustainable, well-trained healthcare workforce is a global priority. The United Nations has identified an urgent need to 'substantially increase the...development, training and retention of the health workforce' (United Nations, 2020: 4). However, such a workforce cannot be delivered without adequately trained educators. The World Health Organization (WHO) has targeted the faculty who provide training for the healthcare professions as a 'priority investment area', with a focus on 'updating their competency to teach using updated curricula and training methodologies, and to lead research independently' (WHO, 2016: 20).

Within the UK, there is a growing need to ensure there are sufficient numbers of suitably trained medical educators. Currently, there are over 61,000 doctors in postgraduate training in the UK (GMC, 2019a), this figure having increased by 4% between 2018 and 2019 (GMC, 2015a). The UK has also seen a recent expansion in medical school places, with a 25% increase from 6000 to 7500 places starting in September 2020, these students being due to graduate in 2025 (HEE, 2018). EHU has recently opened a new undergraduate medical school as part of this initiative. The UK therefore requires further development of medical educators to keep pace with this increased requirement at both an undergraduate and postgraduate level.

2.3 PROFESSIONAL DEVELOPMENT IN MEDICAL EDUCATION

The WHO's drive to increase the competencies of healthcare professions educators is aligned with a global rise in societal expectations of the medical profession, intrinsic to which is an emphasis on accountability (Davis, Karunathilake and Harden, 2005, Allsop and Jones, 2008). The internationalisation of the medical profession has led to an increased need for accreditation systems which are globally standardised and recognised (Karle, 2006). Professional development for medical educators can range from brief workshops or seminars, to longer term programmes, such as fellowships or university accredited courses, the latter leading to higher qualifications in medical education (Steinert, 2019). Counter to the globalisation of medical education, requirements for professional development vary according to the country in which the doctor is practising (Horsley et al., 2016). To compound this issue, professional development obtained in one country may not be valid in another (ibid). However, UK master's degrees are generally recognised internationally (Swain, 2020) and therefore may represent a form of professional development that can be transferred between different contexts.

Formal training in education is arguably a fundamental aspect of the professionalisation of medical education (Glicken and Merenstein, 2007, Mclean, Cilliers and Wyk, 2008). There is increasing acceptance that doctors need to be taught how to teach, with distinct skills being involved in the translation of content knowledge to a wide range of learners (Mclean, Cilliers and Wyk, 2008, Irby, 2014, Irby and O'Sullivan, 2018). Medical educators are required to regularly update their skills as teaching techniques and associated technologies evolve; for example the use of simulation and virtual reality (Searle, 2006, Mclean, Cilliers and Wyk, 2008). However, as will be seen in section 2.4, the possession of up-to-date knowledge and skills in relation to the direct delivery of teaching is only a small part of what is required of a medical educator. In recognition of the wide variety of roles they perform, the professional development of medical educators has evolved over the past 3 decades to encompass a much broader skillset (Leslie et al., 2013, Irby and O'Sullivan, 2018).

Medical educators value formal professional development for several reasons. They understand the need to update their factual knowledge and practical skills and actively seek opportunities to keep themselves up to date (Huwendiek et al., 2010, Steinert et al., 2010, Lieff and Albert, 2012, Sorinola et al., 2017). Medical educators also identify that formal professional development can help them to acquire the credentials they deem necessary for their career progression (Sorinola et al., 2017). Social capital is important in facilitating professional development and support. Medical educators access informal development opportunities via their personal networks (Lieff and Albert, 2012, Browne, Webb and Bullock, 2018). They also enjoy meeting with like-minded people when participating in formal professional development (Steinert et al., 2010). These aspects of professional development represent non formal learning, or the ‘hidden curriculum’ (further discussed in section 2.5.2), which is not easy to formally recognise with competence-based outcomes or formal credentials. Hence, without different evaluation methods, aspects of the value of medical educators’ professional development will inevitably go unrecognised.

Srinivasan et al.'s, (2011) thorough literature review and consultation exercise differentiated the competencies required of medical educators into core competencies, required by all medical educators, and specialised competencies for educators with leadership roles (see table 1).

Table 1: Teaching as a Competency Framework, adapted from Srinivastan et al., 2011

Teaching as a Competency Framework	
Core Skills (All medical educators)	Specialised competencies (Medical educators in leadership positions)
Content knowledge Learner-centredness Interpersonal and communication skills Professionalism and role modelling Practice-based reflection Systems-based practice	Programme design and implementation Evaluation and scholarship Leadership Mentorship

MCEs are targeted at educators requiring the more specialised competencies, and possession of these qualifications is becoming a vital credential for doctors seeking educational leadership roles (Tekian and Harris, 2012). Indeed, the demand is such that the

number of institutions offering MCEs has increased over the years from 7 in 2000 to 121 in 2015 (Tekian et al., 2014), and this number continues to grow (Tekian and Taylor, 2017). Yet, as will be demonstrated in the literature review (pp62 - 86), there is only a very small body of research evaluating these programmes. Whilst there are many differences between the available programmes, there are also some broad similarities. The majority of MCE programmes cover the specialised competencies listed in table 1. On average, most MCE programmes take 2 – 5 years to complete and the majority are delivered via a blend of online and face-to-face learning (Tekian and Harris, 2012, Tekian and Artino, 2013). Most programmes require the production of a thesis and are quite rigid, having few optional modules to choose from (Tekian and Artino, 2013). However, as will be seen in section 2.4.3, medical educator roles are extremely varied. Hence, MCE programmes and any related evaluations will need to allow for such diversity. Given that these courses are targeted towards leaders in medical education, it is essential that they are thoroughly and appropriately evaluated; once in leadership positions MCE graduates have enormous potential to influence the future trajectory of medical education.

2.4 THE NATIONAL CONTEXT OF MEDICAL EDUCATORS

This section provides a UK perspective, the setting for the study. There is an overview of medical education in the UK, followed by consideration of how a medical educator may be defined from an international and a UK perspective. The section concludes with an exploration of medical educator roles in the UK.

2.4.1 MEDICAL EDUCATION IN THE UK

Embarking on a career in medicine entails a commitment to lifelong learning. The trajectory of undergraduate and postgraduate medical training in the UK is summarised in figure 1.

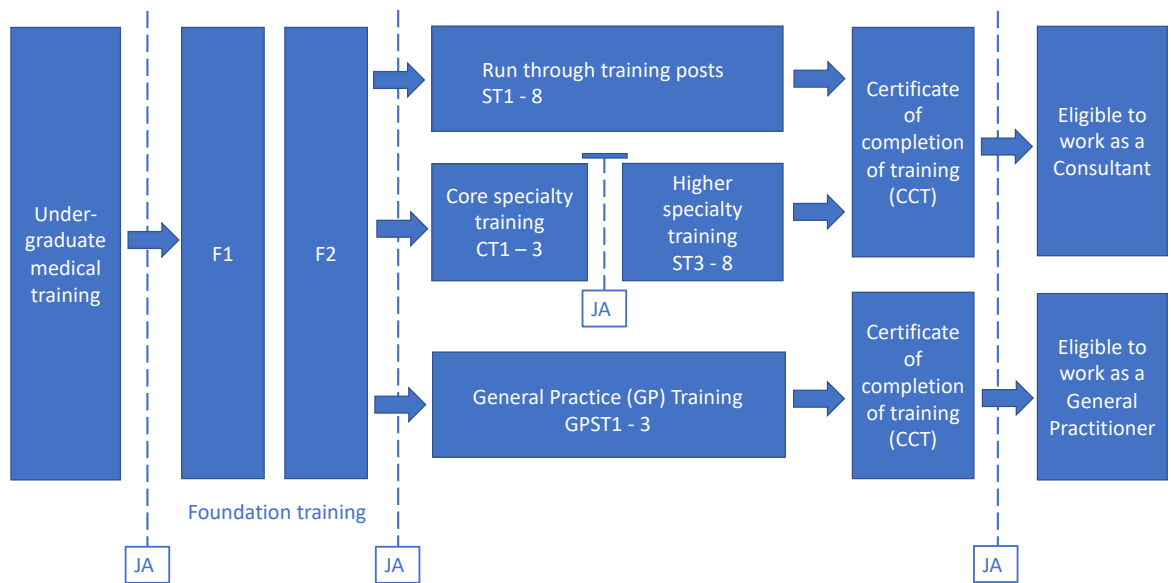


Figure 1: Summary of medical training in the UK, adapted from HEE (2020a). JA = job application required to commence post. Some medical specialties have run-through training from ST1 – ST7 or 8. In other specialties, the training is ‘uncoupled’, meaning that trainees must complete core training years 1 – 3, then apply for higher specialty training posts, usually within a sub-specialty.

In the UK, medical training commences with an undergraduate or graduate medical degree, which will usually take 4 – 6 years. All undergraduate medical training is overseen by universities, with clinical placements being delivered by Local Education Providers, such as hospitals and general practice. New doctors are then required to undertake a 2-year integrated programme of general training, known as foundation years (FY) 1 and 2. To practise medicine in the UK, all doctors must be registered on the General Medical Council’s (GMC) medical register, with a licence to practise. For the FY1 year, doctors are provisionally registered with the GMC; following successful completion of this year, doctors are granted full GMC registration. Once the FY2 year has been satisfactorily completed, doctors can continue their training either in a specialist medical area, or within general practice. Those completing their training in a medical specialty are eligible to apply for consultant positions, whilst those completing general practice training may work as a general practitioner (BMA, 2020). Post-foundation programme training for medical specialties can take 5 to 7 years, whilst general practice training is shorter at just 3 years (ibid). Doctors electing not to embark on specialty or general practice training, or choosing to leave before such training is completed, can work within a variety of non-training posts

(NHS, 2020). NHS secondary care providers receive payments from the Department of Health and Social Care for delivering undergraduate and postgraduate medical education placements (Department of Health, 2019).

In England, postgraduate medical education is overseen by Health Education England (HEE), which is divided into 7 regional offices. Within the regional offices are 'schools' for each specialty training area (for example, psychiatry or general practice), and the foundation programme (HEE, 2020b). The work of each school is guided by HEE, the GMC and by the national Medical Royal College or Faculty related to the specialty (ibid). Arrangements are different in Wales, Scotland and Northern Ireland (ibid).

Within the UK, once doctors have completed their training, or have opted to work in a non-training post, they must evidence that they are able to keep their knowledge and skills up to date (Academy of Medical Royal Colleges, 2009). One of the key requirements in maintaining a licence to practise in the UK is the attainment of a minimum average of 50 hours' continuing professional development (CPD) per year (ibid). This encompasses a broad range of activities, including attendance at courses, participation in e-learning, research and teaching. Importantly, CPD must be tailored to the various roles and responsibilities of the doctor (GMC, 2020). Therefore, medical educators must ensure that their CPD encompasses both their clinical and educational roles. Keeping up to date in both areas can be extremely time consuming, potentially leading to doctors feeling they cannot achieve the desired standard in their clinical and educational disciplines without completing well in excess of 50 hours CPD per year (Friedman, 2014, Browne, Webb and Bullock, 2018). Such difficulties may be mitigated by support from formal and informal networks, which can provide advice, recommendations for courses and access to mailing lists and newsletters (Brown, Webb and Bullock, 2018). Fulfilment of CPD requirements feeds into the annual appraisal process, where doctors must evidence their ongoing fitness to practise in all areas of their work, including education. Outcomes of the annual appraisals inform the revalidation process, a 5-yearly review of progress to determine the renewal of

a doctor's licence to practise (ibid.). Hence, if a doctor wishes to continue to work in medical education, suitable educational opportunities must be available.

2.4.2 WHAT IS A MEDICAL EDUCATOR?

Medical education is a distinct profession (Glicken and Merenstein, 2007, Mclean, Cilliers and Wyk, 2008). However, such is the breadth of the roles held by professionals involved in this field, that the definition of a medical educator is unclear, with the terms 'medical educator' and 'medical teacher' being used interchangeably in the literature (Steinert, 2019). This lack of clarity can lead to difficulties in establishing a professional identity (Sabel and Archer, 2014). Various attempts have been made to pinpoint the skills and responsibilities of a medical educator; see, for example, Harden and Crosby (2000), Molenaar et al. (2009), Hatem et al., (2011), Nikendei et al. (2016). These works have highlighted that medical educators are required to possess a broad range of skills. Perhaps the most succinct piece of work in this field is that of the UK-based Academy of Medical Educators (AoME). Following extensive consultation, the AoME has identified five broad domains of practice for medical educators, as illustrated in figure 2 (AoME, 2020):



Figure 2: Practice domains of medical educators, adapted from AoME, 2020

These domains align with the skills identified elsewhere in the literature; for example Harden and Crosby (2000), Molenaar et al. (2009), Hatem et al., (2011), Nikendei et al. (2016). Because of this alignment and because the AoME framework was developed within the UK, the location for this study, a medical educator is therefore defined (for the purposes of this study) as a medical doctor with responsibility for providing medical education in one or more of these five domains. In making this definition, I acknowledge that I am excluding the many non-medical professionals who provide excellent input within the field of medical education. However, in the interests of homogeneity, this study is focussed on medical doctors, and my definition therefore pertains only to that profession. The rationale for sampling is further discussed in section 5.5.6.

2.4.3 THE ROLES OF MEDICAL EDUCATORS IN THE UK

Numerous studies in the UK and internationally have observed that medical education is perceived to have lower prestige than clinical work or biomedical research; see, for example Huwendiek et al. (2010), Norman and Dogra (2014), Sabel and Archer (2014) Browne, Webb and Bullock (2018). This lack of prestige is linked with lack of recognition for educational work, which is often not included in formal job plans (Norman and Dogra, 2014). Despite the perception that 'medical education is the ugly duckling of the medical world' (Sabel and Archer, 2014: 1474), medical educators report finding their work enjoyable and fulfilling (Huwendiek et al., 2010, Norman and Dogra, 2014, Sabel and Archer, 2014, Browne, Webb and Bullock, 2018).

Within the UK, the GMC stipulates that the teaching of doctors and students is one of the expected duties of a doctor who is registered with a licence to practise (GMC, 2019b). The GMC has highlighted the importance of developing more specific medical educator roles when doctors have teaching responsibilities. They have identified four areas where medical educators are expected to meet specified requirements to acquire formal GMC approval (GMC, 2015):

- i. Overseeing medical students' progress at medical school
- ii. Lead co-ordinator for undergraduate education at the Local Education Provider (for example, a GP surgery or NHS Trust)
- iii. Named Educational Supervisor (ES). Responsible for collating evidence of a postgraduate trainee's performance in a placement, providing feedback and agreeing an action plan with a trainee.
- iv. Named Clinical Supervisor (CS). Responsible for the day-to-day educational supervision of a postgraduate trainee.

All other educational roles within the UK do not require formal GMC approval. The ES and CS roles are by far the most common medical educator roles (Norman and Dogra, 2014). Indeed, without approval to function as CS, I know from my own professional experience that a consultant would be unable to supervise trainees, something which would have a devastating impact upon a clinical service. In many cases, a trainee's CS will also be their ES (HEE, 2020c). A doctor with CS and/or ES approval would therefore not be considered to have a special interest in medical education, merely to be fulfilling a part of their overall job role.

The educational roles identified by the GMC represent only a small fraction of the responsibilities of medical educators in the UK. There is a plethora of potential positions within clinical environments and at HEE, university, national and international level. To provide an indication of some of the possible medical educator roles, figure 3 summarises potential positions as they relate to postgraduate training in UK hospital Trusts. The glossary in section 12.1.1 provides an outline of the nature of the different job roles.

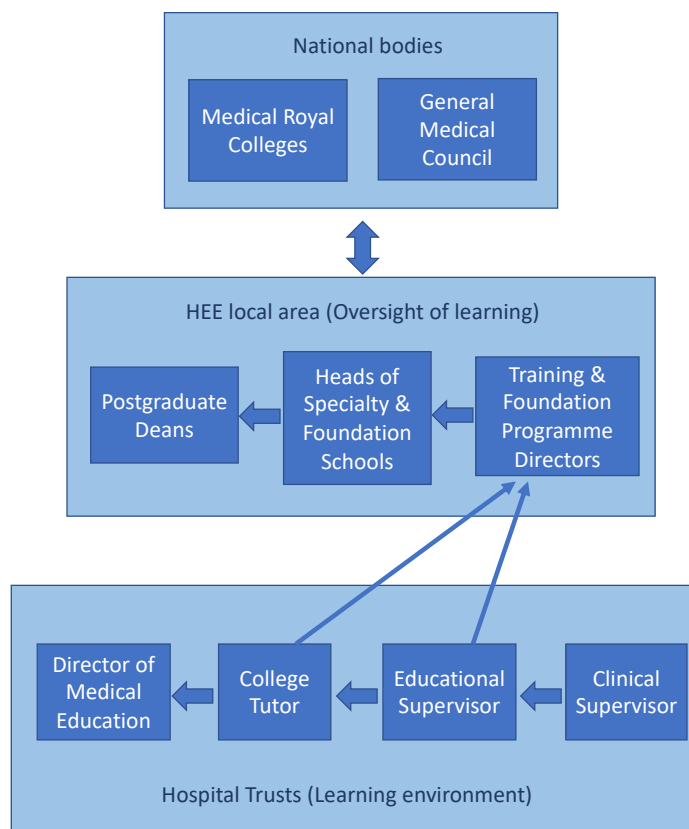


Figure 3: Summary of medical educator roles in postgraduate medical education as they relate to Hospital Trusts Adapted from (Spencer, 2008) ➡ indicates is accountable to. The Royal Colleges cascade information to HEE. The GMC conduct inspections of HEE local areas. Lines of accountability not directly related to medical education are not included.

In a well-conducted e-survey, Norman and Dogra (2014) analysed the day-to-day educational responsibilities of 518 UK-based registered secondary care trainers. Whilst there is an administrative separation between the provision of undergraduate and postgraduate medical education, the majority of teaching provided was found to be delivered by the same people in conjunction with fulfilling their busy clinical roles. Indeed, 12% of participants reported teaching at all training levels: undergraduates, FY1 and 2s, core trainees, specialty trainees and general practice. Overall, undergraduate teaching took up more of the respondents' time than postgraduate teaching, although the majority of formal educational roles were postgraduate in nature. In addition to the CS and ES roles, the participants' educational work was within their Trust (College Tutor and Director of Medical education), HEE local area (Postgraduate Dean, Clinical Sub-Dean, Head of School, Training Programme Director, Foundation Programme Director), universities (Clinical Professor, Clinical Senior Lecturer) and the specialty Royal Colleges (College Regional

Advisor). Given the multitude of roles within medical education, it is therefore perhaps unsurprising that the route to becoming a medical educator is unclear (Sabel and Archer, 2014). Pertinently for the present study, networking has been demonstrated to be essential for finding out about career and training opportunities (Sabel and Archer, 2014, Browne, Webb and Bullock, 2018). Indeed, medical educators have reported actively establishing formal and informal networks to support them in their work roles and in their professional learning (Lieff and Albert, 2012, Browne, Webb and Bullock, 2018).

2.4.4 EDGE HILL UNIVERSITY COURSES

EHU offer a suite of courses in clinical education. The EHU MA is a multi-professional programme targeted at doctors, dentists, nurses and allied health professionals. It is delivered part-time over 2 – 5 years via a blend of face-to-face sessions and online learning. The programme aims are broad, addressing the knowledge, skills and competencies of medical educators, specifically aiming to assist learners to prepare for leadership positions in medical education. It is therefore similar to the majority of MCE available globally (Tekian and Harris, 2012, Tekian and Artino, 2013). To be awarded the MA, learners must first complete a Postgraduate Diploma (PGDip) in Clinical Education, which consists of three 20-credit modules, in addition to 60 credits already obtained from a relevant Postgraduate Certificate (as further discussed below). Award of the full MA requires subsequent completion of a 60-credit dissertation. Hence, there is substantial overlap between the MA and PGDip, and it would be appropriate to consider them together.

To be eligible to apply for the MA course, prospective students must be an experienced clinician with responsibility for education within the clinical workplace. Additionally, they must have completed a Postgraduate Certificate (PGCert) in a related subject, this qualification counting as the first 60 credits of the award of diploma. Relevant to doctors, the specific focus of this study, EHU also offer a PGCert in workplace-based medical education. The first module of this programme is funded by HEE North West for all higher specialty trainees in a designated year of their training, in addition to some Consultants

and SAS doctors. Following successful completion of this module, participants are recognised by HEE North West as meeting GMC requirements for the role of Clinical Supervisor. As stated above (p34), without such approval, (via this or another route) doctors cannot supervise trainees once they become a consultant. Hence, this module is effectively viewed as mandatory training for higher specialty trainees in the North West of England. Following on from this module, a second module is geared towards providing the competencies required for recognition as an Educational Supervisor. Arguably, therefore, the PGCert in Workplace-based Medical Education attracts a different type of student from the MA and PGDip programmes and is considered separately.

There is a substantial amount of learner choice on the MA and PGDip programmes. Only one PGDip module, 'Research and Clinical Education', is compulsory, whilst the other two PGDip modules are chosen from a list of options. In view of the variety of potential medical educator roles available, such choice is essential. To accommodate busy clinical schedules, the MA and PGDip programmes offer a 'step on, step off approach', whereby learners may have gaps between their periods of study. Consequently, learners who commence these programmes at the same time may study different modules and finish at different times. In contrast, there is a small core of faculty delivering the programmes, hence learners may encounter them in more than one module. For both programmes, there are a small number of face-to-face sessions, with asynchronous online delivery constituting the bulk of the learning experience. To facilitate interactions between learners, they are divided into 'Online Learning Sets'; groups of approximately 15 learners and one tutor. The learners complete a series of activities within these groups, using a discussion board and email to develop their learning within a social context, based on their own and others' experiences. This collaborative approach allows learning to be tailored to the needs and interests of the learner. The overall flexibility of the programmes is ideal for learners, but presents challenges for evaluation, which must be sufficiently adaptable to account for differences in learner experience.

2.5 EVALUATION AND VALUE IN THE PROFESSIONAL DEVELOPMENT OF MEDICAL EDUCATORS

To demonstrate the value of professional development to relevant stakeholders, there needs to be a way to measure value. This is a challenge for professional development in medical education, particularly if more holistic outcomes are to be considered. Evaluation measures value and may be defined as ‘the process of judging or calculating the quality, importance, amount, or value of something’ (Cambridge English Dictionary, 2020). In the following section, I consider how value may be perceived in the context of the professional development of medical educators. I then provide a perspective on evaluation processes in medical education, specifically focussing on professional development and highlighting the need for alternative evaluation methods.

2.5.1 APPROACHES TO MEASURING VALUE

Value is often understood, demonstrated and measured in financial terms, i.e. ‘the worth of something compared to the price paid’ (Oxford English Dictionary online, 2018), but also as ‘the regard that something is held to deserve; the importance, worth, or usefulness of something’ (ibid). There are both direct and indirect costs to undertaking an MCE. A direct financial cost would be the price of undertaking the programme, which may vary between institutions and individuals. For example, in 2021 – 22, the tuition fees for the EHU MA stand at £4075 payable over the 2 – 5 years of the programme (Edge Hill University, 2021). Some NHS employers will cover the full cost of attendance at courses, but many will set a cap (British Medical Association, 2020). For instance, the Trust where I previously worked caps CPD funding at £450 per doctor per year. In such a case, a medical educator would therefore have to self-fund a substantial proportion of MCE fees. Other direct costs could include travel and equipment, such as a new laptop (Foo et al 2020); in my own experience the latter is highly unlikely to be funded by an NHS employer and the cost would be borne by the medical educator.

MCEs also have indirect costs, including the effort of undertaking the programme and the 'opportunity cost', or loss of ability to undertake alternate tasks (Flake et al., 2015). NHS-based medical educators function in a stressful environment, where clinicians of all backgrounds are overstretched and have high levels of burnout, a situation which has only been worsened by the COVID-19 pandemic (Bailey, S., 2021). Time spent undertaking an MCE encroaches upon personal life and clinical work, in terms of both the time taken and the energy expended. A medical educator must therefore perceive that an MCE can provide sufficient value to justify the direct and indirect costs incurred.

To obtain approval for study leave from their clinical position, medical educators must also demonstrate the value of an MCE to their employer. This is a complex process and value is likely to change between organisations and, over time, within organisations. For example, an NHS Trust may be looking to recruit more trainees; the deanery may prefer to send trainees to a Trust where training is co-ordinated by someone with a qualification in medical education. In this scenario, such a qualification would be valuable to the Trust. However, that same Trust may then decide to recruit non-training grade doctors instead, thus potentially negating the need for a clinician with a medical education qualification. In the second scenario, the value of the qualification is diminished from the employer's perspective. Hence, value is very much dependent on context and any evaluative tool must accommodate this notion, whilst simultaneously appraising value in a way that is transferrable between the varying situations of different medical educators. Herein lies the benefit of utilising an underpinning theoretical framework, as this allows the findings from one situation to be transferred to other, similar settings (Rees and Monrouxe, 2010).

The perspective of the learner is key to understanding the value of health professionals' education (Sandars and Walsh, 2016). As with the example given above, the 'value' the learner places upon their qualification is likely to vary both between individuals and in different contexts for the same individual. A higher qualification in clinical education may be highly valued in the day-to-day work of a Training Programme Director (TPD), but perhaps of less worth should that TPD wish to become Medical Director, whereby an MBA

(Master of Business Administration) may be of more relevance. In other words, in the social world, value is not intrinsic to the object that is being exchanged, but instead lies in how that object is used, or what it allows the individual to do (Crossley, 2011). Therefore, if we do not have a more holistic view of value that includes understanding the social world of the medical educator, we cannot fully appreciate the value that a higher qualification in clinical education may provide. Social capital and social network analysis play a crucial role in providing clarity in this regard, allowing value to be measured in a way that is comparable between different individuals and different programmes. This point will be considered further in chapters 5 and 10.

2.5.2 EVALUATION IN MEDICAL EDUCATION

Medical education is complex, and research into the value of medical education programmes needs to reflect this reality (Mattick, Barnes and Dieppe, 2013). As observed by Lovato and Peterson (2019), one of the most commonly used evaluation approaches in medical education research is the Kirkpatrick Model (Kirkpatrick Partners, 2018), illustrated in figure 4. Considering the evaluation of professional development for medical educators, the majority of studies focus on the second (learning) and third (behaviour) levels of the Kirkpatrick model (Steinert et al., 2016). The proposed study will be examining change in behaviour, specifically pertaining to relationships. This is an under-researched aspect of professional development, with only 5% of studies in Steinert et al.'s (2016) comprehensive review of the field adopting this approach.



Figure 4 The New World Kirkpatrick model of evaluation (adapted from Kirkpatrick Partners, 2018)

To analyse change in behaviour, industry research utilises the concept of ‘transfer of training’. This concept is defined in the seminal work of Baldwin and Ford (1988) as the degree to which a trainee applies knowledge, skills and attitudes learned from a training environment into their job. A transfer of training perspective is occasionally adopted to evaluate medical training. For example, simulation-based training in surgery has been found to be transferable to the operating theatre (Dawe et al., 2014). However, MCEs are a more complex educational intervention than a simple training procedure. Training is a one-dimensional, mechanistic approach, focused on a specific outcome: for example, the ability to perform a lumbar puncture. Education and development are multi-dimensional and can be tailored more to the needs of the individual (Garavan, 1997). Hence, MCEs would be considered as providing education and development as opposed to training. In complex educational programmes such as MCEs, Kirkpatrick’s model is too reductionist to use in isolation and would benefit from being supplemented by another model (Frye and Hemmer, 2012).

Within the professional development literature, there have been repeated calls for alternative approaches to evaluation (O’Sullivan and Irby, 2011, Frye and Hemmer, 2012, Steinert et al., 2016, Campbell et al., 2019). Currently, the majority of studies evaluating professional development are quantitative. There is an emphasis on skill acquisition and studies are often not theory-driven (Steinert et al., 2016). A similar picture is seen in the general education literature, with Carolan (2014) arguing that reliance on more quantitative methods has been a way for educationalists to strive for legitimacy in the scientific community. However, such approaches may miss unintended outcomes of educational programmes. For any educational programme, there is a formal curriculum and non-formal learning, or the ‘hidden curriculum’, the latter being defined as the ‘gaps or disconnects between what faculty intend to deliver...and what learners take away’ (Hafferty and Gaufberg, 2017: 35). Examples of this could include students conversing over lunch, staff informally talking to students out of class and behaviours of peers and staff

within the classroom or online discussion groups. Non-formal learning provides value for learners (Hafferty and Gauberg, 2017, Eraut, 2000), but it can be difficult for researchers and faculty alike to know when such learning occurs. Eraut (2000) has emphasised that learners do not always consciously recall non-formal learning and may simply perceive social learning to be part of their job role. Hence, whilst an important facet of professional development, non-formal learning can be very difficult to investigate and research which considers the socio-cultural context of the programme and the learner remains rare in the professional development literature (O'Sullivan and Irby, 2011, Steinert et al., 2016). O'Sullivan and Irby (2011: 425) contest that analyses 'often fail to account for the social context of both the [professional] development intervention itself and the realities of the workplace within which [medical educators] teach and learn'. To address this issue, they propose a model for research into professional development that considers the social context of the educator, reflecting both the professional development and workplace settings. They urge the development of research that considers the community in which the educator functions, specifically suggesting that a measure of value could be 'networks established through the program' (ibid: 426). Steinert et al. (2016) endorse this call in their systematic review of 111 studies in the professional development literature. They advocate broadening the scope of evaluation methods, encouraging more research which is qualitative or mixed methods, explicitly embedded in a theoretical or conceptual framework and capable of appraising longitudinal change. Notably, a key feature of many different types of professional development in their review was intentional relationship building and networking. This behaviour occurred both during and after the educational programme, being especially a feature of longitudinal programmes. Steinert et al. (2016) identify social network analysis as a research approach that should be utilised more to further understand the value of professional development. Isba, Woolf and Hanneman (2017) echo this call, stating more broadly that social network analysis is underused in medical education.

2.6 SUMMARY

This chapter has highlighted the global and national requirement for trained medical educators and the need to develop new ways to understand and demonstrate the value of faculty development in this area. Adopting an international perspective, MCEs were sited within the context of professional development for medical educators, an area where there is a drive for internationally recognised credentials. Focussing on the UK, the site of the present study, a summary of medical education in the UK was provided, to provide context for the work of medical educators in the UK. The term 'medical educator' was presented as ill-defined in the literature and a UK-focussed definition was provided for the present study. A summary of the EHU MA and related courses was presented. The broad range of medical educator roles within the UK was highlighted and it was emphasised that, as a result, courses intending to develop medical educators beyond the more standardised roles of ES and CS need to be able to adapt to the individual needs of learners. The social context of learning and the implementation of learning has been argued to be of importance to medical educators, who rely on social capital accessed via their networks to help them in their ongoing professional development. It was noted that there has been a call within the literature for the development of different evaluation approaches, with specifically more need for theory driven, mixed methods research which considers the impact on learners' social networks. Social capital theory and social network analysis provide the theoretical and methodological basis for a more nuanced and holistic examination of value. This use of theory facilitates the transferability of findings to different contexts, permitting the development of a measurement tool to demonstrate value in a variety of settings, thus allowing stakeholders to make comparisons between different professional development programmes. A further understanding of social capital and social network analysis is therefore essential and will be provided in the following chapter.

CHAPTER 3: THEORY

3.1 INTRODUCTION

As Rees and Monrouxe (2010) have discussed, an essential component of good quality medical education research is an explicit consideration of a study's theoretical basis. Indeed, reviews of the faculty development literature in medical education have highlighted that more studies should be embedded within a clear theoretical framework (Leslie et al., 2013, Steinert et al., 2016). The key theoretical lenses for the present study are social capital and social network analysis. Social capital (SC) is a theory that proposes individuals may obtain advantages from their social relationships (Portes, 1998, Lin, 2001, Dika and Singh, 2002). This chapter presents a brief overview and critique of how SC is conceptualised in the literature. The relationship of SC with social network analysis (SNA) is explored, highlighting that SNA facilitates understanding of SC, whilst also providing a means to measure it. Lin's (2001) theory of SC is identified as tying together many of the differing views within this field and as being especially suited to accompany SNA. It is therefore Lin's theory which will provide the main point of theoretical reference for the study. The chapter concludes with a definition of SC for the study and an appraisal of different means of measuring SC.

3.2 SOCIAL CAPITAL

Social capital is widely recognised as being a major contributor to the achievements and wellbeing of individuals and communities. Accordingly, international organisations such as the World Bank, UNESCO and OECD have conducted an array of policy-based and empirical studies in this field (Kilpatrick, Johns and Mulford, 2010). SC has its origins in Marx's 'classic capital theory', which concerned the accumulation of physical resources, such as land or money, with the focus being more on the commodity than the individual (Lin, 2001, Tan, 2014). Attention to the individual is provided by human capital theory, which considers capital as individual's acquisition of skills or knowledge via education or training (Schultz, 1960, Tan, 2014). In contrast, SC theory takes a relational approach by examining the

benefit an individual may accrue from their social relations (Portes, 1998, Lesser, 2000, Burt, 2001b, Lin, 2001, Dika and Singh, 2002). Education was prominent in the early development of SC theory, with Bourdieu and Coleman each using different formulations of this theory to explain variations in educational achievement (Dika and Singh, 2002). Social capital has been positively linked with educational outcomes. Social connections can influence academic aspirations and achievements both in general education (see, for example, Coleman, 2000, Feinstein and Hammond, 2004, Bourdieu, 2010) and within medical education (Woolf et al. 2012, Vaughan et al., 2015). Additionally, education may add to an individual's social capital, directly by providing access to wider networks and indirectly by boosting confidence in interpersonal interactions (Feinstein and Hammond, 2004). Access to social capital via the social network is also important for the implementation of medical educators' learning (Jippes, 2013). Social capital can also support professional identity in clinical education (Higgs and McAllister, 2007) and protect against loneliness and burnout in clinicians (Rogers, Polonijo and Carpiano, 2016).

3.2.1 DEFINITIONS AND DESCRIPTIONS

There are varying perspectives on SC, with three main categories being described in the literature (OECD, 2009, Crossley et al., 2015). Firstly, it is an *indirect* access to resources, such as knowledge or information, advice and support. Secondly, it is a form of social cohesion, which relies on trust and co-operation, with ties between individuals providing benefits due to their strength, termed 'bonding'. The third category, 'bridging capital', describes links between different groups. This latter category will be discussed further in the section on social network analysis, the first and second being outlined in the following section.

Coleman, Bourdieu and Putnam are credited with the initial development of the concept of SC (Dika and Singh, 2002, O'Brien and Ó Fathaigh, 2005). Bourdieu's concept of SC is based on conflict, hierarchy and symbolic power and has been viewed as an investment by the 'dominant classes' to maintain their social position (Siisiäinen, 2000, Dika and Singh,

2002). Bourdieu viewed SC as an indirect access to resources and ties to others would constitute SC only if they allowed access to the resources of another (Crossley et al., 2015). He considered unequal access to social capital as an explanatory factor for differences in educational achievement (O'Brien and Ó Fathaigh, 2005). Coleman viewed SC as different from other forms of capital, such as economic or human capital, in that it has an aspect of 'public good' (Coleman, 1988). He regarded network closure (where most people in a network are connected) as reinforcing social norms (ibid). In a situation where most people know each other, it is difficult for an individual to contravene 'normal' societal expectations, as they would suffer damage to their reputation. To illustrate this theory, he demonstrated an inverse association between high school drop-out rates and attendance at religious services, the latter being posited as a measure of intergenerational network closure (Coleman, 1988). Putnam also highlighted that social cohesion was of prime importance. He emphasised the importance of membership of clubs and associations and linked civic engagement positively with performance of local government in the US (Putnam, 2001). His concept revolves around norms, trust and principles of reciprocity and, like Coleman, SC is perceived to be a positive way of maintaining an orderly society via the 'bonding' nature of social connections (O'Brien and Ó Fathaigh, 2005).

3.2.2 CRITICISMS OF SOCIAL CAPITAL THEORIES

Inherent to most definitions is the assumption that the more SC an individual has, the more successful they will be, as summarised by Burt (2001b: 202):

Social capital is a metaphor about advantage. Society is viewed as a market in which people exchange all variety of goods and ideas in pursuit of their interests. Certain people...do better in the sense of receiving higher returns to their efforts.

However, SC may also have negative consequences. Siisiäinen (2000) criticises Putnam for not considering the concept of negative SC, pointing out that social norms are not always positive, and Lin (2001) has a similar criticism of Coleman. A further difficulty encountered is with the measurement of SC. Portes (1998) points out the circularity in Putnam's theory of SC, as it is presumed to exist by measuring the same outcomes it is supposed to cause.

For example, a town is said to be 'civic' if it does things which are considered 'civic', such as having active community organisations. Towns which do not have these are regarded as 'uncivic'. This criticism would also apply to Bourdieu's conceptualisation of SC. Portes (1998) therefore advises separating the resources from the ability to obtain them because 'equating social capital with the resources acquired through it can easily lead to tautological statements' (Portes 1998: 5). Lin's conceptualisation of SC is able to circumvent this difficulty and will be further discussed in the section on Lin's theories.

3.2.3 POTENTIAL CAPITAL

It is important not to conflate an individual's ability to access SC with the activation of that resource. An individual's contacts or position in a network gives them *access* to differing resources, which the individual may then *utilise* to their benefit or detriment. Lee (2010) identifies that SC may be accessible but 'un-utilised', something which Coleman (2000) refers to as 'potential' SC. The present study will therefore attempt to differentiate between the resources which the participants have 'mobilised' and those which they have access to, but have not used, to be termed 'potential capital'. This concept is returned to when considering Lin's conceptualisation of capital formation in the section 'definition and mode of action'. An individual's social network is essential in understanding their access to SC, which may be either facilitated or impeded by the strength of ties to other individuals or groups in addition to the position of the individual in the network. To understand this further, the following section will provide consideration of the social network and its analysis in further detail.

3.3 SOCIAL NETWORK ANALYSIS (SNA)

Medical educators are reliant on their networks to function in their role and develop their careers (Browne, Webb and Bullock, 2018). SNA provides the means of furthering our understanding in this important area, by facilitating quantitative and qualitative analysis of SC as bridging, bonding and indirect access to resources. The sociological theories

underpinning SNA arise from the perspective that individuals engage in relationships which both shape and are shaped by wider social and cultural mechanisms (Bellotti, 2015). SNA delivers the tools for analysing and modelling these patterns of relationships (ibid). Hence, SNA is underpinned by both sociological and mathematical theories, enabling quantitative and qualitative study of relationships in their social setting (Kilduff, 2003, Marin and Wellman, 2011). The focus of this section will be on the sociological theories which are essential to providing a comprehensive answer to the research question. In-depth exploration of mathematical concepts is beyond the scope of this thesis, but sufficient detail will be provided in chapter 5 ('Methods') for the reader to understand how and why the quantitative analyses have been performed. Methodological difficulties commonly encountered in SNA will also be discussed in chapter 5.

A social network 'consists of a set of nodes or actors, along with a set of ties of a single type that connect the nodes' (Borgatti and Ofem, 2010: 19). An actor may be an individual, a group or an organisation. The fundamental unit of analysis of the network is not the individual actor, but the dyad (a pair of actors) and the tie(s) between them. The focus is therefore moved from the attributes of the individual to the benefits and constraints of the social structure they inhabit. It follows that the actors within the system are not independent, but rather *interdependent*, which therefore limits the use of conventional statistical analyses, requiring specially adapted techniques. Networks can be analysed in their entirety, for example all the employees of an organisation, or from the perspective of an individual. The latter is termed an 'ego-net', 'ego' referring to the individual whose network is under analysis (Borgatti, Everett and Johnson, 2018); this is the perspective for the current study. Methodologically, there are two main categories of network studies; 'theories of networks' and 'network theories'. These approaches apply equally to whole network and ego-net studies. Studies adopting a 'theories of networks' approach seek to understand the mechanisms that produce networks. Conversely, 'network theories' consider the consequences of networks (Borgatti, Everett and Johnson, 2018). The approach utilised in the present study will be considered in chapter 5. Whatever the type of study, bounding the network is extremely important, as SNA is effectively a case study, a concept which will be returned to in chapter 5. There are three approaches to bounding

a network: 'event-based' (for example all those who attended a specific conference); 'position-based' (for example members of an organisation) and 'relation-based' (for example, who is friends with whom). The latter is the most frequently adopted approach in ego-net studies (Marin and Wellman, 2011) and will be discussed further in the chapter 5.

3.3.1 THE NATURE OF TIES

There are many different types of tie, the variety of which can affect access to SC. Defining the type of tie is essential at the outset of a study, as this defines the nature of the network (Kitts, 2014). Ties can be directed (A lends money to B, but B does not lend money to A) or undirected (A and B are married to each other), binary (present or absent) or valued (Marin and Wellman, 2011). Borgatti et al. (2009) summarise three different categories of tie seen in the literature: social relations (wife of, friend of), affective relations (likes, or dislikes) and interactions (emails, talks to). Interactional ties permit 'flow', which may be exchange of information or advice and this links in with the concept of SC as indirect access to resources. Borgatti, Brass and Halgin (2014) observe that the content of ties can be difficult to study, citing Coleman's (1990) concept of 'appropriability', which asserts that one type of tie, for example friendship, may be appropriated for an alternative purpose, for example business. This highlights the concept of multiplexity, a situation whereby an individual may have different types of relationship with the same person (for example, works with, is friends with, plays tennis with). Multiplexity can also apply to different modes of contact and has been associated with increased strength of ties; for example, individuals with stronger ties (measured according to frequency of contact and defined by ego as a 'close friendship') use more types of media for their communications than weaker ties (Haythornthwaite, 2005). However, multiplex ties may also constrain the actions of ego. Firstly, it may be more difficult to withdraw from the tie as to do so may jeopardise other aspects of the relationship. Secondly, ego's actions may be influenced by obligations incurred in other contexts, thus contributing to inertia within the network (Kim, Oh and Swaminathan, 2006).

An important factor in tie formation is that of propinquity or physical proximity. Put simply, the closer people are physically to one another, the more likely they are to interact, be it within a neighbourhood, an organisation or a building (Spillane, Shirrell and Sweet, 2017). Face-to-face interactions are particularly important as they promote trust and mutual understanding (Storper and Venables, 2004). The importance of propinquity has been replicated in a variety of employment settings (Spillane, Shirrell and Sweet, 2017), including healthcare (Tagliaventi and Mattarelli, 2006) and it is significant for medical educators, who have reported experiences of isolation (Moses et al., 2009).

3.3.2 HOMOPHILY, HETEROPHILY AND THE STRENGTH OF WEAK TIES

The tendency for people to have ties with those similar to themselves is termed 'homophily' (McPherson, Smith-lovin and Cook, 2001). Granovetter (1973) argued that homophilous ties were unlikely to provide individuals with new information, arguing that weak ties, such as people infrequently contacted, were more likely to be different or 'heterophilous' and therefore able to provide information not already known to ego. This may help, for example, in finding out about work opportunities, with SC viewed in this context as access to resources. However, the evidence supporting this theory is somewhat equivocal (Lin, 2001). The strength of ties between actors has been conceptualised by Granovetter (1973b: 1361) as being 'a (probably linear) combination of the amount of time, the emotional intensity, the intimacy (mutual confiding) and the reciprocal services which characterize the tie', but the importance of this concept is disputed by Burt (1992, 2000, 2001a, 2001b, 2005).

3.3.3 STRUCTURAL HOLES

Burt (1992, 2000, 2001a, 2001b, 2005) contests that network structure is more important than the strength of ties or propinquity within a network. He reasons that sparser networks generate more SC than those exhibiting closure (where the network is highly interconnected). 'Structural holes' exist in networks where there is a lack of interaction between two separate groups, or 'components' of a network. An alter acting as a 'bridge'

between the components would be in a position to provide members of each component with non-redundant (or new) information. They can therefore act as a broker, potentially playing one group off against another. Burt (2000) develops this concept to argue that the value of SC to ego is dependent upon the number of people who are undertaking the same work. He contends that the bridging of structural holes in the network is especially valuable to individuals whose work roles mean that they have few peers. Bridging may be of financial benefit, for example, structural holes in the networks of managers have been associated with receipt of bonuses higher than would be expected for their role and rank (Burt, 2001a). Brokerage may also help with the introduction of an alteration in practice. Within the NHS, change agents were more effective when they were located within a brokerage position in their network (Battilana and Casciaro, 2012). Nevertheless, brokerage is not always advantageous – individuals may find that they are the focus of conflicting demands from different groups (Crossley, 2008), something which medical educators with multiple work roles may experience.

The opposite of brokerage would be closure or constraint (Crossley et al., 2015). If all the people in ego's network know each other, then if ego declines to trade with them, they can simply ask someone else. As a result, the bargaining power of ego is very limited. For example, a carefully considered study of 160 staff officers in a large financial organisation demonstrated that network constraint in managers was negatively associated with performance evaluation and receipt of bonuses (Burt, 2001a). However, closure may be of value in realising the value of a structural hole (ibid). Within healthcare, closed ties have been observed to enable exchange of knowledge between medical and non-medical staff (Scott et al., 2005, Benham-Hutchins and Effken, 2010). Indeed, such a network configuration may also contribute towards resilience of the network. In a tight-knit group the same resources may be supplied by a number of different alters, so if one alter drops out of the group, ego will still have access to the same resources. However, in a sparser network where there are structural holes, the loss of one alter is more likely to have a negative effect on the SC of ego (Kim, Oh and Swaminathan, 2006). Hence, for a medical educator to function effectively, one would anticipate a combination of brokerage positions and dense, closed networks.

3.3.4 CONTROVERSIES IN SOCIAL NETWORK ANALYSIS

Borgatti et al. (2014) observe that one of the main criticisms of SNA is an emphasis of the primacy of the network over that of agency. Crossley (2011: 143) disputes that this is an issue, stating that ‘interaction necessarily entails both the initiative and intelligence of purposive actors (agency)’. It follows that, without agency, social networks would not exist, because ‘The social world necessarily involves both agency and structure in some balance’ (ibid: 143). Indeed, where agency and SNA have been combined, it has been demonstrated that agency can influence the social network – for example, Mehra et al. (2001) and Sasovova et al. (2010) found that individuals with higher self-monitoring personality traits were more likely to occupy central and brokering positions in their networks than their low-monitoring counterparts.

A further criticism is that SNA looks at the network out of context, (Borgatti, Brass and Halgin, 2014). Crossley (2011: 143) also alerts the researcher to be wary of providing structure in abstraction, observing that ‘structures are always structures of something...they are...properties of dynamic and evolving “social worlds” which emerge from the interactions of actors’. This concept will be returned to in the section on ‘Institutional Fields’. The growth of research utilising mixed methods SNA (Rice and Holloway, 2014) should help address this issue over time and the benefits of mixed methods SNA, which will be employed in this study, are further explored in the chapter 5 (‘Methods’).

3.4 LIN’S PERSPECTIVE ON SOCIAL CAPITAL AND NETWORKS

Lin (2001) views the social network as essential to the understanding of social capital. His meticulously developed perspective of SC encompasses many of the themes discussed in the above SC and SNA sections and is therefore ideally suited to accompany SNA (Carolan, 2014). As he interprets SC from the perspective of the individual, his viewpoint is especially

suiting to ego-net analysis (Rostila, 2011). His theory links the 'micro' and the 'meso' enabling an understanding of how the relationships of individuals fit into the wider fabric of society.

3.4.1 DEFINITION AND MODE OF ACTION

SC is defined as '*an investment in social relations with expected returns in the marketplace*' (Lin, 2001: 19). To become SC, a resource must be mobilised twice, the first time to invest and the second to generate a return. These actions, Lin (2001) notes, take time and effort, thus SC may have negative as well as positive consequences. He views three components to SC: i) there must be a resource embedded in the network structure, ii) the resource must be accessible and iii) ultimately mobilised. This ties in with Coleman's (2000) concept of potential capital, as described above.

Lin envisages that SC exerts its effects through social ties via: i) facilitation of flow of information; ii) actors' influence on decision makers in relation to ego; iii) certification of credentials and iv) reinforcement of identity. Lin proposes returns on instrumental and expressive action to be the two main outcomes of social capital. Returns on instrumental action more frequently come from heterophilous interactions and allow ego to obtain resources not already in their possession, for example economic, power and social resources, which can all be viewed as capital. Lin envisages that returns on instrumental action are achieved via the bridging of structural holes or the activation of weak ties. The resource benefit is enhanced by the relative hierarchical positions of alter and ego, a concept which will be further elaborated upon in section 3.4.3. Expressive actions maintain existing resources, for example via reassurance or public acknowledgement, and are more likely to come from homophilous ties in a dense (highly interconnected) network. Lin argues that ties in such networks will be strong (as per Granovetter's (1973) definition) and are a source of trust. For example, dense networks of immigrants in the US may not rely on formal contracts in economic interactions (Portes, 1993). This work highlights the importance of reputation. Unlike an economic exchange, the rewards generated are not

immediate and the interactions are not symmetrical. Alter and ego both acknowledge that a debt has been accrued and public recognition of this increases the reputation of alter, which Lin (2001: 244) defines as 'the extent of favorable/unfavorable opinions about an individual in a collective'. The greater the debt incurred, the more ego and alter must keep up their relationship. Lin's theory around debt accrual and reputation have been confirmed empirically in large survey with 10-year follow up by Wellman and Frank (2001). They found that support was reciprocated like for like, but individuals who provided support to many alters received reciprocity from the group, rather than from the individual they had helped.

Lin (2001) asserts that a balance is required between expressive and instrumental actions. Too much instrumental action may cause tension and disunity in the group, as people try to move from one position to another, whereas excessive expressive action may lead to stagnation. Hence, Lin's theory encapsulates the main types of SC observed in the literature with bridging and bonding viewed as influencing the mobilisation of social resources.

3.4.2 CRITIQUE OF LIN'S DEFINITION OF SOCIAL CAPITAL

Lin (2001:1) views SC as 'an investment of resources with expected returns', thus focussing on the perspective of the investor. However, the current study will only establish the expectations of ego, who may be the recipient rather than the investor. Therefore, Lin's definition is not suitable if one wishes to look at the experiences of both the resource-giver and the resource-receiver (Lee, 2010). Even where ego is the investor, Lin's theory relies heavily on understanding the motivations for the actions of an individual, as he affirms: 'it is assumed that actions are rational and are motivated to maintain or gain valued resources' (Lin, 2001:45). This is an extremely difficult area to study, as people often do not know their true motivations, as outlined in dual process theory, a psychological theory developed by Kahneman (2011), which has empirical support (Evans and Stanovich, 2013). The theory observes that it is too cognitively demanding for us to reflect fully on each of our actions, and therefore we rely on mental short cuts for much of our functioning. Hence, although Lin's (2001) theory of SC is highly relevant for the current study, his ultimate definition is not a practical one to use. The definition which will be used is detailed in section 3.5.

3.4.3 RELEVANCE OF STRUCTURE

In order to understand the role of social capital on a societal level, it is important to consider social structures. Lin (2001) envisages interpersonal interactions as occurring within a social structure, which he describes as consisting of positions or social units that possess different amounts of resources. Resources in the structure may be attached to a position and not the individual. For example, based on my own experience, the Director of Medical Education in an NHS Trust approves study leave requests and associated funding. If the individual in the post leaves, this power will pass to the next incumbent. Formal hierarchical structures have a chain of command. The further up this chain of command an individual ascends, the more information they have about access to resources within the structure, with lateral positions having authority over similar amounts of resources. He argues that position effect is maximised by having a minimal number of levels, with a large resource differential between levels. Therefore, Lin views structure as affecting access to SC in a similar way to Burt. For example, location near a 'bridge' may allow access to better SC, but only if there is a resource differential across the bridge. Positions within the structure are related to one another in a hierarchy of control and access to resources: there are rules which govern the use of the resources, which can only be entrusted to those who follow the rules. This links in with Lin's view of 'institutional fields'.

3.4.4 INSTITUTIONAL FIELDS

The structures described above exist in what Lin (2001) terms the 'meso' level of society, considered to be society's main infrastructure. He draws on the work of Di Maggio and Powell (1983) and North (1990) from the business and economics literature to develop the concept of 'institutional fields' in relation to social networks. Institutional fields are located within society's meso level and contain networks, organisations and institutions, the latter being described as 'the rules of the game' (Lin 2001: 187). Lin's institutions (or 'rules') can be either formally established or informally accepted practices and people may not always be consciously aware that they are abiding by them. Social interactions are key to transmitting and reinforcing these 'rules'. When organisations and individuals submit

themselves to the rules of a specific institution (for example, rules of behaviour) they are said to occupy the same institutional field. An institutional field may bound a variety of relations, such as a specific area of industry (Murray and O'Mahony, 2007), a social movement (Child, Lu and Tsai, 2007), or a profession (Reay, Golden-Biddle and Germann, 2006), such as medical education.

Within institutional fields is a common understanding of what is required. Such cognizance has the benefit of reducing the transaction costs of actions and interactions. In the economics literature, transaction cost is defined as the expense incurred when making an economic exchange: for example legal and estate agent fees when selling a house (Wallis and North, 1986). Lin extends this concept to include social interactions. To consider an example from medical education, a training programme director (TPD) may be encountering a particular difficulty with balancing their clinical load with the requirement to attend the Annual Review of Competency Progression (ARCP) reviews. If the TPD's line manager also has a background in clinical education, they will understand the ARCP process, and therefore the problem, far more readily than would someone without such a background. As a result, the TPD would spend much less time and effort having to explain the issue, thus representing a lower transaction cost. There is therefore a benefit to co-existing within the same institutional field.

Situated within the institutional field, Lin has conceptualised institutionalising organisations which:

train and indoctrinate actors with values and skills in performing rituals and behaviors associated with the prevailing institutions. They differ from other organisations in that they process actors but do not employ or keep them (Lin 2001: 192).

It can readily be seen how these concepts may be relevant to medical educators with an MA or PGDip in clinical education. The university can be perceived to be an institutionalising organisation, situated within the institutional field of medical education, as illustrated in figure 5.

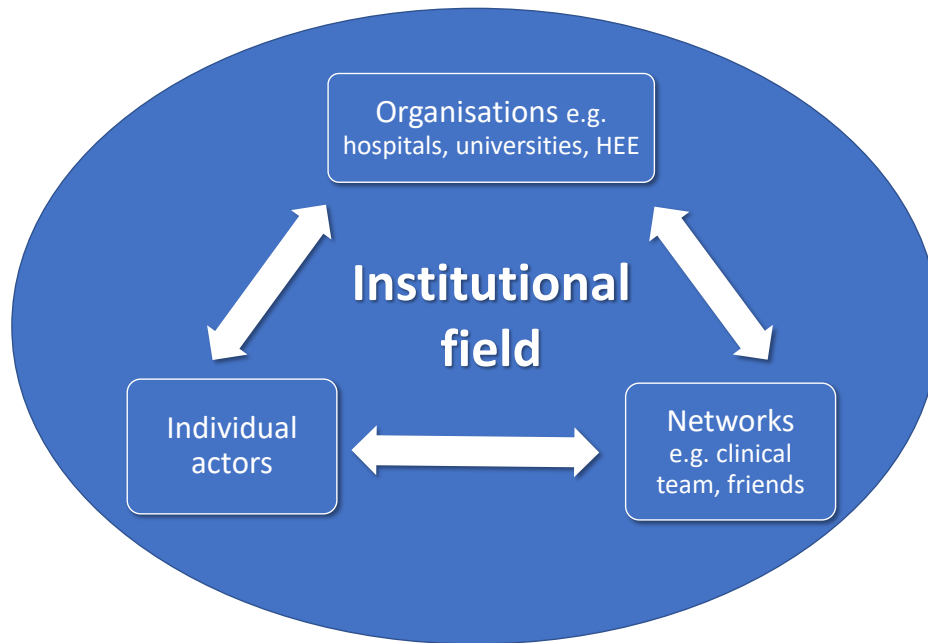


Figure 5: The institutional field (adapted from Lin, 2001) (HEE = Health Education England)

The concept of Institutional fields and institutionalising organisations is reflected in the work of Sethi (2016). He looked at identity development in healthcare professionals with a postgraduate qualification in medical education. He reasoned that the process of undertaking the qualification ‘socialised’ the participants into the world of medical education, with its associated rituals and behaviours, which, in Lin’s view would be the ‘institutional field’ of medical education. Importantly, resources within an institutional field would have the same value. Hence, as described in the earlier section on ‘value’, a qualification in medical education would have a certain value or range of values within the institutional field of medical education, but outside of that sphere its value would be different and even possibly worthless.

An area neglected by Lin (2001) is the concept of overlapping institutional fields. Professionally, clinical educators are likely to belong to more than one ‘institutional field’, often possessing both clinical and educational roles (Castiglioni et al., 2012, Chen et al., 2017). In a review of the literature on institutional fields, Zietsma et al. (2017: 24) explore the issue of ‘structural positions between or at the overlap of institutional fields’. They

assert that these areas, or 'interstitial issue fields', frequently 'form their infrastructures by combining elements drawn from the fields from which their members come'. Being at the overlap of different fields has distinct advantages. It may provide a brokerage position, with the individual having access to resources from two different networks, which may not otherwise be connected. Kilpatrick, Johns and Mulford (2010: 117) highlight the advantageous situation of individuals who are able to be 'boundary crossers' who 'speak the language of the educational institution and community and are able to move freely between the two'. Such people are able to engage with the wider community, promoting closer, two-way working relationships with educational institutions (ibid). Conversely, such diversity can present problems for individuals in these positions. Writing about professional learning, Eraut (2007: 404) highlights the difficulty that people face if working in both education and practice settings: 'They have very different cultures and very different discourses...People who work in both contexts have to be bilingual'. Indeed, for clinical educators, such positions can cause conflict, both internal to the practitioner and between colleagues (Lake, 2013, Chen et al., 2017). Clashing of different worlds can also impact upon identity development and educational practice in clinical educators (Cantillon et al., 2016). Hence, whilst Lin's concept of institutional fields enables further understanding of the social world of the medical educator, this picture would be incomplete without considering the areas where the fields overlap.

3.4.5 SUMMARY OF LIN

Lin's (2001) comprehensive model of SC will provide the main theoretical basis for the study. It is therefore pertinent to summarise the main points in his theory and highlight where this theory is not compatible with the current study and where it requires embellishment. Lin (2001:1) defines SC as 'an investment of resources with expected returns' and his concept of social capital formation is summarised in figure 6. There are two stages to capitalisation before returns can be generated: i) investment in resources and ii) mobilisation of capital. The first phase of investment produces 'potential capital', with ego's ability to mobilise capital being affected by network structure, the collective network assets and tie strength. SC exerts its effects via enhancing resource flow, exertion of

influence, certification of credentials or reinforcement of identity, resulting in instrumental or expressive action to generate a 'return'. Hence social capital varies between different contexts and individuals. Lin's theory encompasses the differing categories of social capital in the literature, (bonding, bridging and resource) and his emphasis on structure highlights the importance of SNA in both identifying and measuring SC. His concept of institutional fields is essential for understanding the 'rules' that govern the interactions of medical educators. However, it has been highlighted that this aspect of his theory requires supplementation to consider overlapping of institutional fields. Lin's definition of SC will be difficult to apply in the present study and therefore a different characterisation will be required.

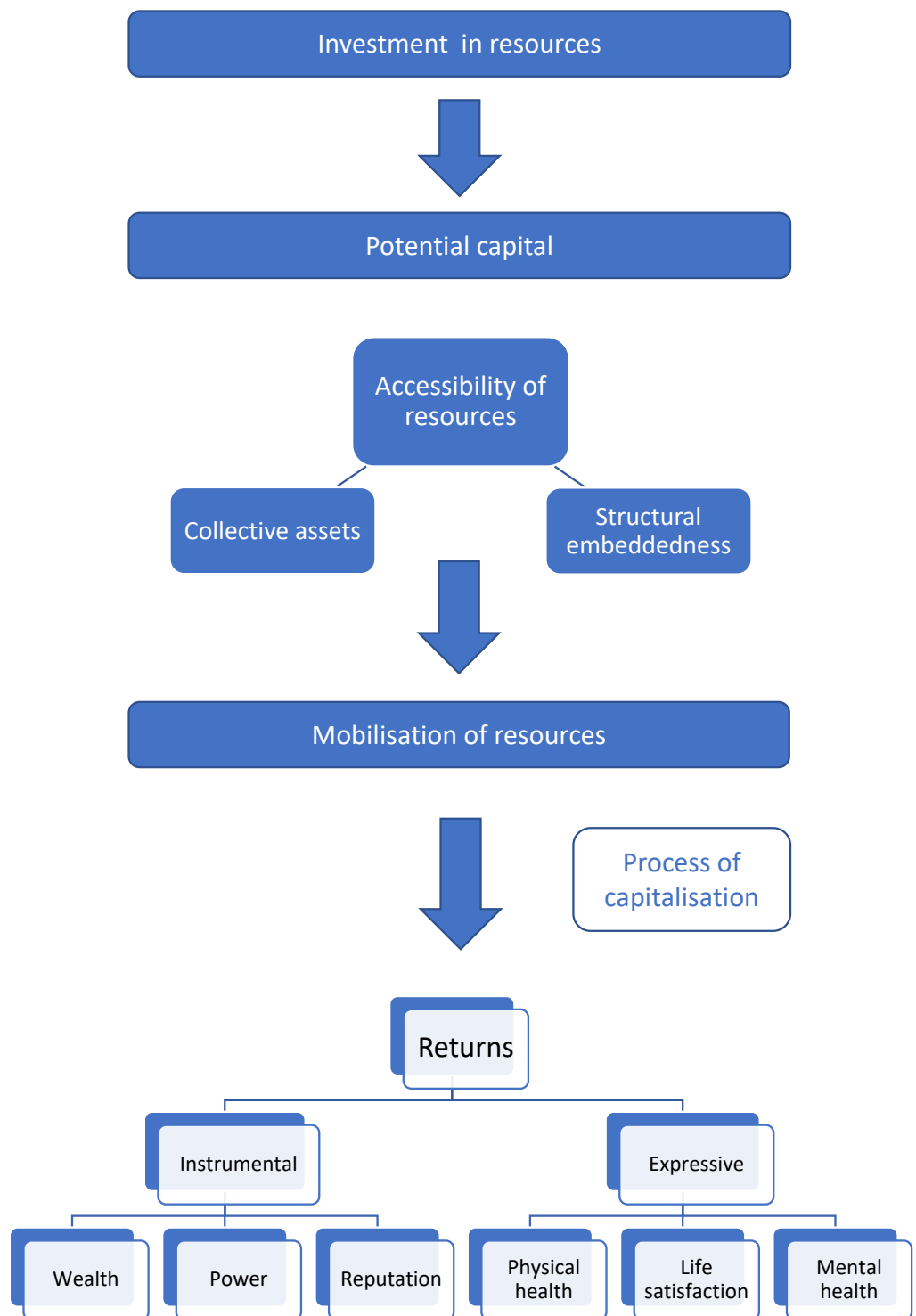


Figure 6: Lin's process of capitalisation (adapted from Lin, 2001)

3.5 DEFINITION OF SOCIAL CAPITAL FOR THE STUDY

Social capital stands for the ability of actors to secure benefits by virtue of membership in social networks or other social structures. (Portes 1998: 6)

Portes' (1998) definition derives from his influential literature review of social capital. This definition, which places the social network at the centre, will be used for the purposes of this study. It allows us to look from the perspective of both giver and receiver of SC (where viewed as an indirect access to resources) and is consistent with Lin's (2001) model, as Lin himself has observed. Lin's conceptualisation of SC is otherwise adhered to, as outlined in the section 'summary of Lin'. For the purpose of this study, SC is viewed from the perspective of the individual: the doctor with a higher postgraduate qualification in medical education, where SC is relevant to their role as a medical educator. The study will also distinguish, where possible, between potential capital (capital which is accessible, but not mobilised) and capital which has been mobilised.

3.6 MEASUREMENT OF SOCIAL CAPITAL

To ensure consistency in measurement and theory, Lin advocates that 'Social capital should be measured as embedded resources in social networks' (Lin, 2001: 211). When measuring SC, Lin (2001) advises considering a number of variables: the best resource (or 'upper reachability'); heterogeneity of resources (in terms of both the hierarchical position of the contact within the social structure and the associated embedded resource); and the typical or average resource. He asserts that these variables have been positively associated with instrumental action, citing empirical examples such as job searches and job promotion. Additionally, network location can be a measure of SC, such as access to a bridge or functioning as a bridge, which has been demonstrated by Burt to be associated with enhanced work performance (Burt, 2001a). Importantly, in measuring the resource and not the outcome, Lin is avoiding the circularity for which he has criticised Coleman and Portes (1998) has criticised Putnam, as described in section 3.2.2. A further consideration is whether potential or mobilised capital is being measured, as the former is likely to be much greater than the latter (Gaag and Snijders, 2004). It will therefore be important to ensure consistency in measurement to allow comparison between cases in the current

study. Application of these theoretical points to the present study will be discussed in chapter 5 ('Methods').

3.7 CHAPTER SUMMARY

Social capital theory and SNA have been presented as fundamental in understanding the intricacies of medical educators' social relationships. SNA has been demonstrated to provide unique insights into an individual's ability to access SC, three types of which have been identified: bonding, bridging and indirect access to resources. Lin's (2016) network theory of SC unites these three variants of SC with a social network perspective to produce a comprehensive framework, which will provide theoretical scaffolding for the present study. Portes' (1998) definition of SC has been demonstrated to be compatible with Lin's theory and will be the definition used for this study.

The following literature review chapter will place this theory in the context of existing evaluations of higher qualifications in clinical education and provide empirical examples of educational evaluations which have utilised a SC or SNA perspective.

CHAPTER 4: LITERATURE REVIEW

4.1 INTRODUCTION

In previous chapters, I have argued that SNA and SC can provide important insights in the evaluation of MCEs. In this chapter I argue that there is currently a gap within the literature in this area, which this study seeks to address. The chapter opens with a rapid review of the literature pertaining to the evaluation of MCEs. I then present a more detailed scoping review specifically focussing on evaluations of MCEs that have utilised a SC or SNA approach. The chapter concludes with illustrative examples of the use of SNA and SC to evaluate medical and non-medical education programmes.

Search strategies were discussed with supervisors and search terms were revised throughout the search process as new terms became apparent. A specialist advisor to the university on literature searching was also consulted.

4.2 RAPID REVIEW OF EVALUATIONS OF MASTER'S PROGRAMMES IN CLINICAL EDUCATION

A rapid review is 'a form of knowledge synthesis in which components of the systematic review process are simplified or omitted to produce information in a timely manner' (Tricco et al., 2015:1). Terms for this search are listed in table 2 and were derived from Tekian and Harris's (2012) thorough review detailing institutions offering these qualifications. Terms were searched for in titles or abstracts.

Table 2: rapid review search terms

Search 1a	'medical education' OR 'health profession* education' OR 'clinical education' OR 'HPE'
Search 1b	MSc OR master* OR diploma OR graduate OR postgraduate
Search 1c	Search 1a AND 1b
Databases searched	Pubmed, Cinahl, EThOS, Cochrane reviews, Cochrane register of controlled trials, British Education Index (BEI), Educational Resources Information Centre (ERIC)

Inclusion and exclusion criteria are listed in table 3. The references from selected articles returned were searched for further references in a snow-balling or reference tracking technique (Greenhalgh, 2005).

Table 3: Inclusion/exclusion criteria for rapid review

Inclusion criteria	Exclusion criteria
Original research evaluating a PGDip or master's programme in clinical/medical/health professions education	Opinion or discussion papers
Quantitative or qualitative or mixed methods considered	Paper unavailable in the English language
Article written in the English language	

The searches were conducted in January 2018, January 2019 and October 2020. The searches included all available years on the databases. The final search returned 17 relevant studies, evaluating 12 different master's degree programmes in Clinical Education. Six of the studies were published after the first search in January 2018, illustrating that this is a growing area of interest. The programmes were based in a variety of global locations, with a range of modes of delivery. Study methods included qualitative, quantitative and mixed methods approaches. Only 4 of the studies had a theory-driven methodology, with 3 of these studies being conducted on the same programme by the same group of researchers. The majority of the studies were largely descriptive in nature. Unless otherwise stated, data collection tools for the studies were designed by the researchers and not based on existing guidelines or theoretical frameworks.

Five of the studies were conducted in the UK, four of these being evaluations of the MCE at the University of Dundee. For his PhD thesis, (Sethi, 2016) performed 3 linked studies of students and graduates of the PGCert, PGDip and master's degree programmes in clinical education at the University of Dundee (see also Sethi et al., 2017, 2018). These courses offer the options of online only, face-to-face only or blended learning, with just under a third of students being based outside of the UK. The studies were informed by social cognitive theory and community of practice theory. The level of detail presented within Sethi's (2016) thesis demonstrates his studies to be thorough and well planned. The first study was a mixed methods online survey of 244 graduates from the 3 courses to investigate graduates' perceptions of the impact of a qualification in clinical education on their competence and scholarly activities. Participants were predominantly medical doctors, 50% of whom were UK nationals. Graduates' confidence in their abilities as a medical educator increased with the increasing level of qualification. Participants also reported increased involvement in educational scholarship activities, such as publications and conference presentations. The second study entailed semi-structured interviews with 27 graduates to construct a provisional model of professional identity formation in medical educators. The third study was a prospective 10-month follow up of 9 full-time face-to-face students, consisting of three interviews per participant. All participants were international students. The third study built on the model developed within the second study to explore

the role of the different Dundee clinical education programmes in professional identity formation. The second and third studies illustrated that the increase in knowledge and self-confidence following the qualification led to an iterative process with participants continuing to develop themselves, further increasing a sense of self efficacy and achievement. Participants felt they were recognised by their peers as an educator, and peers' expectancies inherent to such recognition influenced professional identity development. These findings were summarised in a framework which Sethi (2016) entitled 'Social Cognitive Identity Theory'. Development as a medical educator was, in part, contributed to by their peer networks in the workplace, although there was no detailed discussion of participants' networks. Participants valued collegiality with peers and the networking opportunities presented by the course, even in circumstances where the mode of delivery of the course was solely online. Unfortunately, the networking aspect was not explored in any detail, so it is unclear to what extent the graduates' networks developed during the programme and how any new connections impacted upon the graduates once they had completed the programme. Additionally, with the doctors in the final study all being international students, it is unclear how well these findings would translate to students undertaking an MCE programme within their own country. Sethi (2016) recommended further studies to investigate the longer-term impact of postgraduate qualifications in clinical education.

Interestingly not included in Sethi's (2016) PhD thesis literature review is a further Dundee-based study by Seneviratne, McAleer and Davis from 2007. This group evaluated the master's degree programme at Dundee via a mixed methods postal questionnaire of 53 graduates of the programme. The majority of the participants were medical doctors, distance learners and internationally-based in a variety of locations in Europe, North America, Africa, Asia and Australasia. Showing parallels with Sethi's (2016) study, participants reported increased confidence in terms of teaching skills and related knowledge and research capabilities. They reported feeling that the MCE had made them more credible and that they had obtained more senior educational roles post-graduation. Respondents claimed to have made an educational impact at institutional and national

levels, for example developing new courses and designing curricula. As observed in Sethi's (2016) study, participants also reported being consulted by others for their educational expertise. Of note, the retrospective design of the study may mean that the reported developments in confidence and career progression may have occurred without participation in the MCE. Additionally, as the participants were internationally-based, the reported impact of the MCE on obtaining job roles may have been related to the participants having studied at a UK university, such institutions being held in high regard internationally (Swain, 2020); they may not have noted the same benefit had they obtained an MCE in their country of clinical practice.

The final UK-based study in this section was conducted by Bell (2012) for her PhD thesis. She interviewed 11 medical educators who were a combination of students and graduates studying for an MA in education at the University of Winchester. All the participants were medical doctors. At the time of the study, the programme was a part of the university's MA in Education, a face-to-face programme aimed towards schoolteachers. However, a separate pathway existed within the programme that contained additional material specific to clinical education. This led to the award of MA Education (medical educators), hence the inclusion of this study within the present literature review. The medical educators in Bell's (2012) study felt that at the start of the MCE programme they had been unaware that they were utilising specific educational approaches in their practice. Participants reported that involvement in the programme helped them to understand the techniques they were utilising and therefore to adopt a more critical and informed approach to their educational roles. Bell's (2012) thesis also highlighted the conflict between the nature of educational practice and medical practice, with educational theories and research methodologies being very different from approaches traditionally used within mainstream medicine. As with all the Dundee studies above, Bell's (2012) participants also described becoming more confident in their educational roles. Bell's study design was not underpinned by a specific theoretical perspective, with the theory of 'technical rationality' applied retrospectively in the data analysis to contrast the approach of general medicine with that of medical education.

There have been four studies of MCE programmes based at universities in North America; three in the United States (US) and one in Canada. Most recently, Kohli et al. (2020) conducted a mixed methods study of the clinical education programmes at the University of Pittsburgh. Graduates from both the master's and the PGCert programmes were included in the study, with the majority of participants (89%) having studied on the master's degree programme. Results were stratified according to the programme of study and the authors found no statistically significant difference in responses between participants from the two programmes. Notably, the small numbers in the PGCert group may have meant that the study was under-powered to detect any difference between the groups. The mode of delivery of the programmes was not stated. Graduates from a 10-year period of the programmes were asked to complete an online survey which asked questions pertaining to how well their qualification had prepared them in domains relevant to the work of medical educators. Participants were also asked to upload CVs which were analysed in terms of educational leadership positions, educational and mentoring roles, academic rank, and national, regional and local workshops and presentations. All participants were medical doctors practising in a variety of specialties, with 98% of participants also holding a formal educational role at the time of the survey. More than 90% of participants felt that the programme had helped them gain competence in a variety of teaching and learning domains. 47% of participants believed that their qualification had helped them obtain a promotion. To measure productivity, the researchers calculated the number of publications per year per participant. 58% (n = 26) published a minimum of 1 peer-reviewed article per year following graduation, with an average of 3.77 publications per year for those who were publishing. As the study did not examine the participants' pre-programme productivity, it is not possible to appreciate if there was any change in behaviour in relation to attendance at the programme. Aspects of Kohli et al.'s (2020) study were well conducted, for example examining inter-rater reliability for the CV analyses. However, as the majority of the questionnaire was quantitative, with limited room for free text comments, the study only examined what the authors thought would be of value from the programmes, with very little room for student perspective. Additionally, whilst the authors report no statistically significant difference between responses of participants from the different programmes, there is no exploration of what, if any, additional benefit a master's degree qualification may confer over a PGCert.

Skeith et al. (2018) conducted a qualitative case study of 'recent' graduates of the University of Illinois MCE, a programme delivered via blended learning. The focus of the study was the experiences of students when they were undertaking their thesis. The participants were described as coming from 'a variety of clinical backgrounds, with a varying amount of experience in medical education and research training' (ibid: 114), but no further detail was provided, limiting the ability to generalise the results to other settings. Participants selected via convenience sampling completed an online survey, then participated in a semi-structured interview. Factors which helped students succeed in their thesis included a 'supportive program environment', and good time management skills. Students struggled where there was lack of support and with juggling other professional and personal responsibilities. 50% of the participants appreciated the networking opportunities presented to them, but this area was not further explored.

Baker and Lewis (2007) performed an evaluation of a Cincinnati-based online MCE via a quantitative survey of 21 current students and graduates. All participants were medical doctors. The authors measured effectiveness primarily according to academic output, including publications, educational grants, national presentations, teaching awards and academic promotions. As with the study by Kohli et al. (2020), these outcomes were determined by the authors, and, as the questionnaire was purely quantitative, there was no opportunity for the participants to provide their own views on value. 29% of participants had gained publications, 71% had conducted national presentations, 48% had received a teaching award, 24% had received a promotion and 71% had obtained an educational grant, these totalling to a value of \$3,280,000 for the group. However, as the authors admit, it is possible that participants may have achieved these outcomes without the programme. There was no scope within the study methods for the participants to state if or how the programme had helped them in their work. Additionally, there was no clear attempt to discern participants' academic activity prior to the programme. These issues therefore make it difficult to understand the impact of the Cincinnati MCE programme.

Goldszmidt, Zibrowski and Weston (2008) conducted a mixed methods study of 73 medical educators based at the University of Western Ontario, Canada. The participants were purposively sampled to include individuals who had completed an MCE programme and those who had not. The participants' professional background (for example, clinician or non-clinician) was not stated. Whilst not a formal evaluation of a specific MCE programme, the study produced some interesting insights into the impact of an MCE. Comparing those who had completed an MCE with those without such a qualification, there was no difference in the number of education-related projects, publications or funding applications. Both groups identified similar levels of support needs in their roles, including a desire to enhance interaction with educational colleagues and obtain support with educational research and professional development opportunities. Of those who had completed an MCE programme, 75% believed that the qualification had helped their career and 50% felt that the programme had helped them to develop networks of colleagues within education. No details were provided about these networks and it is unclear if or how the new network connections related to career progression. There was no attempt to control for confounding variables between the two groups of participants, hence the finding of no difference between the groups in terms of both outcomes and support requirements should be interpreted with caution. However, the finding with regards to the development of networks is particularly relevant to the present study and mirrors Skeith's (2018) finding that 50% of MCE graduates appreciated networking opportunities on the programme.

There have been 2 published evaluations of the German MCE programme, by Heide et al. (2019) and Jünger et al. (2020). This is a 'trans-institutional' programme, administered by the University of Heidelberg. The mode of delivery of the programme is not stated. The articles by Heide et al., (2019) and Jünger et al. (2020) present the results from a semi-structured online survey sent to the first 10 cohorts of the programme, representing 246 graduates in total, with a response rate of 64% (n = 157). Jünger et al.'s (2020) article is best read prior to Heide et al.'s, (2019) publication as the former provides the context necessary to understand the programme and the specifics of the study. The graduates came from German, Austrian and Swiss medical faculties, with the majority (68%) working

in clinical practice. Being a 'trans-institutional' programme initially delivered at 8 different locations, the creation of regional and national networks were an essential foundation of the programme (Jünger et al., 2020). However, there are no details of how these networks were formed and maintained.

Within the findings reported by Jünger et al. (2020), participants reported feeling they had improved in the following areas: trainer; promoter of quality teaching; research; manager and networking skills, these areas being pre-determined by the researchers. Unfortunately, the authors do not clarify how the programme helped students to improve their networking skills. Whilst participants reported appreciating 'productive group dynamics' (ibid:5) and the interdisciplinary nature of the available expertise, there was no exploration of if and how the participants' networks changed whilst on the programme or if relationships formed on the programme persisted post-graduation.

The second of the German studies, by Heide et al. (2019), focussed on factors affecting thesis completion, with 30% of the study population having yet to complete their thesis. Statistically significant hindering factors included other professional projects, non-educational research and parenthood. Those requiring an interruption of studies for more than 1 year were also less likely to complete their thesis. In contrast, participants were significantly more likely to complete if: they had a simple choice of thesis topic; were in receipt of financial and practical support; received timely feedback; published early in the course of their studies or already possessed a higher academic degree. These findings echo those of Skeith et al.'s (2018) work, cited above (p68), and are a useful means of identifying those who may need additional support in future cohorts of students.

Naeem and Khan (2019) conducted a qualitative exploratory study of MCE programmes delivered via blended learning by 3 universities in Pakistan. The study entailed semi-structured interviews of 18 students and 4 facilitators and sought to explore students' and facilitators' perspectives of problems faced with the blended learning approach. The

professional background of the participants was not made clear and there was no breakdown of responses according to institution. Issues raised fell into the themes of learner, teacher, social interactions and institutional support. Students mentioned having difficulties contacting tutors and obtaining a timely response, leading to loss of motivation to work. They struggled with the heavy workload and gaining new skills of skim reading and self-directed learning. Additionally, they experienced difficulties with technical issues, such as using the virtual learning environment. In contrast to the findings of Jünger et al. (2020), students did not appreciate heterogeneity within learning groups, reporting issues with the variation in academic abilities and professional background of the individuals in the learning groups. In marked contrast to the reports of positive working relationships in the studies by both Sethi (2016) and Jünger et al. (2020), there were reports of bullying within the learning groups. These results highlight the importance of examining the social relationships formed during completion of MCE programmes in a way that allows both positive and negative effects to be revealed.

Sánchez-Mendiola et al. (2019) conducted a clearly documented exploratory qualitative study of the learning experiences of teachers, current students and graduates of an MCE programme at the National Autonomous University of Mexico. The programme was delivered via face-to-face learning. The study authors conducted focus groups with 5 graduates, 7 students and 7 teachers. Participants were mainly medical doctors, but also included a dentist, a biologist, a psychologist and a university lecturer. The students and graduates reported gaining in knowledge but had mixed responses to research seminars; where some found seminars to be helpful, others felt overly criticised. Some students and graduates felt their tutors did not give them enough time to have proper discussions and that the tutors lacked skills in mentoring. As with Naeem and Khan's (2019) study, some students reported that feedback was not timely. Overall, however, students and graduates felt the course content was helpful for their teaching practice.

Talaat et al. (2014) conducted a quantitative, descriptive evaluation of a distance learning MCE programme jointly offered by Suez Canal University and Maastricht University. The

authors conducted an electronic survey of graduates (n = 60), current students (n = 40) and faculty (n = 8). Graduates and students came from different countries in the Middle East, Africa, North America and Far East. Their professional background was not stated, limiting the ability to translate the study results to other settings. The majority of respondents felt the course improved their ability to undertake their educational job roles and helped to develop their careers. Participants felt that the programme was relevant to their work and helped develop skills, knowledge and career, with 100% of graduates and 88% of students being satisfied with the overall programme. Graduates and students appreciated the flexibility of online learning. Interestingly, faculty, graduates and current students all identified that the weakest point of the online learning aspect was the reliance on group work, with issues noted about lack of co-operation among group members for group assignments. However, there was no discussion of the quality of relationships between faculty and students.

Al-Subait and Elzubeir (2012) conducted a mixed methods study of an MCE programme at the King Saud Bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia. The course was a face-to-face, part-time programme. The survey and interview for the study were based on World Federation for Medical Education (WFME) quality standards. It is of note that these were generic standards (WFME, 2000, 2003) as the WFME standards for master's degrees in medical and health professions education (WFME, 2016) had not been published at the time of the study. Al-Subait and Elzubeir's (2012) utilisation of these standards contrasts with many of the studies reviewed in this section so far, which, with the exception of Sethi's (2016, 2017, 2018) studies, have not been theory-based or founded upon any externally verified frameworks. 32 students and 10 faculty participated in the study, with 36% of the students being medical doctors. Interestingly, faculty rated the effectiveness of teaching and learning processes more highly than did the students. Additionally, some students reported that feedback on their work was either poor or absent. However, in general, staff and student responses illustrated that the programme was largely meeting student expectations and the basic WFME standards of the time. The majority of students felt their skills and knowledge had improved and they reported that the programme had introduced them to new career and research paths. Students

particularly enjoyed interacting with peers and faculty and making new connections within a 'community of practice' (ibid: S72), although, as with other studies, the networking and new connections were not further explored.

The last study in this section was conducted by Mohebi et al. (2017). This study utilised the theoretical framework of Eisner's educational connoisseurship and criticism model to perform a qualitative evaluation of the curriculum for the MCE programme designed at Shiraz University of Medical Sciences, Iran. It is not clear from (Mohebi et al.'s (2017) article where or how the programme is delivered or if, as was the case with the German MCE above (pp69 – 70), the MCE curriculum was national. The aim of Eisner's educational connoisseurship and criticism model is to place a critical analysis of the programme into the wider context in which the programme is situated. The evaluation process involves a structure of description, interpretation and evaluation and the evaluator must be an expert in education, hence the term 'connoisseurship'. For Mohebi et al.'s (2017) study, the evaluation was conducted by 30 participants; a combination of professors, students and graduates. The professional background of the students and graduates was not stated. The evaluation process began with a Delphi panel; once this process was complete, individual interviews were conducted and subjected to qualitative content analysis to produce themes. The themes identified the programme ideals and shortcomings, along with suitable remedial actions. Whilst elements of the report suggest a robust methodology, there is unfortunately insufficient information about the programme and the backgrounds of the students and graduates to enable the study outcomes to be translated into other settings. I have contacted the authors for further information and am awaiting a response at the time of writing.

In summary, the research relating to MCE programmes is predominantly descriptive, with the majority lacking an underlying theoretical basis. Only two of the studies, Seneviratne, McAleer and Davis (2007) and Sethi (2016) have attempted to discern change in behaviour, the remainder addressing only the first and second levels of the Kirkpatrick model (Kirkpatrick Partners, 2018; please see section 2.5.2 for a summary of this model). There is

substantial variability between the studies as to the professional background of the participants and the mode of delivery of the programmes. Some studies lack sufficient detail to allow the results to be translated to other settings; out of the 17 studies, 4 did not explain the mode of delivery of the programme and 6 did not describe the professional background of the participants. Only two studies, those by Baker and Lewis (2007) and Bell (2012) had attempted to ensure homogeneity in their samples, with the participants of each of these studies all being medical doctors and having studied on the same programme via the same mode of learning. Heterogeneity in the other studies creates difficulties in the interpretation and application of results to other, similar, situations. Nevertheless, some common themes emerged. Overall, participants reported satisfaction that the programmes were meeting their expectations. Improvement in content knowledge and teaching-related practical skills were reported in seven studies (Seneviratne, McAleer and Davis, 2007, Al-Subait and Elzubeir, 2012, Bell, 2012, Talaat et al., 2014, Sethi, 2016, Sánchez-Mendiola et al., 2019, Kohli et al., 2020). These findings do not appear to be linked with a specific mode of delivery or geographic location, with these studies encompassing face-to-face, online and blended learning and being widely internationally distributed in Europe, North and South America, Africa and Asia. Career enhancement was another area of impact which did not appear limited to a specific mode of delivery or geographical location. Participants in seven studies (Seneviratne, McAleer and Davis, 2007, Goldszmidt, Zibrowski and Weston, 2008, Al-Subait and Elzubeir, 2012, Talaat et al., 2014, Sethi et al., 2017, Skeith et al., 2018, Kohli et al., 2020) reported feeling that their qualification had improved their educational work opportunities. Although there is very little information within these studies as to why the participants felt that the MCE programmes had helped them gain work, a study by Turner et al. (2011) supports this view. They surveyed paediatric chairs and residency directors of 131 medical schools in the US; 83% of participants were of the opinion that an applicant for a new faculty position would be at an advantage if they had an MCE. Hence, it appears that there is a form of consensus that MCEs can make a graduate more employable.

Participants in all UK-based studies and Skeith's (2018) US-based study reported increased confidence following attainment of the qualification, these programmes together offering

all modes of delivery. The North America-based studies of Baker and Lewis (2007), Goldszmidt, Zibrowski and Weston (2008) and Kohli et al. (2020) were the only studies to examine academic output of graduates in detail. That certain reports are confined to specific geographical areas may be related to the specific cultures present within medical education in those regions, relating to the learners, the programmes and the researchers. Conversely, these data patterns may be mere coincidence; with limited research in in this field, and with such heterogeneity in the studies, it can be difficult to detect specific patterns.

Networking opportunities available whilst undertaking a higher qualification in medical education were valued by graduates (Goldszmidt, Zibrowski and Weston, 2008, Al-Subait and Elzubeir, 2012, Sethi, 2016, Skeith et al., 2018, Jünger et al., 2020). However, it is not clear why this aspect was valued or how these opportunities were accessed. Notably, these programmes encompassed face-to-face, online and blended delivery and were based in different continents (Asia, North America and Europe), suggesting this finding is not specific to a particular mode of delivery or culture. However, not all social interactions during the programmes were positive. Some study participants reported difficulties working within groups (Talaat et al., 2014, Naeem and Khan, 2019), whilst there were also reports of poor relationships with faculty, including issues with feedback on work and interactions within seminars (Al-Subait and Elzubeir, 2012, Naeem and Khan, 2019, Sánchez-Mendiola et al., 2019). Further understanding of such issues is important in the ongoing development of these courses and findings of both positive and negative aspects of relationships formed during MCE programmes adds weight to the necessity to research this area.

It is of note that in the literature review for his 2016 doctoral thesis, Sethi did not report the studies by Baker and Lewis (2007), Seneviratne, Mcaleer and Davis (2007), Al-Subait and Elzubeir (2012), Bell (2012) or Talaat et al. (2014), thus demonstrating the effectiveness of the rapid review performed for the present study.

4.2.1 SCOPING REVIEW

The purpose of the scoping review was to identify a gap in the literature, providing justification for this thesis. Formal systematic reviews can take several months for a full team of researchers to perform (Centre for Reviews and Dissemination, 2009). A scoping review is an abbreviated form of systematic review, for mapping the literature and finding gaps in knowledge. Recent guidelines (Peters, et al. 2015) for the methodology are shown in figure 7.



Figure 7: outline of scoping study process, adapted from Peters, et al. (2015)

Differences between systematic and scoping reviews lie in balancing the breadth of the search (for example, the number of databases, grey literature and hand searching of journals) with feasibility. There is still an emphasis on a team approach to identifying search terms; for the present scoping review, search terms were established after consultation with the supervisory team and an EHU-based expert on literature searching. In the context of this PhD, there is only one researcher selecting studies and extracting data, hence a deviation from the outline in figure 7. Consultation with stakeholders occurred during pilot stages and in supervisory meetings. Inclusion and exclusion criteria are outlined in table 5, search terms and databases searched are detailed in table 4. Terms were searched in titles

or abstracts. Reference, citation and ‘related articles’ searches were also performed. Email alerts from relevant databases were established for the search terms.

Table 4: Scoping review search terms and databases

Search 2a	‘medical education’ OR ‘health profession* education’ OR ‘clinical education’ OR ‘HPE’
Search 2b	MSc OR master* OR diploma OR graduate OR postgraduate
Search 2c	‘network analysis’ OR ‘social network’ OR sociometric* OR sociogram or ‘network theor*’ OR ‘social capital’ OR capital
Search 2d	Search 2a AND 2b AND 2c
Databases searched	Pubmed, Cinahl, Scopus, BEI, ERIC, Education Research Complete, EThOS, Cochrane reviews, Cochrane register of controlled trials

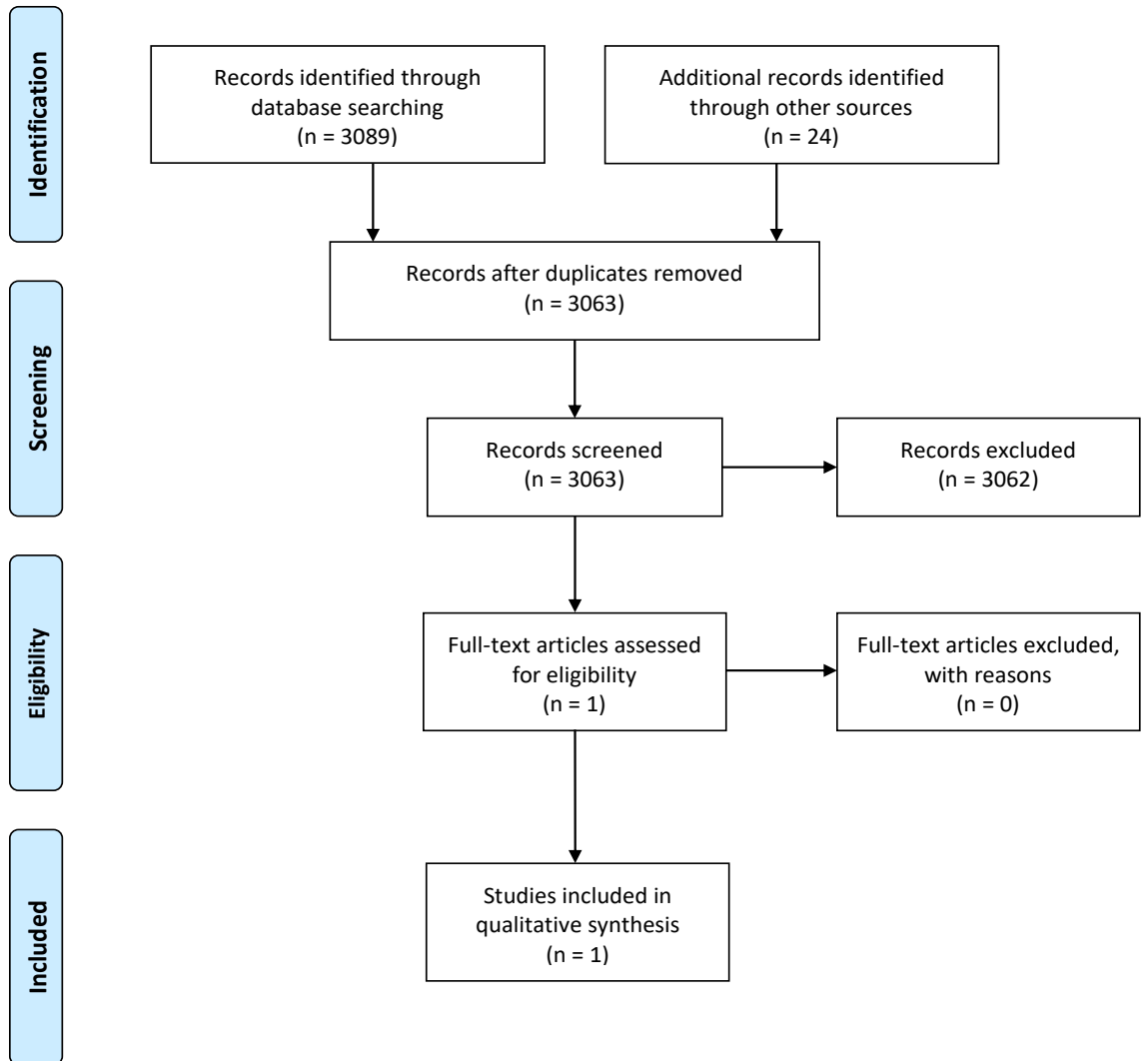
Table 5: inclusion/exclusion criteria scoping review

Inclusion criteria	Exclusion criteria
Original research evaluating a PGDip or master’s programme in clinical/medical/health professions education	Opinion or discussion papers
Quantitative or qualitative or mixed methods considered	Paper unavailable in the English language
Article written in the English language	
Original research underpinned by social capital and or social network analysis	

The scoping review was conducted in April 2018, January 2019 and October 2020. The searches included all available years on the databases. As illustrated in the PRISMA diagram in figure 8, only 1 relevant article was returned in the October 2020 search.



PRISMA 2009 Flow Diagram



From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

For more information, visit www.prisma-statement.org.

Figure 8: PRISMA flow diagram of scoping review

Aitken et al. (2019) performed a qualitative study of the Edinburgh online MCE programme, conducting semi-structured interviews of 13 graduates. The purpose of the study was to explore the evolution of graduate attributes during and after programmes of professional study and the manifestation of such attributes in professional practice. Hence, the primary study objective was not specifically oriented towards SC or social networks. The participants were purposively sampled from graduates of the programme who were from a mixture of healthcare professions and international locations. The majority of participants were medical doctors. The initial data analysis utilised the 'Graduate Attributes Framework' of the University of Edinburgh to interpret the interview data. The authors then conducted a secondary analysis utilising Bourdieu's concepts of field, capital and habitus. To extend their Bourdieusian analysis, they recruited 4 graduates from an online MSc in Clinical Management of Pain. Data from the different programmes was clearly demarcated, hence I will only summarise findings from the MCE programme. Corresponding with the studies in the above rapid review (section 4.2), participants reported feeling more confident and more credible in their educational roles, with enhanced credibility being interpreted as a gain in cultural capital. The MCE programme was perceived to have had a transformative effect on the 'habitus' (patterns of behaviour and thinking) of the graduates, reflecting Sethi's (2016) work on the development of professional identity and the process of becoming a medical educator. Such changes extended into the graduates' clinical roles and personal lives, the impact of the MCE therefore not being confined to medical education. Echoing Bell's (2012) findings (p66), Aitken et al. (2019) observed that the process of undertaking the MCE could make participants more aware of the acquisition of cultural capital, which they could then use as a tool. Participants appreciated having alternative viewpoints provided by an international student body, which the authors describe as a form of SC. However, further details of this SC were not provided. Participants were reported to have developed 'networks of supportive and influential colleagues...that lasted beyond the programme' (ibid: 11), but no further information about the networks is given. Importantly, the authors observe that as the participants' SC was enhanced by their collaboration with others, their data are at odds with Bourdieu's conflict-based theories of capital. Aitken et al. (2019) conclude that the acquisition of capital in all its forms helped the graduates to develop agency and that the 'Graduate Attributes Framework' could not facilitate a contextual understanding of the

impact of an MCE. Aitken et al.'s (2019) study produces some interesting insights into the value of an MCE. Their comments on the value of heterogeneity in student peer groups and the formation of networks during the programme reinforce similar findings by Al-Subait and Elzubeir (2012), Sethi (2016), Skeith et al. (2018) and Jünger et al. (2020), as reported above. However, as SC and SNA were not incorporated into the initial design of Aitken et al.'s (2019) study, and SNA was not utilised at any stage, there is no clarity as to the full impact of the MCE programme from a SC or social network perspective.

In summary, the findings of Aitken et al.'s study and the studies in the rapid review all highlight that the formation of networks is a valued aspect of MCE programmes. This is an area which the studies reviewed have neglected to explore in any detail, thus underlining the need for research in this field.

4.3 SOCIAL NETWORK ANALYSIS AND SOCIAL CAPITAL IN THE EVALUATION OF OTHER EDUCATIONAL PROGRAMMES

The previous sections within this chapter have highlighted that students and graduates value the social connections they make on MCE programmes. I have also illustrated that, at the time of writing, there is a lack of studies formally appraising the SC and social network impact of an MCE. As Rienties and Kinchin (2014) and Van Waes et al. (2015, 2018) have argued, the social impact of professional development programmes has all too often been reported as an aside in studies, rather than the main focus. In the present section, I shall provide illustrative examples of studies that have examined the contribution of professional development programmes towards learners' SC and/or social networks. These examples will highlight that SC and SNA provide useful insights into the value of professional development programmes.

4.3.1 PROFESSIONAL DEVELOPMENT PROGRAMMES IN HEALTHCARE

Moses et al. (2009) conducted a mixed methods social network analysis of the impact of a US teaching scholars programme on the networks and productivity of graduates. 36

graduates of the programme retrospectively detailed their educator network pre- and post-programme completion, the networks consisting of individuals or groups with whom the participant spoke about education. Participants were mainly medical doctors, with other professional backgrounds including nursing and pharmacology. Networks increased from a mean of 2.2 individuals or groups to a mean of 7.7 individuals or groups after programme completion, such an increase being statistically significant. The number of connections between scholars on the programme increased from 6 to 36, and connections between scholars and university faculty and staff increased from 6 to 70. The participants reported that the programme had helped link them with 'like-minded' people, given them the confidence to expand their network, provided better knowledge of people from whom they could obtain educational resources and links to regional and national educational networks. Six participants did not expand their networks at all, a major obstacle to the formation of new relationships being geographical isolation, such scholars being the only participant from their educational establishment in the class. Productivity of the participants was rated on CV analysis for education-related peer-reviewed publications and presentations, leadership roles, teaching awards and grant development. Of all these categories, the only statistically significant increase in productivity was seen in leadership roles. As the authors themselves note, the markers of productivity chosen in the study may not have been a priority for the programme participants, although they did not explore this issue further within the interviews. Nevertheless, the study provides clear details of the new network contacts made through professional development programmes and the value that medical educators place on such connections.

Morzinski and Fisher (2002) performed a retrospective cross-sectional quantitative questionnaire of 351 US family physicians who had attended a range of state-funded faculty development programmes in US universities. This study aimed to determine the number of new relationships established from the programmes and the career benefits associated with these relationships. 65% of participants reported initiating a new relationship or strengthening an existing relationship, a combined average of 9.1 for each participant. Unfortunately, the authors did not provide separate figures to differentiate between new and strengthened relationships. A mean of an additional 3 relationships were

identified as having the potential to offer support in the future. Hence, the findings were analogous to mobilised and potential SC, although these theoretical concepts were not explicitly discussed. Peers on the programme constituted the most common new or strengthened relationship. 69% of participants said the colleagues they met through the programme had been important or very important to their career, in comparison with their overall work-related network. Connections from the programme provided support with teaching administration, regional or national presentations, publications and preparations for grant applications. However, these support categories were pre-determined by the authors, the nature of the questionnaire not allowing participants to provide their own perspective of the value of their network connections.

Foo, Moody and Cook (2019) utilised SNA to evaluate a year-long clinical fellowship programme in Singapore, targeted towards clinical educators from various healthcare professional backgrounds. They retrospectively constructed the ego networks of 47 fellows before and after the programme, in relation to people from whom and to whom the fellows sought and gave education-related advice. Following completion of the programme, the ego networks of the fellows were more interconnected, with the largest group of interconnected individuals increasing from 30 to 71 by the end of the programme. The quality of existing relationships also changed. Trust in colleagues' advice showed a statistically significant increase, as did the frequency of advice seeking and providing behaviour. Unlike Moses (2009) and Morzinski (2002), Foo and colleagues (2019) did not contextualise any new relationships within the fellows existing networks, thus limiting understanding of the observed network impact of the programme.

4.3.2 NON-HEALTHCARE PROFESSIONAL DEVELOPMENT PROGRAMMES

Rienties and Kinchin (2014) conducted an exploratory mixed methods SNA case study of 54 academics who had participated in a professional development programme at a UK university. Adopting Lin's (2001) perspective on SC, the authors aimed to examine new relationships formed in the course of the programme. Participants from 17 different

academic departments and 19 different nationalities worked together in small, randomised groups on educational problems and had already completed 2 modules when they were enrolled in the study. Network data was collected via the roster method, with participants being asked to state which of their peers from the programme they had learned from, 'worked a lot with' (ibid, p. 127) or were friends with. The authors sought to contextualise the programme-based network by asking the participants to list individuals with whom they discussed teaching and learning issues outside of the programme. To help interpret the quantitative network data, a subgroup of participants were asked to reflect on anonymised networks. On average, participants reported 3.37 friendship connections and 4.00 learning and teaching relations on the programme. Multiple regression found friendship ties to be significantly predicted by two factors; the group allocations for modules 1 and 2, and being in the same academic department. The learning and teaching network of the participants was predicted by group division in modules 1 and 2. Of note, participants were allowed to self-select their group members for module 2, hence the multiple regression findings are perhaps to be expected. Participants averaged 3.63 learning and teaching ties to people outside of the programme, with 24% of these being from outside the university. Participants demonstrated homophily with most of their non-programme ties being with colleagues in same department and academic field. Overall, two thirds of the participants discussed learning and teaching with non-programme contacts at least once per week, thus underlining the importance of examining contacts made from the programme within the context of participants' wider support networks. Whilst this was generally a very well planned and executed study, a major limitation is that the authors did not appear to have established whether connections between peers on the programme were present prior to commencement on the course. Therefore, it is difficult to fully appreciate the impact of the programme from a SC and network perspective.

Van Waes et al. (2015) performed a well-considered prospective mixed methods ego network analysis of the interactions of 16 teachers attending a 16-month professional development programme at a Belgian university. The objective of this programme was to improve the teaching-related practical skills and knowledge of university teachers who had been appointed within the previous 7 years. The authors examined how value was created

through networks, changes in networks over the course of the programme and mechanisms supporting or constraining these changes. Data from questionnaires and interviews were collected prior to programme commencement, during the programme and up to 12 months post-completion. Any new connections made via the programme were contextualised within participants' broader education networks, with participants being asked to note down with whom they communicated about their teaching practice. Over the course of the programme, ties increased from an average of 4.25 to 7.31, the most change occurring between the first and second network data collections. The majority of these contacts were not related to the programme. Prior to commencing on the programme participants averaged 0.31 relations on programme, this figure increasing to an average of 1.69 at the programme's end. As observed in the studies of Moses et al. (2009) and Foo, Moody and Cook (2019), participants' networks became more interconnected throughout the duration of the programme. Before the start of the programme, 6 of the 16 participants had a network connected with another participant, with 12 out of 16 networks being interconnected at the end of the programme. In keeping with the findings of Rienties and Kinchin (2014), the beginning of the programme saw the largest growth in network connections. Interestingly, 11 out of 16 did not discuss teaching practice with other participants over the course of the programme. A larger increase in network size was observed with contacts external to the programme, the average number of ties increasing from 3.94 pre-programme to 5.63 after programme completion. Unfortunately, the authors did not explore any underlying rationale for this with the participants, so it is unclear if the programme had a more general influence on education-related inter-personal behaviour. Advice-seeking behaviour was influenced by trust and friendship, proximity and access to contacts, chance encounters, the perceived expertise of the individual and time. Resources were categorised as providing expressive or instrumental value, in keeping with Lin's (2001) network theory of SC. Van Waes et al.'s (2015) study provides evidence that educators' support networks can change during a professional development programme. Their data offers interesting insights into the nuances of educators' support networks. However, the role of the programme in contributing to such networks is not fully explored.

The studies reviewed in this section illustrate that educators can make new connections on professional development programmes, with numbers of new relationships varying substantially between studies. It is not clear if such variation is due to the nature of the course, the participants or the study methods. Qualitative data generated by these studies highlight the varied nature of support provided by new connections, with value being of an instrumental or expressive nature. Van Waes et al. (2015) have identified factors that help and hinder advice seeking in educator networks, work which can help inform the future delivery of professional development programmes (see Van Waes et al. (2018) for an example of a network intervention in a professional development programme). Also highlighted is the role of educators' networks outside of the professional development programmes. Within the studies by Rienties and Kinchin (2014) and Van Waes et al. (2015) educators turned most frequently for support to their non-programme related networks, which were also larger in size than programme-related networks. Hence, any study of the network impact of a professional development programme would be incomplete without an understanding of educators' general educational support networks.

4.4 CHAPTER SUMMARY

The rapid and scoping reviews have illustrated that much of the research into MCE programmes is methodologically poor. The majority of studies only addressed the first and second levels of the Kirkpatrick model (Kirkpatrick Partners, 2018), were lacking a theoretical basis and did not provide sufficient detail to allow the study findings to be translated into different settings. Nevertheless, a finding common to a number of the studies was the value placed on the network formation opportunities presented by the MCE programmes. I have demonstrated that, at the time of writing, there are currently no studies which have provided a theoretically informed, detailed analysis of the SC and network impact of an MCE programme. Whilst Aitken et al. (2019) interpreted some of their findings from a SC perspective, this was a secondary analysis, thus the study was not designed to provide a comprehensive SC and social network perspective.

Utilising examples from other areas of education research I have shown that professional development programmes can result in measurable and important changes to the networks of both clinical and non-clinical educators. The strengths and weaknesses of the studies reviewed also provide important methodological considerations for the present study. The most complete picture of the SC and social network impact of an MCE programme would adopt a mixed methods approach, collecting both qualitative and quantitative data. There should be clarity as to the origins of relationships with peers and faculty from an MCE programme, as such connections may have arisen in other circumstances and could not therefore be considered an outcome of the programme. Furthermore, the SC and network impact of an MCE cannot be fully understood without a detailed examination of medical educators' wider educational support network. The following 'Methods' chapter provides a critical discussion of the methods I have adopted in all stages of study design and implementation.

CHAPTER 5: METHODS

5.1 INTRODUCTION

This chapter details the procedures that were utilised to collect and analyse the data presented in chapters 6 - 9. The chapter opens with clarifications of terminology, before moving on to set out the research question and study aims and objectives. The study design may be summarised as mixed methods social network analysis (MMSNA), which utilises a series of cases to address the study question. To contextualise the study design, there is a concise, critical discussion of mixed methods research (MMR), focussing on MMR in the field of SNA. This is followed by a succinct critical discussion of case study research. Building on these foundations, the study design is presented, with justifications for the steps taken at each stage. The chapter concludes with details of important ethical considerations during the research process.

5.2 NOTES ON TERMINOLOGY

5.2.1 METHODOLOGY VS METHOD

Hammersley (2006) observes the importance of distinguishing between 'methodology-as-philosophy' and 'methodology-as-technique'. The former involves reflexivity of the researcher to form an appreciation of the values that have framed their area of study. The latter refers to the utilisation of specific techniques; for example, a questionnaire. It is essential that we understand exactly what steps the researcher has taken, so that a) we can understand and appraise the procedural technique of the study and b) we can replicate it, if required. However, as Hammersley (2006) notes, this procedure in isolation has the limitation of neglecting the philosophical assumptions that have been made in adopting the approach of choice. In so doing, we are guilty of reducing an area of research simply

down to the reproduction of a technique, whilst ignoring the world in which the research has been situated. He accuses educational researchers of too readily falling into this trap. Nevertheless, he stresses that philosophy cannot inform the researcher as to the best way of investigating their topic and emphasises how both approaches are essential to achieve a balanced perspective.

Throughout this document, the term 'methodology' will be used to mean Hammersley's (2006) 'methodology-as-philosophy' and his 'methodology-as-technique' will be referred to as 'method' or 'methods'. As discussed in chapter 1, my positioning is that the data I am collecting is socially constructed. This positioning is aligned with the theoretical perspectives detailed in chapter 3 and is also aligned with the methods outlined in this chapter. Potential strengths and biases of the research approach are discussed in this chapter and chapter 10 ('Discussion').

5.2.2 TRIANGULATION IN THE CONTEXT OF THE PRESENT STUDY

There are longstanding debates within the literature as to the role of triangulation in mixed methods research (Ritchie et al., 2014, Flick, 2017). In a review of the topic, Flick (2017) observes that the initial perspective was that triangulation was important for achieving more 'accurate' results. However, this position has evolved over time. In this study, I adopt the more contemporary view that triangulation in MMR is to give 'a fuller picture of phenomena, not necessarily a more certain one' (Ritchie et al., 2014: 41). The aim is to look for both complementary and contradictory findings, to provide the richest possible picture. This aim can be achieved via the combination of qualitative and quantitative data, or by combining different types of qualitative data. The benefits of MMR and MMSNA are further discussed in sections 5.4.1 and 5.4.2.

5.3 RESEARCH QUESTION

What is the value of undertaking a higher qualification in clinical education?

5.3.1 RESEARCH AIM

To understand the value of undertaking a higher qualification in clinical education in terms of the social capital of graduates as it relates to their work as a medical educator.

5.3.2 RESEARCH OBJECTIVES

1. To identify the social capital of a medical educator after completing a higher qualification in clinical education.
2. To identify the factors that help and hinder the development of social capital after completing a higher qualification in clinical education.
3. To identify the perceived benefit of social capital for a medical educator with a higher qualification in clinical education.

The study therefore adopts both 'theories of networks' and 'network theories' approaches. Objectives 1 and 2 consider the role of the MA in producing medical educators' networks, a 'theories of networks' perspective. Objective 3 involves 'network theories', as it considers the consequences of the networks. To address these objectives, sub-questions were developed. These are listed in table 6, along with the linked research objective.

Table 6: research objectives and linked sub-questions

Research Objective	Linked sub-question
<i>1. To identify the social capital of a medical educator after completing a higher qualification in clinical education</i>	How is social capital conceptualised in the context of the medical educator?
	What social capital is available to the medical educator?
<i>2. To identify the factors that help and hinder the development of social capital after completing a higher qualification in clinical education.</i>	What factors impact upon the formation of ties?
	What factors impact upon the mobilisation of social capital?
<i>3. To identify the perceived benefit of a higher qualification in clinical education in terms of the social capital of a medical educator.</i>	How does the MA contribute to the social capital of the medical educator?

When conducting MMR, it is essential to ensure that there is clarity in how different data types address the research objectives (Bryman, 2006, Teddlie and Tashakkori, 2010). Table 7 indicates how these objectives and sub-questions are linked to both the theoretical framework presented in chapter 3 and the methods utilised in the study.

Table 7: Linkage of objectives, sub-questions, theoretical framework and methods. SC = social capital

Research Objective	Relationship to theoretical framework	Linked sub-questions	Methods
1. To identify the SC of a medical educator after completing a higher qualification in clinical education	Mobilised capital (Lin (2001) vs potential capital (Coleman, 2000)	How is SC conceptualised in the context of the medical educator?	Template analysis of interview data
	Returns on SC are instrumental or expressive (Lin, 2001)		
	SC depends on the collective assets of the network (Lin, 2001)	What SC is available to the medical educator?	Analysis of quantitative network data via UCINET and Excel
	SC varies according to context (Lin, 2001)		Template analysis of interview data
2. To identify the factors that help and hinder the development of SC after completing a higher qualification in clinical education.	Homophily, heterophily (Lin, 2001) and propinquity (Spillane, et al, 2017) are important in the formation and mobilisation of social capital.	What factors impact upon formation of SC?	Template analysis of interview data
		What factors impact upon mobilisation of SC?	
3. To identify the perceived benefit of a higher qualification in clinical education in terms of the social capital of a medical educator.	SC depends on accessibility of resources, which is related to the position of the individual in the network structure (Lin, 2001)	How does the MA contribute to the SC of the medical educator?	Analysis of quantitative network data via UCINET and Excel

5.4 CONTEXT FOR STUDY DESIGN CHOICE

This section provides contextual information and a critical discussion regarding MMR, both generally and within the field of SNA. I argue that MMR can provide rich data, generating a holistic picture of the phenomenon under investigation. I also present the argument that SNA is a case study method and outline the advantages and limitations of this approach as it relates to the present research study.

5.4.1 MIXED-METHODS RESEARCH – DEFINITION AND ADVANTAGES

Creswell (2015: 2) argues that MMR is a method in its own right. He defines MMR as:

An approach to research ... in which the investigator gathers both quantitative (closed-ended) and qualitative (open-ended) data, integrates the two, and then draws interpretations based on the combined strengths of both sets of data to understand research problems.

Hence, the emphasis is on the *combination* of quantitative and qualitative data, wherein lies the strength of the approach. Such triangulation of different methods and ensuing data provides a richer picture of a phenomenon than may be obtained via the use of a single method (Ritchie et al., 2014). MMR allows the researcher to choose the tools which best answer the research question (Teddlie and Tashakkori, 2010), with different research perspectives ‘triangulated to complement their strengths and to show their limits’ (Flick, 2017: 54). As Mason (2006) observes, life is multi-dimensional and therefore our analyses should be too. Life occurs simultaneously on a micro and macro scale and research needs to account for this; quantitative data can tell us what is happening on a large scale whilst qualitative data can explain why.

5.4.2 USE OF MIXED-METHODS IN SOCIAL NETWORK ANALYSIS

SNA is ideally suited to the use of MMR (Crossley and Edwards, 2016). Modern SNA has been shaped by a diverse range of disciplines, being based on a convergence of graph

theory with 1930s research on interpersonal relations and ‘cliques’, this combination being subsequently built upon by Manchester-based anthropologists (Scott, 2000). Crossley and Edwards (2016) advocate for the use of MMSNA, observing that the combination of quantitative and qualitative data provide a more in-depth understanding than either type of data could alone. Quantitative network data allows precision in the mapping of networks and provides understanding in a way that would be very difficult to convey with qualitative data. It is very difficult to concisely describe and analyse reports of even small numbers of actors using a traditional qualitative approach, since the account would become too lengthy to follow. As Crossley (2010) points out, within a group of only 10 nodes, up to 90 directed or 45 undirected ties are possible. A graph or matrix, however, enables the reader to acquire a rapid overview of the data. Such representation of the data also brings to light that which would not otherwise be seen; for example, structural holes, which would not be clearly apparent in a purely qualitative account. Qualitative network data can build upon the quantitative data by providing rich, contextual detail to further understanding. For example, Bellotti (2008) performed MMSNA study of the ego-nets of 23 single people in Milan, looking at friendship networks. No meaning of the word ‘friend’ was given – this was for people to interpret for themselves. This led to the interesting outcome that some participants only included very close friends with whom they would share their intimate thoughts, whilst others included people with whom they would socialise, regardless of how close they were. Without using a qualitative approach, network stories which inform us about how people actually function, such as those discovered by Bellotti (2008) would remain hidden.

5.4.3 CASE STUDIES

SNA is a case study approach (Crossley and Edwards, 2016). The strength of the case study is the ability to provide rich, contextual data (Ritchie et al., 2014). With reference to educational research, Newby (2014: 625) observes that ‘the purpose of a case study is to understand why what happened actually happened’. However, there are varying views within the literature as to the definition of the case study (Bassey, 1999, Savin-Baden and Howell Major, 2013, Ritchie et al., 2014, Yazan, 2015, Harrison et al., 2017). Savin-Baden

and Howell Major (2013) provide a helpful overview of 3 different perspectives of case study research in the literature. A case study may simply refer to the way a case is delineated or bounded: in other words, clear inclusion and exclusion criteria. Secondly, some researchers see it as a specific research approach. The third perspective is that it is the final written product of a qualitative study. Savin-Baden and Howell Major (2013) propose that it is all of these things. They emphasise the importance of understanding the difference between the case study as a method (the approach to collection and analysis of data) and the case study as a narrative (the written description of the case). When performing case studies, they assert, method and narrative must both be attended to.

Key authors in the field of case study research have been identified as Yin, Stake and Merriam (Creswell et al., 2007, Yazan, 2015). Yin (2014) provides a post-positivist view of the case study (Yazan, 2015, Harrison et al., 2017). There is an emphasis on the use of mixed methods to minimise lack of full understanding and get as close to 'the truth' as possible (Yin, 2014). Qualitative data may be transformed into quantitative data in order to perform statistical analysis. Associated with this design is the falsification of hypotheses, seeking rival explanations and the use of multiple methods. Although there is the aim of objectivity, Yin (2014) does acknowledge that the case study has interpretive and descriptive aspects, with a key feature being the 'real world' context of the investigation. Stake (1995) is more constructivist and interpretivist in his approach (Hyett, Kenny and Dickson-Swift, 2014, Yazan, 2015, Harrison et al., 2017). The researcher is seen as a participant in the study and any knowledge gained is seen as relative to the context and the time of the study (Stake, 1995).

Merriam (2009) has been identified as occupying a middle-ground between Yin's (2014) and Stake's (1995) perspectives (Yazan, 2015), an approach in keeping with mixed-methods studies. She defines the case study as 'an in-depth description and analysis of a bounded system' (Merriam, 2009), thus aligning with Savin-Baden and Howell Major's (2013) perspective, as detailed above. If it is not possible to bound the system, then, in Merriam's (2009) opinion, it is not a case study. This definition of case study research aligns with Crossley and Edwards' (2016) assertion that SNA adopts a case study approach. As

discussed in the theory chapter (p47), a network must be bounded; for example, who is friends with whom. Without such a boundary, there is no network and no case. Crossley and Edwards (2016) observe that, as with a case study, SNA does not assume that the networks being considered are statistically representative of a wider population, but that the findings may 'shed light' upon other cases. In other words, it is not possible to statistically generalise the results to other populations, but, as Bassey (1999) notes, a case study 'reports that something has happened in one place and it may also happen elsewhere...There is an invitation to try it and see if the same happens for you' (Bassey 1999: 52). Bassey (1999) refers to this concept as 'fuzzy' generalisation. Hence, any theory produced from the proposed study has the potential to be transferred outside EHU to other, similar medical education contexts, this process being facilitated by the rich data inherent to the case study (Tracy, 2010).

5.5 CONDUCTING THE STUDY

The following section provides detailed information of the steps taken during each stage of the study, commencing with a brief overview of the study.

5.5.1 STUDY OVERVIEW

The study utilises MMSNA, following a convergent parallel design (Creswell and Plano Clark, 2011). Figure 9 illustrates the basic design of the study, whereas figure 10 demonstrates the feasibility studies and data collection processes in detail. As demonstrated in these figures, qualitative and quantitative data were collected simultaneously, analysed separately, then merged for the purposes of interpretation. The simultaneous collection of data is useful where there is limited time (ibid), an important consideration for this study due to the hectic work schedules of the participants. A total of 12 participants took part in the study, producing a series of case studies of individuals who have completed the EHU MA in Clinical Education. As may be seen from figure 10, the predominant data form is qualitative.

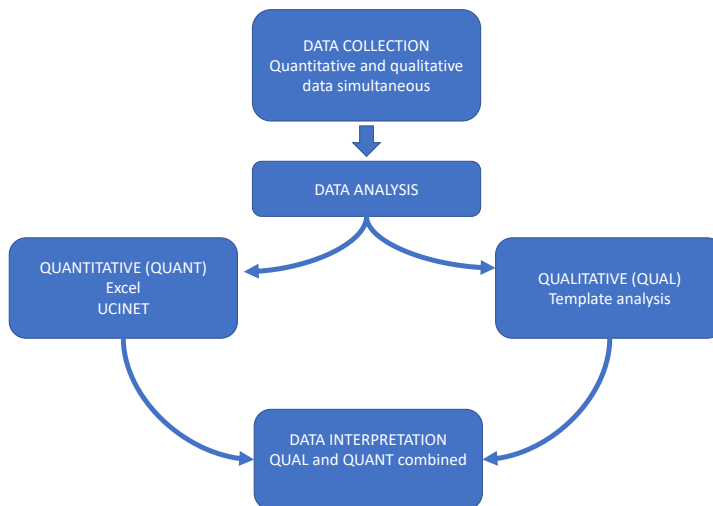


Figure 9: illustration of the study's parallel convergent design. Qualitative and quantitative data were collected simultaneously and analysed separately. Data were combined at the stage of data interpretation. The data collection process is detailed further in figure 10.

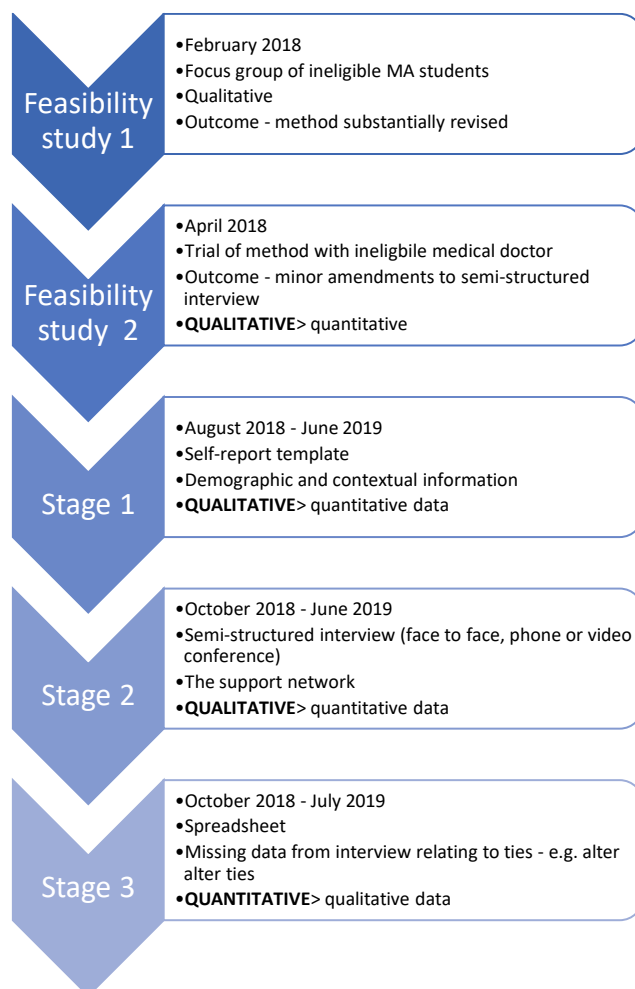


Figure 10: Stages of feasibility studies and data collection

There is precedent within the MMSNA literature for the study design, the present study sharing structural similarities to Bellotti's (2008) mixed methods egonet study of friendship. Bellotti's (2008) study consisted of a series of case studies of individuals living in Milan. In the data collection phase of Bellotti's (2008) study, quantitative egonet analysis was conducted alongside qualitative interviews. Quantitative and qualitative data were analysed separately, and the results combined to provide an in-depth, rich picture of conceptualisations of friendship.

5.5.2 QUALITY

It is essential to ensure research is of good quality (O'Cathain, 2010). In this section, I provide a summary of the relevant literature in this field to provide context for the quality framework that was used to inform quality within the study.

There are a variety of quality frameworks for mixed methods studies (Caracelli and Riggin, 1994, Onwuegbuzie and Johnson, 2006, Dellinger and Leech, 2007, Tashakkori and Teddlie, 2008, Leech et al., 2010). To identify the most useful standards, Bryman et al. (2008) surveyed social policy researchers in the UK, presenting them with the quantitative research evaluation criteria of reliability, validity, replicability and generalisability. They requested that respondents state which criteria were useful for the evaluation of MMR and asked them to volunteer their own standards. The overall preference was for using a combination of quantitative and qualitative criteria, with these criteria being applied to the relevant aspects of the research study; for example, quantitative criteria to the quantitative part of the study. They found more difficulty in obtaining agreement for the qualitative aspects of MMR than for the quantitative. The majority of respondents were of the opinion that validity was an important criterion, but Lincoln and Guba's (1985) qualitative evaluative criteria of credibility, transferability, dependability and confirmability did not receive much support. O'Cathain (2010) has summarised the various approaches that have been made over the years, beginning with the very thorough 94 quality criteria developed by Caracelli and Riggin (1994). O'Cathain (2010) based her framework largely on the work of Caracelli and Riggin (1994) and Tashakkori and Teddlie (2008), with additions from the

work of Onwuegbuzie and Johnson (2006), Creswell and Plano Clark (2007) and Dellinger and Leech (2007). The framework is outlined in table 8. As O’Cathain (2010) herself observes, this is a very detailed framework and perhaps contains too many items to be used by those who would wish for more general criteria (Creswell and Plano Clark, 2011). However, from the perspective of an early career researcher, such detail is welcome. Aspects of this quality framework will be returned to in chapter 10 (‘Discussion’).

Table 8: Quality framework for mixed methods research, adapted from O’Cathain (2010)

Quality domain	Domain items
Planning	Comprehensive and critical literature review
	Justification of MM approach provided
	Details of paradigm, design plan, data collection and analysis and reporting
	All aspects of the study are feasible
Design quality	Key aspects of design are from known typology, if available typologies insufficient to describe design utilised
	The design: <ul style="list-style-type: none"> • Addresses the research question • Complements the reason for mixing methods • Is appropriate for the paradigm
	Strengths and weaknesses of methods: <ul style="list-style-type: none"> • Are considered in a way to minimise bias • Maximise the depth and breadth of the study
	Methods are implemented consistent with initial design
Data quality	Transparency of method description
	Methods are implemented with rigor
	Appropriate sampling technique and sample size
	Appropriate and adequately performed data analysis techniques
	Robust data integration – e.g. defensible data transformations
Interpretive rigour	Clarity regarding which methods have resulted in which findings
	Inferences are consistent with findings
	Inferences consistent with theory or current knowledge
	Others would reach the same conclusions of the findings
	Conclusions drawn are more credible than alternative conclusions
	Meta-inferences (covering the whole study) incorporate findings from quantitative and qualitative aspects of study
	Inconsistencies between findings and inferences are explained
Inferences relate to the study question	
Inference transferability	<ul style="list-style-type: none"> • Ecological transferability: transferability to other contexts and settings • Population transferability: transferability to other individuals/groups • Temporal transferability: transferability to the future • Theoretical transferability: transferability to other methods of behaviour measurement
Reporting quality	Study completed within allocated resources
	Key aspects of study reported according to GRAMMS (Good Reporting of a Mixed Methods Study) criteria (O’Cathain <i>et al.</i> 2008)
	The whole of the study is more than the sum of its parts
Application in the real world	
Utility	Research findings are implemented

SNA is a very specialised field. Therefore, prior to embarking on the study, I consulted with experts from the Mitchell Centre for Social Network Analysis at the University of Manchester to ensure that the study design was viable and appropriate. I was fortunate to have ongoing contact throughout the study with these experts so that I was able to access advice where needed. As a further quality check, the external examiner for my progression viva was an expert in MMSNA and ego-network analysis. At the time of submitting my report for the progression viva, I had conducted 8 interviews, and therefore this expert was able to thoroughly appraise the methods and both the quantitative and the qualitative analyses.

5.5.3 FEASIBILITY STAGES

The first feasibility study was a focus group conducted with two students on the MA course who were not doctors and therefore ineligible for inclusion in the study. The decision to only include those not eligible for the study was made to keep the potential pool of participants in the final study as large as possible. This focus group substantially changed the proposed method for the study. It was initially proposed that the network data would be collected electronically via a questionnaire. The network would then be mapped out using UCINET and discussed with the participant in a semi-structured interview. The purpose of the focus group had been a 'trial run' of focus groups I had been intending to conduct to develop the questionnaire. The question used to elicit the network in the proposed questionnaire was 'Who supports you in your role(s) as a medical educator?' However, from the focus group, it became apparent that participants may have difficulty interpreting this question and that the use of verbal prompts was required. The format of the focus group therefore changed, from a structured attempt to develop a questionnaire to a more open discussion about the format of the study. To inform the study protocol, I asked the students to elicit each other's support network as it related to their educational roles. Observation of the different phrasing they used in their questioning and the prompts that helped to promote recall greatly informed the design of the semi-structured interview. At the outset of the study, I had planned to consider both mobilised and potential capital within the participants' networks. However, this feasibility stage also indicated that to do

so would be far too time consuming and very difficult to establish. The study design was ultimately amended to a differently formatted two stage study. The first stage was collection of demographic and contextual information via completion of a Word document (Microsoft, 2020a) or self-report template (SRT). The second stage entailed a semi-structured interview, where the social network would be elicited.

Yin (2014) has emphasised the importance of having a full trial of a case study to assist with the refinement of data collection procedures. The second feasibility study involved a trial of the new method (SRT, followed by semi-structured interview) with a medical doctor who was ineligible for the study. This pilot established the feasibility of the method. The SRT questions were phrased in an understandable way and the semi-structured interview allowed collection of data on 20 alters in under 1.5 hours. Discussion with the focus group for the first feasibility study, the participant for the second feasibility study and my supervisory team had concluded that 1.5 hours was the maximum time it would be reasonable to request from the participants, who are extremely busy professionals.

The third stage of data collection, as detailed in figure 10, was added once the study had commenced. During the first interview, it was identified that it was difficult to collect alter-alter ties on a relatively dense network within the time constraints of the interview. The participant helpfully offered to input this information into a spreadsheet. This was found to be successful and was subsequently adopted as the third stage to the study, following an amendment to ethical approval. The study stages 1 – 3 are as illustrated in figure 10. No further changes were made to the structure of the study.

5.5.4 MEASUREMENT OF SOCIAL CAPITAL WITHIN THE STUDY

Considerations of the measurement of SC informed the design of the data collection tools outlined in the below sections. As discussed in chapter 3, SC is considered to be a resource embedded within the participants' networks. In measuring the SC embedded in networks,

Lin (2001) has advocated considering the quantity, range and heterogeneity of resources in addition to the structure of the network. How this was achieved is detailed in the below sections on data collection tool design and in the data analysis section.

5.5.5 CONSTRUCTION OF THE SELF REPORT TEMPLATE AND SEMI-STRUCTURED INTERVIEW

The SRT and semi-structured interview were developed from the literature that had been reviewed at the time (as presented in chapter 3), in combination with the outcomes of the feasibility studies, input from the supervisory team and my many years' experience of interviewing patients. This mode of development is consistent with the framework established by Kallio et al. (2016) following their systematic review of the literature on the methodology of semi-structured interviews. Care was taken to ensure that the tools only collected data required for the research, as to do otherwise would be unethical (Gibbs et al., 2007). The SRT and semi-structured interview were designed to collect a mixture of quantitative and qualitative data, the latter being the predominant data mode. The final SRT and semi-structured interviews are presented in sections 12.14 and 12.15.

The SRT is a Word (Microsoft, 2020) document that was used to collect demographic and contextual information. Its main purpose was to inform and shorten the interview process. Additionally, SRT questions relating to participants' views on the MA helped to indicate transferability of the results from this study to other situations, as these responses could be compared with the existing MCE literature, as reviewed in chapter 4. The list of educational roles provided by participants in the SRT was used as a prompt in the semi-structured interviews.

Semi-structured interviews contain pre-set broad questions with probes that can be adapted to obtain more specific information, as required (Savin-Baden and Howell Major, 2013). This approach facilitates cross-case comparisons, whilst allowing the interviewer the flexibility to follow up on participants' comments. They are thus extremely useful when

there is only one opportunity to conduct an interview with a participant (ibid). In case study and social network research, it is essential to bound the case (Savin-Baden and Howell Major, 2013, Crossley et al., 2015, Creswell and Poth, 2018). As indicated in the interview protocol, the participants' networks were bounded by the use of a name generator, in the form of the question 'Who are the people who support you in your role(s) as a medical educator?' Some participants required verbal prompting to clarify the meaning of this question, the list of educational roles provided by participants in the SRT being used to generate semantic cues (Rice and Holloway, 2014); for example, 'Who supports you in your role as Training Programme Director?'. These cues were especially important, as name generators can be prone to recall bias (Lin, 2001, Rice and Holloway, 2014). Of note, the ties in the participants' networks are directed, with the final networks only showing who provides support to the participant and not vice versa. Additionally, the ties are binary and not valued. Accompanying questions elicited details about the alters, such as the nature of the resource provided. The initial phrasing for the name generator was influenced by Marsden's (1987) seminal work on the core discussion groups of Americans, where people were asked to name all the 'people with whom they discussed important matters within the past six months' (ibid: 123). Following the feasibility studies, the decision was taken not to include a time limit on the networks, since it was considered that this could unduly limit the networks due to the sporadic nature of medical education work. To clarify which ties had been made via the EHU MA programme, the participants were asked how they had met their contacts. Where necessary, further probing questions included, 'Do you maintain contact with anyone from the MA programme?' For some participants, contacts from the MA programme therefore represent both potential and mobilised capital, the distinction being made clear within the results as presented in chapter 9. Whilst semi-structured interviews allow flexibility, there remains a possibility that the structure may result in important issues being missed (Savin-Baden and Howell Major, 2013). Therefore, as advised by Arthur et al. (2014), each interview was concluded by asking the participant if there was anything else that they would like to discuss.

The mode of questioning in the semi-structured interviews evolved as the study progressed. I found that asking participants for detailed information as to the frequency of

contact with their alters and the duration of their relationships interrupted the flow of the interviews. I had initially intended to use frequency of contact and duration of relationship as measures of SC, but, as collecting this information was interfering with the overall quality of the interviews, I reconsidered this approach. Instead, I opted to ask more general questions about these variables for the purpose of contextualising the answers to facilitate my qualitative data interpretation.

In terms of the measurement of SC, the semi-structured interview generated data that was related to the quantity and heterogeneity of resources. Some of the interviews also provided information about alter-alter ties, data that was necessary to draw out the networks to allow analysis of the network structure. For the majority of participants, however, this data was obtained from the spreadsheet. In developing the semi-structured interview, it was anticipated that it would be difficult to ascertain the 'best' or hierarchically most important resource, something Lin (2001) refers to as 'upper reachability'. This was borne out by the data that was ultimately collected. The participants had multiple roles with contacts in a variety of settings, with the hierarchy of the contacts depending on the setting and the role. For example, a Director of Medical Education may require support from their Trust Medical Director for issues relating directly to Trust activities, whereas a Postgraduate Dean or Training Programme Director would be able to provide support in relation to HEE matters. Hence, it was the specific role that an alter had in relation to the role of the participant that was of importance.

5.5.6 RECRUITMENT AND SAMPLING

Participants were all medical doctors who had graduated from EHU with an MA in clinical education. Although doctors constitute the majority of students on the course, other participants include dentists and nurses. These three professional groups all have different professional bodies with varying requirements, which may be a strong influence both on motivations to embark upon the course and subsequent implementation of knowledge and skills in the workplace. Additionally, professionals from different clinical backgrounds work

in diverse ways with demonstrably different work-related social networks and SC, even when they are working in the same setting (Tasselli, 2015). The sample was therefore restricted to medical doctors to allow the development of theory within as homogenous a group as possible. This is consistent with Stake's (1995) advice for studying the 'instrumental' case, a case which is studied to gain further insight into an area of interest and to potentially develop or refine theory.

Ethical approval was initially sought for the following groups:

1. EHU graduates with MA in clinical education.
2. EHU students on the dissertation module of the MA in clinical education (these students are all eligible for the award of PGDip if they discontinue prior to completing the dissertation).
3. EHU students who have graduated with a PGDip in clinical education.

As stated in section 2.4.4, there is a substantial overlap between the PGDip and MA, hence the rationale for considering the inclusion of those with the PGDip or the MA. To attempt to maximise homogeneity in the study sample, participants were initially recruited from group 1. Data saturation (see below, p106) was reached solely using participants from group 1, therefore no participants were recruited from groups 2 and 3.

Due to data protection legislation, the only graduates who could be contacted for recruitment into the study were those who remained in personal email contact with the programme lead. Indeed, as discussed in the introduction to this thesis, this restriction led to the decision to study SC and social networks, as it led me to question why graduates would remain in touch in this manner. Such means of recruitment is consistent with Flyvbjerg's (2006) concept of the critical case, a situation whereby one does not require multiple trials to demonstrate a point if the case is chosen carefully. He provides the example of how Aristotelian concepts of gravity were disproved with a simple experiment using a vacuum tube, metal weight and feather. According to Aristotelian gravity, the metal should have fallen faster because it is heavier, but the experiment showed both fell at same

speed. The typical or average case, therefore, may not always be the richest source of information. Atypical cases may reveal more information about the phenomenon under investigation. To identify the critical case, one looks for the case which should either confirm or refute a proposition. In the present study, the participants have all, by virtue of inclusion in the study, gained at least one addition to their social network. It would therefore be appropriate to treat them as a critical case; arguably, if the MA has not contributed to their SC, it is unlikely to have contributed to the SC of those who have not remained in contact with the programme lead.

For recruitment purposes, the programme lead developed a list of medical doctors who had graduated within 5 years of the recruitment process commencing. It was considered that individuals who had graduated prior to this may have difficulty recalling the required information. The eligible individuals were listed in reverse order of graduation date. For the first recruitment round, the programme lead emailed the first 10 from the list with a Participant Information Sheet (PIS; see sections 12.8 and 12.9) and requested that they contact me if they were interested in participating. This process continued until the point of data saturation, defined as ‘the point in data collection and analysis when new information produces little or no change to the codebook’ (Guest, Bunce and Johnson, 2006: 65). Response rates are detailed in section 6.1.1.

In summary, the sampling method was therefore a purposive sample (Tufford and Newman, 2010) of medical doctors who had graduated from the EHU MA within the 5 years preceding study recruitment. This purposive sample was nested within a convenience sample (*ibid*) of graduates who had maintained personal contact with the programme lead.

5.6 DATA COLLECTION

The participants for this study were extremely busy professionals, whose workloads could be unpredictable. Throughout the study process, the aim was to minimise the burden to the participants. SRTs facilitated this goal and were received from all participants. Where possible, interviews were face-to-face (FTF), but telephone interviews were conducted

where this was more convenient for the participants. FTF interviews were prioritised to allow the participant to draw out their network on paper and for this to be a visual focal point of the interview. Attempts were made with two participants to conduct interviews via video conferencing software, but repeated technical glitches resulted in this mode of communication being abandoned in favour of telephone interviews. Reviews of different modes of interviews have produced mixed views about the superiority of FTF interviews over alternatives (Schober, 2018). The limited number of studies that have compared FTF with telephone interviews found the two techniques comparable in terms of quality (Carr and Worth, 2001).

Kvale and Brinkmann (2009: 123) have observed that the process of conducting an interview entails the creation of knowledge which is “inter” the points of view of the interviewer and interviewee’. Hence, adopting a reflexive approach is essential practice; details of how I achieved this are contained in sections 1.2 and 5.7.1. As outlined by Kvale and Brinkmann (2009), and based on my years of training and experience as a psychiatrist, I ensured good interview technique. The SRT data facilitated the development of rapport and allowed me to pose some introductory questions, which opened up the conversation to follow-up questions. Where possible, questions were kept open, although this was not always appropriate; for example, in establishing alter-alter ties, a simple ‘yes’ or ‘no’ response was sufficient. In FTF interviews, I maintained open body language, at times reflecting the body posture of the participant where this was pertinent; for example, if the participant leant forward to emphasise an important point, I would also lean forward to demonstrate that I was paying attention. Silence could be useful in encouraging the participant to reflect; however, this technique was not possible with telephone interviews, as participants thought there was a problem with the phone signal if I left too long a pause in the conversation. As is good interview practice (Kvale and Brinkmann, 2009), I utilised the participant’s own words when following up on statements they had made, or asking interpreting or clarifying questions, such as ‘When you said ‘X’, am I correct in thinking you meant...?’ All interviews were digitally recorded and transcribed verbatim, resulting in 217 pages of transcripts. Data were inputted to NVIVO (QSR International, 2018) for storage and analysis. After interviews with 11 participants, no new themes of relevance to

addressing the research objectives were identified; a 12th interview was performed to successfully verify data saturation.

Spreadsheets were not required for participants P1 and P12, as their networks were sufficiently small for all of the alter-alter ties to be collected during the interview stage. One participant, P9, did not return their spreadsheet; hence, the data on their alter-alter ties is missing.

5.7 DATA ANALYSIS

As outlined in figure 9, qualitative and quantitative data were analysed separately. Of note, some of the qualitative data was quantified to facilitate intra- and cross-case analysis. Where and how this occurred is detailed in the following section on qualitative analysis. Overall, the volume of qualitative data exceeded that of quantitative data. Data analysis was continuous throughout the data collection period, as this helped to inform subsequent interviews. As advised by Teddlie and Tashakkori (2010), the process of analysis was dynamic with an ongoing compare and contrast process between qualitative and quantitative data prior to the eventual integration of data.

Member checking 'consists of taking data and interpretations back to the participants in the study so that they can confirm the credibility of the information and narrative account' (Cresswell and Miler, 2000: 127). Lincoln and Guba (1985) advocate this process as a means of establishing credibility. However, the decision was taken from the outset of the study not to undertake member checking. Firstly, as stated above, the participants were extremely busy professionals and the study was designed to take up as little of their time as possible. Secondly, it can be difficult to resolve issues whereby the researcher and participant disagree and there is little guidance available to direct practice in this regard (Tufford and Newman, 2010). An exception was made for two participants who had disclosed information of a sensitive nature regarding work-related difficulties. They reviewed the data which was used in the study to ensure that they were happy for it to be

included and that sufficient steps had been taken to preserve their anonymity. Please see section 5.8 for a further discussion of anonymity in case study research.

Measurement of SC involved both qualitative and quantitative data, as outlined in table 9. Details of the analyses are provided in sections 5.7.1 and 5.7.2.

Table 9: summary of social capital measures

Social capital measure	Qualitative data	Quantitative data
Heterogeneity	Different types of resource	Number of ties providing the resource
	Professional background of alters	Measures of the network connectivity of contacts made through the EHU MA. 1. Whole network measures: efficiency, constraint, structural holes, density and component analysis 2. Nodal measures: mean degree and mean dyadic redundancy of EHU contacts
	Context of the relationship in which the resource was mobilised	
Quantity of resources	Different types of resource	Number of ties providing the resource
Structural social capital	Analysis of interview data for factors which were influential in the formation and mobilisation of social capital. For example, the participant perceived a hierarchical relationship between themselves and the alter to be important.	Measures of the network connectivity of contacts made through the EHU MA. 1. Whole network measures: efficiency, constraint, structural holes, density and component analysis 2. Nodal measures: mean degree and mean dyadic redundancy of EHU contacts

5.7.1 QUALITATIVE ANALYSIS

Qualitative data were analysed utilising template analysis (King and Brooks, 2017). For this technique, a list of a priori themes and subthemes were generated based on the existing literature at the time (see table 10) and used for preliminary coding.

Table 10: a priori codes utilised for template analysis

Theme	Subtheme	Basis in literature	Study objective addressed
Qualification outcomes	New contacts in education	Moses et al (2009)	1
	Credibility	Sethi (2016)	2 & 3
	Knowledge		2 & 3
	Confidence		2 & 3
	Change in work role		1 & 2
Social Capital Instrumental action	Outcome 1. Wealth 2. Reputation 3. Power	Lin (2001)	3
	Social Capital Expressive action		Outcome 1. Physical health 2. Life satisfaction 3. Mental health
Factors affecting access to capital	1. Homophily 2. Heterophily 3. Hierarchy 4. Propinquity 5. Position at or near 'bridge' 6. Potential capital	Lin (2001) Spillane et al (2017)	2
Reciprocity	1. Resource seeker 2. Resource giver	Lee (2010)	2

The existing themes were refined where necessary, and new themes and subthemes created as they became apparent from the data. The process was therefore a balance between deductive and inductive reasoning (ibid), termed 'abduction' (Onwuegbuzie and Combs, 2010). The qualitative data analysis computer software package, NVIVO (QSR International, 2018) facilitated this procedure. As themes were developed and refined, they were discussed with the supervisory team along with representative examples of anonymised sections of data. This process was iterative, until the final template was developed; the differing aspects of the template are presented in chapters 6, 7, 8 and 9.

To aid the process of analysis and maintain reflexivity, I maintained a diary throughout the period of the study (Savin-Baden and Howell Major, 2013). A particularly important aspect of this procedure was the facilitation of 'bracketing' (Tufford and Newman, 2010). With the

support of my supervisors, I utilised my diary entries to acknowledge my existing beliefs and biases so that I could maintain an awareness of the potential impact of these issues throughout all stages of the study. The use of a theoretical framework, (table 8) and a theory-informed a priori coding template (table 11) were useful tools in guarding against bias (Flyvbjerg, 2006). During the processes of transcription and data analysis, I made memos of emergent ideas. Additionally, as suggested by Savin-Baden and Howell Major (2013), I regularly drew data maps, as I found that visual representation of the data facilitated my thought processes.

The themes identified from the final template were quantified in terms of the number of ties where each theme was present and presented in graphical and/or tabular form as appropriate. This process facilitated a rapid overview of each theme to aid understanding of the more detailed textual content. Where relevant, figures were also expressed as percentages to provide a summary of the study group as a whole. Full details of which participants each theme was linked with are provided within sections 12.3 and 12.4.

5.7.2 QUANTITATIVE ANALYSIS

5.7.2.1 SOFTWARE

Data were entered into Excel (Microsoft, 2020b) for formatting prior to analysis with the SNA software package UCINET (Borgatti, Everett and Freeman, 2002). UCINET utilises algorithms to perform positional analysis and graph theoretical procedures to enable the manipulation of network data according to different network measures. Situated within UCINET is a complementary software package, NetDraw (Borgatti, 2002) which utilises UCINET files to create visualisations of the networks. These visualisations can be manipulated within NetDraw to change the shape, size and colour of the nodes that represent the participants' contacts. This process allowed better interpretation and demonstration of the findings. Prior to commencing the study, I attended a week-long course at the University of Manchester for training on the use of UCINET and NetDraw.

5.7.2.2 NETWORK ANALYSIS

As illustrated in table 8, the purpose of the quantitative analysis was i) to contribute to the understanding of what SC was available to participants and ii) how the MA had contributed to that SC. For each participant, analyses were performed at the node level and at the level of the whole network. As I have not seen the approaches I have used elsewhere in the literature, I consulted with experts in SNA, who verified that the processes were appropriate. In the interests of accuracy, the EHU contacts were placed into the following categories for all analyses:

- i. Contacts made through the MA programme
- ii. Contacts made through the PGCert programme.
- iii. Ties from which SC had been mobilised
- iv. Ties which represented potential capital

Separating the EHU out in this manner has provided the fullest picture of the MA's contribution to the SC of the participants. Of note, the non-EHU aspect of participants' networks is mobilised capital only.

For the node level analyses, comparisons were made between measures for the EHU contacts and average node measures for the rest of the participant's network. Calculation of the mean degree of the alters helped to demonstrate how well connected the alters were within the network. If the EHU contacts were less well connected than the rest of the participant's network, this would support the idea that the EHU contacts were able to provide more heterogeneous resources. 'Redundancy' is a measure of the proportion of nodes connected to a given node in the network. This calculation provides a more nuanced picture than mean degree, as the calculation also considers the interconnectedness of the alter's ties. This is calculated for each node and the nearer the measure is to 1, the more 'redundant' the tie is for ego. In other words, information from the node in question may also be obtained from other nodes (Hanneman and Riddle, 2005). Therefore, if the redundancy of the EHU nodes is lower than the average redundancy of non-EHU nodes,

this would also support the concept that EHU contacts may provide more heterogeneous resources.

Whole network measures were calculated both with and without the inclusion of the EHU contacts. This provided an understanding of the impact of the MA contacts upon the SC of the participants, therefore addressing study objectives 1 and 2. 'Constraint' is a measure of the interconnectedness of the network; the nearer the measure becomes to 1, the higher the constraint. High constraint offers less opportunities for 'bridging capital' between unconnected alters, this being indicated by the calculation of the absolute number of structural holes. A less well-connected network with more opportunities for 'bridging capital', will have a lower 'density', which ranges from 0 (where ego has no connections) to 1 (all network members are connected) (Hanneman and Riddle, 2005). Care must be taken when comparing the density of a small network with a much larger network. In a small network, it can be quite possible for everyone to know one another, whereas in a much larger network this may be more difficult (Borgatti, Everett and Johnson, 2018). Less sensitive to the size of the network is 'efficiency'. This whole network measure considers the extent to which people are connected to one another in a given network; in other words, the extent to which ego's ties are 'non-redundant'. The more efficient a network is, the nearer the measure is to 1 (Hanneman and Riddle, 2005).

As the networks were relatively small, 'brokerage' opportunities were visualised directly using NetDraw. The participant (or ego) was removed from each network visualisation and the resulting network visually analysed for 'components' (discrete segments of network that are not connected with other sections of the network). The initial plan had been to compare the densities of the components containing EHU contacts with other components, as suggested by Crossley et al. (2015). However, on inspection of the data, visual analysis was sufficient, as will become apparent in section 9.6.4.

5.7.2.3 STATISTICAL ANALYSES

Traditional statistical methods cannot be utilised in SNA. Although the cases are all separate ego networks, they are interrelated because all the participants are linked to the EHU MA programme lead. Additionally, the cases were not randomly selected. UCINET (Borgatti, Everett and Freeman, 2002) contains software which can perform a modified version of the paired t test, which may be used to analyse networks. The standard t test is for use with paired, parametric data (Lawrie, McIntosh and Rao, 2000), whilst the data from this study is non-parametric. However, the randomisation process involved in the UCINET t test allows this test to be used with both parametric and non-parametric data. I was unable to ascertain this important information about the t test in any relevant literature but received confirmation of this detail in an email from Professor Nick Crossley ([University of Manchester], 2020, pers. comm., 27 July). Of note, the statistical analyses were performed to understand the contribution of the MA to the SC of the participants. These analyses were not undertaken in an attempt to generalise the results statistically to other populations, which would be inappropriate given the non-randomised nature of the study sample. To determine if any differences observed between groups were statistically significant, t tests were performed to compare i) mean EHU and non-EHU node measures; and ii) whole network measures with and without the EHU contacts. All t tests were at the 5% significance level and were 2-tailed to allow for both positive and negative outcomes of the MA programme (Lawrie, McIntosh and Rao, 2000).

5.8 ETHICAL CONSIDERATIONS

Ethical approval was obtained from EHU Faculty of Health and Social Care Ethics Committee (FREC) in July 2018 (Project ref: FOHS218). An amendment to this approval was obtained for the addition of a spreadsheet in October 2018 (see sections 12.11 – 12.13 for approval letters). A further amendment was obtained in April 2019 for a minor change to the consent form for the addition of a clarification about the difficulties of anonymisation of case study data. This information was already in the Participant Information Sheet (see section 12.8) and was verbally discussed with participants. However, after conducting interviews where sensitive information had been revealed by the participants, I wanted to ensure that the

difficulties of anonymisation were as clear as possible to the participants. In addition to the maintenance of anonymity, other ethical issues were related to recruitment and consent, data management and 'insider' researching, the latter being discussed in section 1.2.

5.8.1 MAINTAINING ANONYMITY

As discussed in section 5.4.3, SNA adopts a case study approach (Crossley and Edwards, 2016). The benefit of this perspective is the rich description of a case to promote in-depth understanding. However, this benefit is also a disadvantage, in that it can be hard to truly anonymise participants. Pseudonyms have been used throughout, but participants may be identified via other descriptors, such as their clinical or educational roles. Therefore, small and unique details of personal information have been changed or withheld, where they have not affected the overall direction of the research. Some participants disclosed extremely sensitive personal information in their interviews. Some of this information was excluded from the analysis as it was considered that to include it would too readily identify the participants. Where sensitive issues were discussed in interviews, participants were given the opportunity to review the quotes that were to be used, prior to the final submission of the thesis. I was the only researcher who dealt with raw, non-anonymised data.

5.8.2 RECRUITMENT AND INFORMED CONSENT

The participants are all former students of EHU. A central concern in recruitment was to ensure that potential participants did not feel coerced into contributing to the study. To recruit the participants, the programme lead emailed her relevant contacts to ask if they would be happy for her to pass on their email address to me for the purposes of the research. The contacts were made aware that they could decline and that this would not in any way impact on their relationship with the programme lead. Contact of ex-students in this manner was compatible with the Data Protection Act, 2018, including General Data Protection Regulations (GDPR) considerations (Information Commissioner's Office, 2018)

and the University's Research Ethics Policy (EHU Research Ethics Sub-Committee, 2012). All participants were made aware that they could withdraw consent up to 7 days after data collection, after which time it may not have been possible to withdraw their data. The programme lead was not aware of who had consented to participate and only saw anonymised data.

5.8.3 DATA MANAGEMENT AND STORAGE

The raw data collected during this study consists of sound files, transcripts, electronic self-report templates, electronic consent forms, spreadsheets and handwritten notes. Non-anonymised electronic data is stored on a password-protected file on the University server and the encrypted One Drive. Such data includes scanned copies of the hand-written notes, audio files, spreadsheets, consent forms and the self-report templates. Interviews were recorded on a Dictaphone and transcribed by me as soon as possible. Anonymisation occurred at the point of transcription. Audio files were deleted from the Dictaphone once they had been uploaded and stored as described above. The originals of the handwritten notes are kept in a locked cabinet in a locked office in EHU. Hence, storage is compliant with the Data Protection Act, 2018, including General Data Protection Regulations (GDPR) considerations (Information Commissioner's Office, 2018) and the University's Research Ethics Policy (EHU Research Ethics Sub-Committee, 2012).

The participants all consented to have their anonymised data (SRT, interview transcript and spreadsheet) stored for 10 years for future research. However, after discussion with the supervisory team, it was considered that adequate anonymisation of the data would render it meaningless to anyone studying it. Therefore, the SRTs, transcripts and spreadsheets will be destroyed on completion of the study.

5.9 SUMMARY

In this chapter, I have presented both the methodology and methods utilised within the study, providing justification for the approaches I have taken. I have argued that MMSNA is a case study approach, which allows for the collection of rich data, ultimately providing a holistic perspective from which to address the study aim and objectives. The study methods and methodology have been shown to be aligned with the aim and objectives of the study. There has been an emphasis on quality throughout all stages of the research process, from design through to data analysis and interpretation. In the following four chapters, I will now present the results of the study.

CHAPTER 6: RESULTS PART 1 - OVERVIEW OF PARTICIPANTS

6.1 INTRODUCTION

This chapter presents contextual information on the participants and an analysis of their medical education support networks. Such information is necessary to understand the resources provided by the support networks and, ultimately, the impact of contacts made via the EHU MA. To maintain anonymity, only general descriptions are provided.

The chapter commences with an overview of the demographics of the participants and their clinical and educational roles. To facilitate a more in-depth analysis of the characteristics of the participants and their networks, participants are then grouped according to the stage in their careers at which they completed the MA. Sociograms for each participant illustrate the size, structure and heterogeneity of the networks. Network measures are provided to assist understanding of how the network structure may impact upon access to and mobilisation of the embedded SC. The chapter concludes by comparing and contrasting the participants and their support networks. Consideration is given to the meaning of the findings in relation to the evaluation of the MA.

6.1.1 PARTICIPANT CHARACTERISTICS

In total, 12 participants were interviewed – 9 females and 3 males. This represents a response rate of 37.5%, with 32 medically qualified graduates of the MA programme (21 female and 11 male) having been contacted by the programme lead. Only two eligible medically qualified graduates (1 male and 1 female) were not contacted, the programme leader having lost touch when these individuals moved overseas. Hence, the gender imbalance seen in the study was not an artefact of with whom the programme lead had maintained contact. To help maintain anonymity, participants are referred to in gender

neutral terms throughout. All 12 participants completed the self-report template (SRT) and semi-structured interview. One of the participants, P9, did not return the spreadsheet, hence there is missing information for this network regarding alter-alter ties and group size. Seven of the interviews were face-to-face (in person), with five being over the telephone. Attempts were made to utilise video telephony for the phone interviews, but repeated technical glitches made the process unworkable.

The participants were interviewed between 6 months and 5 years post-MA completion. The mean time from graduation was 2.8 years, median 2 years. Participants held a variety of educational roles: except for P9, all had formal educational roles above the level of Educational Supervisor (ES). Roles were based in Trusts, HEE North, universities and within national bodies. All participants held clinical roles within the National Health Service (NHS) in England – eleven participants were consultants and one, P12, was a general practitioner (GP). The participants had appreciably variable amounts of clinical experience. With the exception of P9, who graduated from the MA whilst still a senior trainee, the participants had been in their substantive post as consultant or GP for 1.5 – 24 years (mean 13.2 years, median 11 years) at the point of graduating from the MA. Education accounted for between 10% and 80% of the participants' workloads (mean 29%, median 26%). 8 participants felt that their job plan adequately accounted for their educational workload. 3 participants felt that their educational workload exceeded their job plan, whilst one participant, P9, did not have a job plan at all. P1 was the only participant to have completed their primary medical qualification outside of the UK prior to becoming registered with the GMC. For a breakdown of this overview per participant, please refer to section 12.2.

In the following sections, the participants' networks are grouped according to the point in their clinical career at which they graduated from the MA. Table 11 provides a key for this classification, which groups participants as 'early career'; 'early – mid career'; 'mid-career' and 'mid-late career'. The classification was developed for two reasons. Firstly, to avoid provision of more specific information which may have identified participants. Secondly, it is a means of facilitating comparisons between cases.

Table 11: classification of career stage at point of MA graduation

Number of years in substantive GP or consultant post at time of graduating from MA	Career stage classification	Participants in category
<5 years	Early	P3, P8, P9
5 – 9 years	Early - mid	P1, P4, P12
10 – 19 years	Mid	P5, P6, P11
≥ 20 years	Mid - late	P2, P7, P10

Referring to table 11, the classifications are placed in 10-year divisions of early, middle and mid – late career. However, the first 10 years of a substantive senior post was divided into two categories. This decision was based upon my own experience and that of friends and colleagues of the length of time it can take to settle into a substantive position, in terms of managing one’s clinical workload and taking on additional responsibilities. The term ‘mid-late career’ was preferred to ‘late career’ because one cannot know at what point people may retire. As can be seen from table 11, there was an even distribution of participants throughout the different levels of clinical experience.

Regarding the coding of the participants and their alters, the following nomenclature system was used. Participants were numbered from 1 - 12 according to the timing of their response to the interview request. The participants’ alters were then coded according to which network they belonged and whether the alter was an individual (denoted ‘A’) or a group (denoted ‘G’). For example, P2A1 is an individual in P2’s network, whereas P2G1 is a group in P2’s network.

6.2 ANALYSIS OF PARTICIPANTS' NETWORKS

To understand and measure the SC of an individual, Lin (2001) has advocated consideration of a number of factors, including network size, network structure and the heterogeneity of social positions and resources. These variables are discussed in further detail in section 3.6. To appreciate the impact of the MA on the SC of a medical educator, it is therefore essential to have an understanding of the participants' existing SC as it relates to their medical educator role(s).

To lay the foundations for this work, the current chapter therefore presents information on the size, structure and heterogeneity of the participants' educational support networks. This includes any contacts that may have been made via the EHU programme. A further breakdown of the number of contacts made from the MA, the resources they provide and the impact upon the structure of the networks is detailed in chapter 9. For each participant, two sociograms are presented. The first illustrates network size, whilst the second illustrates heterogeneity, the latter being presented in terms of the context of the supportive relationships and contacts' professional backgrounds. All sociograms were plotted using UCINET (Borgatti, Everett and Freeman, 2002). Network structure is apparent in both types of sociogram and further analysed by the network measures of constraint, efficiency, density and structural holes. As discussed in section 5.7.2.2, these measures provide an indication of how the network structure can affect access to and mobilisation of SC. For each career subgroup, figures are presented in combination with the mean, median and range for the study group as a whole, to facilitate comparisons and provide context. Taken together, these variables provide the basis of a picture of the potential capital available for the participants to mobilise as SC. This picture will be built upon in subsequent results chapters.

6.2.1.1 INTRODUCTION TO NETWORK SIZE

In terms of the size of participants' networks, figures are given both for network degree and the number of individuals in the network, as some of the participants nominated groups as providing support. On the sociograms relating to size, nodes are sized according to the number of individuals in the group to provide a visual impression of network magnitude. Groups are represented by a blue node on the network size sociograms. Where there are large groups, the number of individuals is an estimate provided by the participant. Since many of the nodes are individuals, they will appear as a small dot. On the sociograms, codes for individual alters are in black, whilst those for groups are in red, to give further clarity. To provide context, network measures are presented for participants and compared with study group's mean, median and range. The inclusion of the group median is particularly important in the analysis of small groups such as the present study, as the mean is more easily affected by outliers (Rugg, 2007).

6.2.1.2 INTRODUCTION TO NETWORK MEASURES AND HETEROGENEITY

Network measures are presented along with sociograms illustrating heterogeneity. These results are co-displayed for ease of analysis, as each form of data enhances understanding of the other. For example, a high-constraint network may be demonstrated on a sociogram to have a large clique contributing to the level of constraint. The network measures presented have been calculated using UCINET (Borgatti, Everett and Freeman, 2002). Although efficiency, constraint, density and structural holes are presented in tabular form for each participant, only those measures which highlight pertinent points will be discussed.

For the purposes of this study, heterogeneity of the networks is considered to be a combination of: i) the context of the relationships; ii) the alters' professional backgrounds and iii) the resources embedded within the network. This chapter examines aspects i) and ii), aspect iii) being examined in chapter 7. The context of the relationship between ego and alter is defined as being where the individual, or group of individuals, are based for the

purposes of the support they provide the participant, as indicated from the interview data. This links with Lin's (2001) contention that SC varies according to the context. For example, a participant may rely on support from an alter acting in a HEE North role. That same alter may also have a clinical position in a hospital Trust, but they are placed in the HEE North category as it is in this context that the support takes place. Although some work relationships extend into the participants' personal lives, the personal relationship context category is assigned where the support is primarily provided in the context of the participant's personal life. In terms of relationships in the EHU category, most were made via the MA. However, there are some relationships within this category which were made outside of the context of the EHU programme, something which will be clarified when presenting the relevant participants' networks. Relationships established during the MA are revisited and examined in detail in chapter 9. The relationship contexts were initially placed in 12 categories, as listed in table 12. However, such a high number of categories would have made the sociograms unclear, hence the final classification was refined to nine categories, as illustrated in figure 11.

Table 12: Initial relationship context categories

Initial relationship context classification
Same trust same site
Same trust different site
EHU
Non EHU university 1
Non EHU university 2
Overseas
Geographically dispersed group regional
Geographically dispersed group national
HEE North
Different trust 1
Different trust 2
Personal











	Same site, same clinical employer
	Same clinical employer, different site
	Different clinical employer
	Edge Hill University
	Other university
	Health Education England North
	Geographically distributed nationally
	Personal
	Overseas
	Participant

Figure 11: sociogram key for relationship contexts

Professional background of alters was chosen as an additional descriptor of heterogeneity as this variable was consistently mentioned by participants during the semi-structured interviews. Hence, professional background was clearly of importance to the participants. Where background is defined as ‘clinical’, this denotes someone whose job role involved the care and treatment of patients – for example, doctor, nurse, physiotherapist, paramedic. All networks contained alters from a mixture of clinical and non-clinical backgrounds. Five of the twelve networks included learners as a source of support. Figure 11 provides a key for the depiction of relationship contexts in the sociograms. Figure 12 is a sociogram key for the professional background of the alters. Both keys apply for all of the sociograms which depict network heterogeneity in this chapter. Of note, on the heterogeneity sociograms, ego is omitted to demonstrate the presence or absence of structural components within the networks.






	Non-clinician		Group of clinicians and non-clinicians
	Clinician		Participant
	Learner		

Figure 12: sociogram key for professional background of contacts

6.2.2 EARLY CAREER

This group includes P3, P8 and P9. All these participants undertook educational fellowships prior to obtaining their substantive consultant posts. P3 and P8 completed a 2-year medical education fellowship (MEF) programme which ran concurrently with their senior clinical training. This programme was developed by the former North West Deanery (NWD – now part of HEE North) for trainees who aspired to take up future lead roles in medical education. The fellowship provided a range of opportunities including the observation of NWD educational activities (such as shadowing an Associate Dean), undertaking an educational project and part funding of a PGCert in Workplace-Based Postgraduate Medical Education. As noted in chapter 2, all trainees and some consultants and staff grade doctors from the former NWD (now part of HEE North) had at least one module of this PGCert funded. The MEF programme funded a second module of this PGCert.

P9 took a year out of their senior clinical training to work as a clinical teaching fellow and was the only participant to complete their MA prior to obtaining a substantive position as a consultant or GP. At the time of interview, P8 had national and Trust-based educational roles, which they felt fitted within the job-planned allocation of 20% of the overall workload. P3's Trust and HEE North educational roles reportedly accounted for 50% of their overall workload, in excess of their job-planned hours of 30%. P3's university role was separately remunerated and undertaken in study leave and personal free time. Although P9 had no formal educational roles beyond ES, they participated in a variety of Trust-based educational activities, which, they stated, accounted for approximately 30% of their overall workload. P9 did not have a job plan for either clinical or educational work activities. P3 made some EHU contacts from the EHU PGCert programme, others being made through the MA. This will be explored further in chapter 9. P8 and P9 both made their EHU contacts via the MA.

6.2.2.1 NETWORK SIZE

Table 13: Network size P3, P8, P9

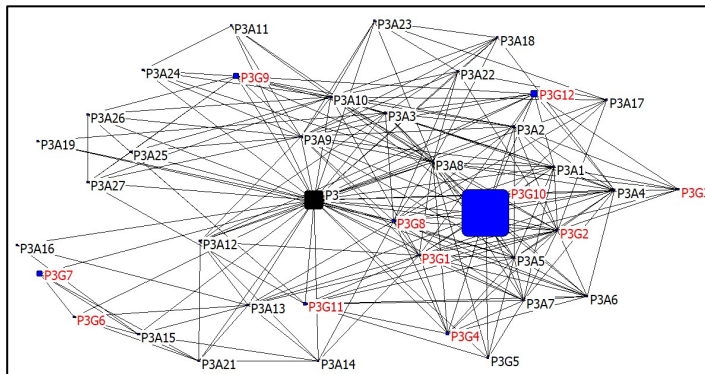


Figure 13: P3 network size

Participant	Degree	Number of individuals in network
P3	38	271
P8	27	1964
P9	37	47
Study mean	24.1	301.33
Study median	22.5	61.5
Study range	7 - 46	7 - 1964

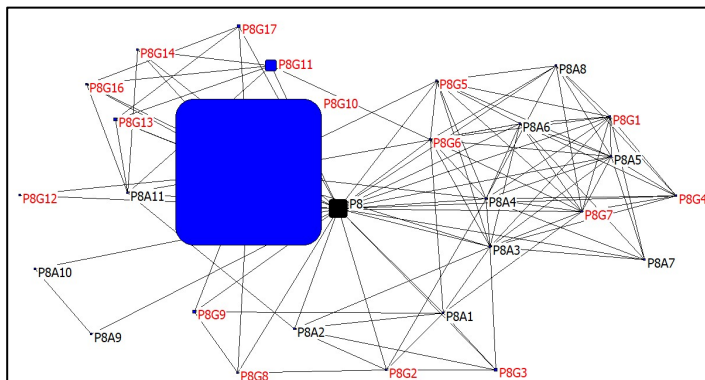


Figure 14: P8 network size

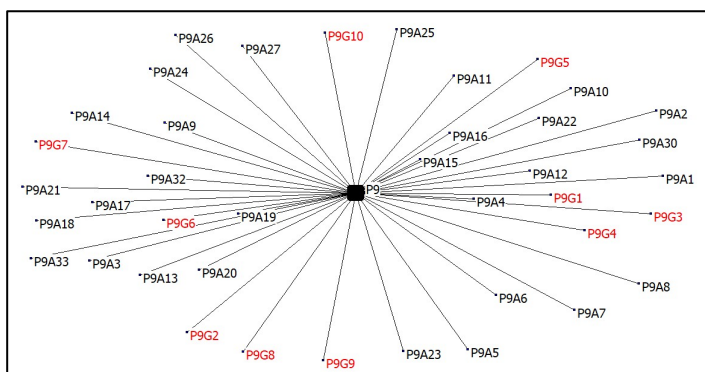


Figure 15: P9 network size

Referring to table 13, it is notable that the networks of P3, P8 and P9 each have more nodes than the average and median values for the study group as a whole. If and how this may be related to the educational fellowships is considered in chapter 8. However, it is

important to appreciate that network degree is not always a true reflection of the full size of the network. Merely considering degree, it would appear that P8 has the smallest network of this subgroup. However, table 13 and the sociograms in figures 13, 14 and 15, demonstrate that P8 has the largest network, with a total of 1964 individuals. P8 is an outlier in the study group as a whole, with the next largest network consisting of 629 individuals (P10's). Indeed, reviewing table 13, it can be seen how an outlier such as P8's network has skewed the results of the whole study group, with a substantial difference between mean (301.33) and median (61.5) numbers of individuals in the network.

P8's network contains an extremely large group, P8G10, the largest group in the study. P8G10 consists of 1743 Twitter contacts whom P8 follows, some of whom are also groups. The figure of 1743 was provided by P8 from their Twitter account. Quite how these contacts provide educational support to P8 is detailed further in chapter 7. It is notable that P8 is the only participant in the study to include Twitter in their support network, a finding further explored in chapter 8. The largest group in P3's network consists of 168 junior doctors. Unfortunately, due to missing data, the group sizes for P9 are unknown. The total number of individuals in P9's group was therefore calculated on the basis of 2 individuals per group; however, the total number is likely to be higher.

Both P9 and P3 have substantially more nodes in their networks than P8. P3's educational workload exceeds their contracted hours, P9 has no job plan, whereas P8 stated that their educational working hours were consistent with their job plan. For the purposes of this study, it is considered that P9's educational workload is more than contracted. A standard consultant contract in England allows for 25% of time to be spent on supporting professional activities, some of which time may be spent on educational roles (British Medical Association, 2020). Hence, at 30% of their workload, P9's educational roles are in excess of a standard contract. It is possible that P3 and P9 developed more connections to help them manage their workloads. Conversely, the number of ties P3 and P9 require to support them may take up more time to manage than P8's network, hence educational work taking up more time than allocated.

6.2.2.2 NETWORK MEASURES AND HETEROGENEITY

Unfortunately, as there is no information on alter-alter ties for P9's network, it is not possible to calculate the network measures of density, efficiency, constraint and structural holes. Therefore, only P3 and P8 can be compared with these measures.

Table 14: Network measures P3 and P8

Participant	Efficiency	Constraint	Density	Structural Holes
P3	0.742	0.099	0.265	1034
P8	0.767	0.129	0.242	532
Study mean	0.680	0.193	0.343	458
Study median	0.735	0.155	0.271	276
Study range	0.500 - 0.830	0.082 - 0.371	0.179 - 0.545	22 – 1510

Referring to table 14, the networks of both P3 and P8 have lower than average densities, indicating a below average proportion of interconnections in their networks. P3 and P8 each have above average network efficiency – in other words a higher proportion of non-redundant ties. In theory, this would contribute towards heterogeneity in the networks of P3 and P8 and facilitate instrumental action. P3 and P8 also have below average constraint, with P3 having lower constraint than P8, reflected in the markedly higher number of structural holes in their network (1034 vs 532). The higher number of structural holes in P3's network is also a reflection of the larger size; 38 nodes, compared with P8's 27 nodes. This figure gives an idea of the vast number of potential interactions P3 could make in their network linking unlinked alters, which could place them at an advantage in terms of bargaining power and instrumental action. However, such interactions can be time-consuming, which may ultimately place P3 at a disadvantage – indeed, they commented that their educational workload was well in excess of their job-planned hours.

Considering figures 16, 18 & 19, below, P3's network consists of just one component, there being ties between members of all of the different relationship contexts. In contrast, P8's network consists of two components, one of these components being the contacts made through the EHU MA. Separation into separate components places P8 in the position of

broker, the significance of which will be discussed in chapter 9. It is not known if there are components in P9's network, due to the lack of information on alter-alter ties.

P9 has the greatest heterogeneity of this subgroup in terms of the context of relationships, receiving support from 7 out of a possible 9 categories, as illustrated in figure 19. This heterogeneity is a reflection of the variety of P9's roles, with each relationship context providing support for a different aspect of their work. In contrast, whilst P3 had fewer relationship contexts, they utilised support from all five contexts for both their Trust and HEE-North roles. P3's university work role will be discussed separately in chapter 9. P8 related that alters from the personal relationship context provided support for all of their educational roles. Indeed, nodes from this context form just over a quarter of P8's network, indicating the importance of personal relationships to P8.

Regarding professional backgrounds, P3's network had the highest proportion of clinicians. It is of note that some of P8's personal contacts were clinical, some being people P8 had trained with at an undergraduate or postgraduate level. P3 was the only participant in this subgroup to include learners in their support network, this potentially adding to heterogeneity of P3's network.

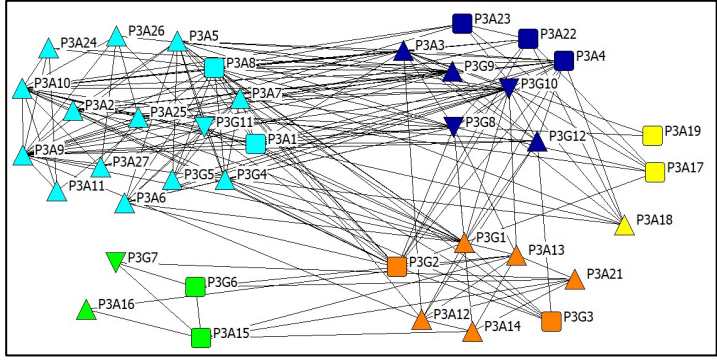


Figure 16: P3 network heterogeneity

Table 15: network heterogeneity P3, P8 and P9

Participant	Proportion of network clinical
P3	0.711
P8	0.630
P9	0.650
Mean whole study group	0.623
Median whole study group	0.64
Range whole study group	0.4 – 0.762

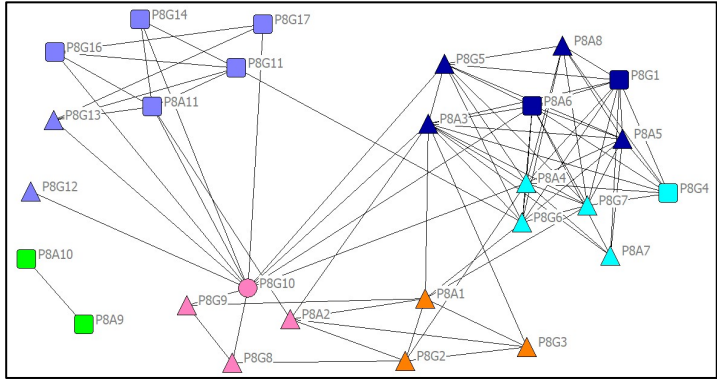


Figure 18: P8 network heterogeneity

	Same site, same clinical employer
	Same clinical employer, different site
	Different clinical employer
	Edge Hill University
	Other university
	Health Education England North
	Geographically distributed nationally
	Personal
	Overseas
	Participant

Figure 17: key for relationship contexts

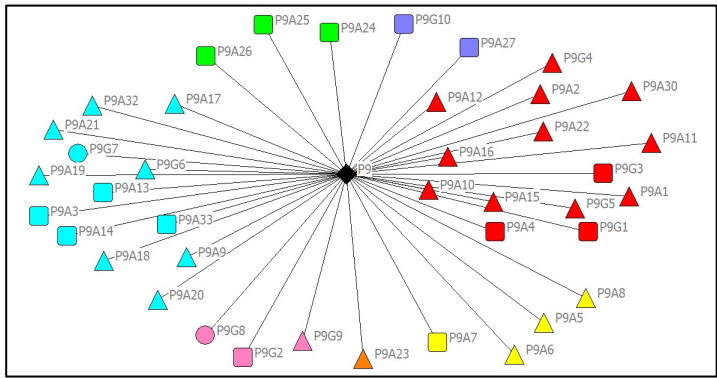


Figure 19: P9 network heterogeneity

	Non clinician
	Clinician
	Learner
	Group of clinicians and non-clinicians
	Participant

Figure 20: key for professional background

6.2.3 EARLY - MID CAREER

P1, P4 and P12 each completed their MA within the first 5 – 9 years of their substantive senior positions. P1 and P4 were both hospital consultants, whilst P12 was the only GP in the study. At 80% of their workload, P12's medical education role accounted for the highest proportion of overall workload in the study. They had taken on a senior university-based role just months prior to completing their MA, a post which had resulted in a substantial increase in educational workload. P4's educational role was also based at a university, this accounting for 25% of their workload. Prior to obtaining this role, P4 had undertaken a 2-year fixed term role whilst a consultant, which was designed to develop leaders in medical education. This differed from the fellowship roles undertaken by P3, P8 and P9 in that the role was aimed at existing consultants, rather than doctors in training. Neither P12 nor P4 had any Trust-based educational roles. At the time of interview, P1 had both Trust and university roles, the latter being based within their clinical workplace. Combined, these roles constituted 20% of P1's overall workload. P1 and P12 both felt that their educational workload fitted into their job plans. However, P4 felt that they were working in excess of their contracted educational hours. All members of this subgroup made their EHU contacts via the MA.

6.2.3.1 NETWORK SIZE

Referring to table 16, P1 has the smallest network in the study, both in terms of degree and number of individuals. They are one of only 2 participants not to have any groups in their network. Whilst P12's network only has 7 nodes, 4 of these are groups, the largest of which, P12G3, is 200 learners. At a total of 283 individuals, P12's network is above the median value, but below the mean, the latter being skewed by the large number of individuals in P8's network. P4 has one of the smaller networks in the study, with a degree of 15 and a total of 20 individuals.

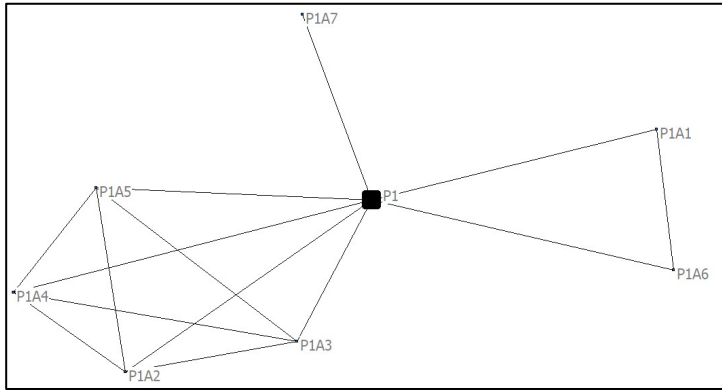


Figure 21: P1 network size

Table 16: Network size P1, P4 and P12

Participant	Degree	Number of individuals in network
P1	7	7
P4	15	27
P12	7	283
Study mean	24.1	301.33
Study median	22.5	61.5
Study range	7 - 46	7 - 1964

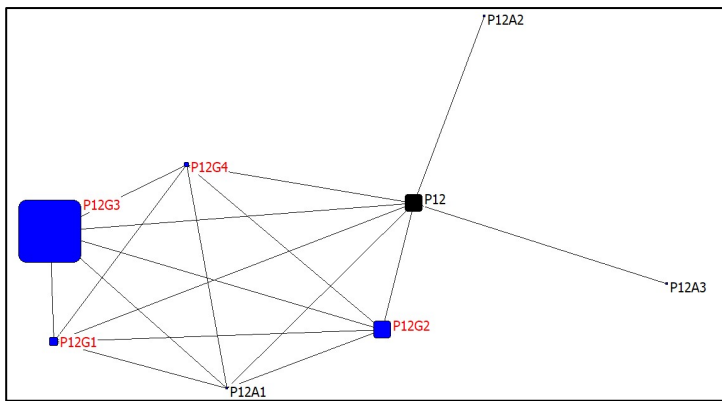


Figure 22: P12 network size

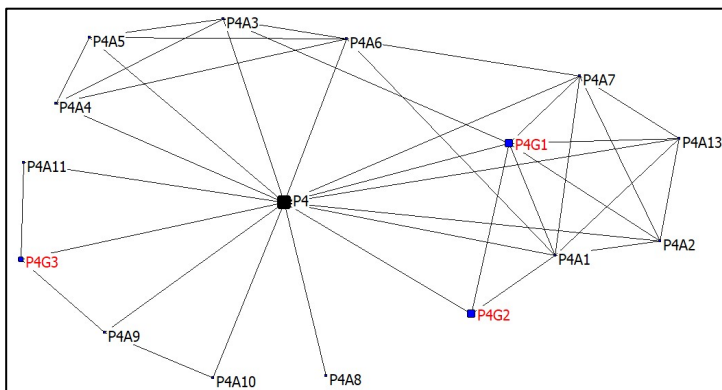


Figure 23: P4 network size

6.2.3.2 NETWORK MEASURES AND HETEROGENEITY

Table 17: network measures P1, P4 and P12

Participant	Efficiency	Constraint	Density	Structural Holes
P1	0.714	0.362	0.333	28
P4	0.787	0.197	0.229	162
P12	0.592	0.371	0.479	22
Study mean	0.680	0.193	0.343	458
Study median	0.735	0.155	0.271	276
Study range	0.500 - 0.830	0.082 - 0.371	0.179 - 0.545	22 - 1510

Reviewing table 17, P1 and P12 both have levels of constraint which are high relative to the whole study group. Indeed, P12 has the highest constraint of the study group as a whole (0.371). Such a network configuration may be consistent with expressive action, whereby ego wishes to maintain their current position. These findings can be accounted for by the small degree of P1's and P12's networks and the cliques which constitute the majority of their networks (circled in figures 24 and 26, below). The relatively low number of structural holes also reflect the presence of these cliques, combined with the small network degree. P4 also has cliques in their network, the largest being circled on figure 28, below. Whilst this clique is the same size as the clique in P12's network ($n = 5$), P4 has the larger network and therefore has lower constraint (0.197). In theory, higher constraint and lower numbers of structural holes could limit the bargaining power of P1 and P12. However, these measures are calculated for the network as a whole and do not convey the more nuanced picture that can be seen in figures 24, 26 & 28 of areas of low and high constraint. Inspecting these figures, it is striking that the networks of all three participants are in three components. Both P4 and P12 have a component which is solely from the personal relationship context, whilst P1 is the only participant in the study to describe receiving support from an overseas alter. Such separation of the network means that each component can potentially provide a completely different resource to the other components, with ego being able to act as broker between the components. This concept will be returned to in chapter 9 with an analysis of the impact of the MA.

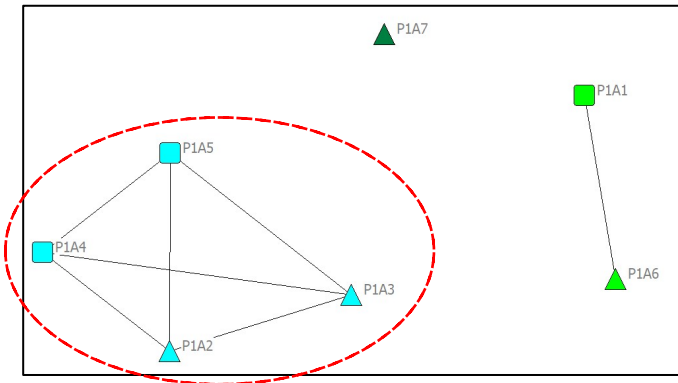


Figure 24: P1 network heterogeneity

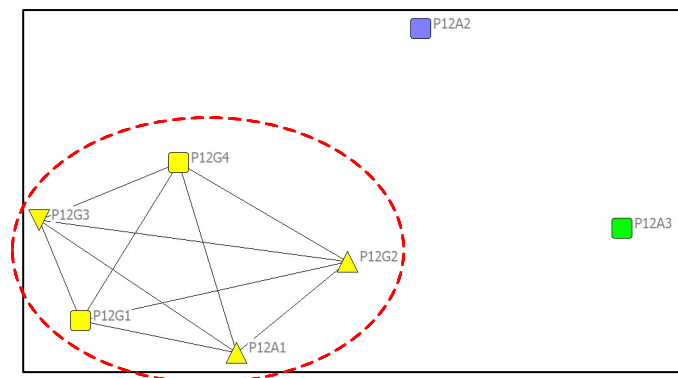


Figure 26: P12 network heterogeneity

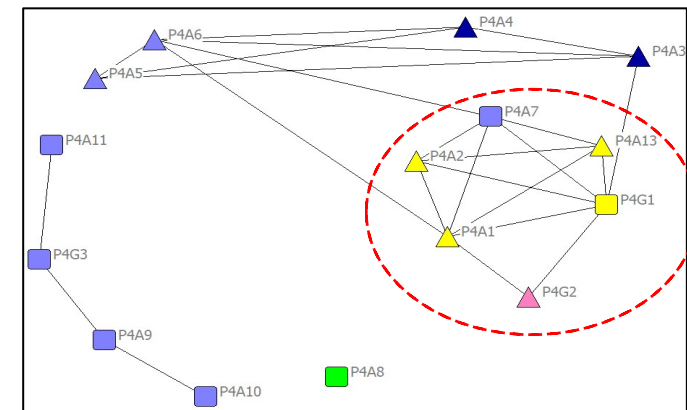


Figure 28: P4 network heterogeneity

Table 18: network measures P1, P4 and P12

Participant	Proportion of network clinical
P1	0.571
P4	0.4
P12	0.429
Study mean	0.623
Study median	0.64
Study range	0.4 – 0.762

	Same site, same clinical employer
	Same clinical employer, different site
	Different clinical employer
	Edge Hill University
	Other university
	Health Education England North
	Geographically distributed nationally
	Personal
	Overseas
	Participant

Figure 25: key for relationship contexts

	Non clinician
	Clinician
	Learner
	Group of clinicians and non-clinicians
	Participant

Figure 27: key for professional background

Referring to table 17, above, P4's network has the highest efficiency within this subgroup (0.787). In other words, P4 has the highest proportion of non-redundant ties, which can be a marker of a network's heterogeneity, as unconnected ties are considered to offer differing resources (Borgatti, Everett and Johnson, 2018). Additionally, considering figures 24, 26 & 28, P4 has the most heterogeneous network in this subgroup in terms of relationship context, drawing from 5 contexts for their university educational role. Interestingly, almost half of P4's network is from the personal relationship context; the highest proportion in the whole study. P4 was also the only member of this subgroup to report that their educational workload was in excess of job-planned hours. Therefore, whilst possibly advantageous, co-ordinating a network of disconnected alters could present difficulties for P4. These issues are returned to in section 7.2.5.

Whilst P4 drew from the broadest range of relationship contexts in this subgroup, P12 gained support from more professional backgrounds by including learners, who are not included by either P1 or P4. Referring to table 18, P4 and P12 had the lowest proportions of nodes from a clinical background in the whole study group, P4 with the lowest and P12 the 2nd lowest. They are also both the only participants in the study whose sole educational role was university-based, with no formal educational role in their clinical place of work. Hence, this may explain why there are fewer clinicians in their networks.

6.2.4 MID CAREER

P5, P6 and P11 all completed their MA at the mid-point of their clinical careers as NHS hospital consultants. At the point of graduating from the MA, all three participants were already established in senior educational roles at a Trust and HEE North level, whilst P11 also held a national educational role. P6's educational role comprised 10% of their overall workload, whereas P5 and P11's roles accounted for 20% of their jobs. P5 felt that their educational workload was consistent with their job plan. Conversely, P6 and P11 felt that they were putting in more hours for education than they were paid for. All three participants made their EHU contacts via the MA.

6.2.4.1 NETWORK SIZE

Referring to table 19 and figures 29 – 31, below, the networks of P6 and P11 are below average for the study group, both in terms of degree and number of individuals. P6 had no groups in their network, whereas P11 had 3 small groups. The larger of P11's groups, P11G2 and P11G3, consisted respectively of 10 and 7 individuals who provided support in relation to P11's national educational role. It is perhaps surprising that two such experienced medical educators have amongst the smaller networks in the group, especially P11 who held a national educational role. However, it is possible that, once a medical educator is established in a career path, they can afford to be more selective in the people they turn to for support.

P5's network size is in the middle of the study range. In terms of degree, P5's network was not substantially bigger than P11's (24 vs 20). However, at 218 individuals P5's network contained substantially more people than P6 and P11. This was largely due to two of P5's groups: P5G3, which contained approximately 70 junior doctors (learners) and P5G5, a group of approximately 100 medical educators. P5 and P6 held relatively similar educational roles, yet P6 did not mention such groups. Hence, variation in network size may be a result of different interpretations of 'support'.

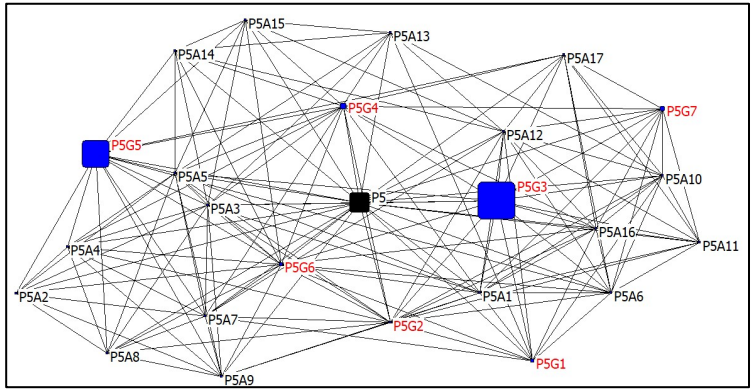


Figure 29: P5 network size

Table 19: Network size P5, P6 and P11

Participant	Degree	Number of individuals in network
P5	24	218
P6	12	12
P11	20	35
Study mean	24.1	301.33
Study median	22.5	61.5
Study range	7 - 46	7 - 1964

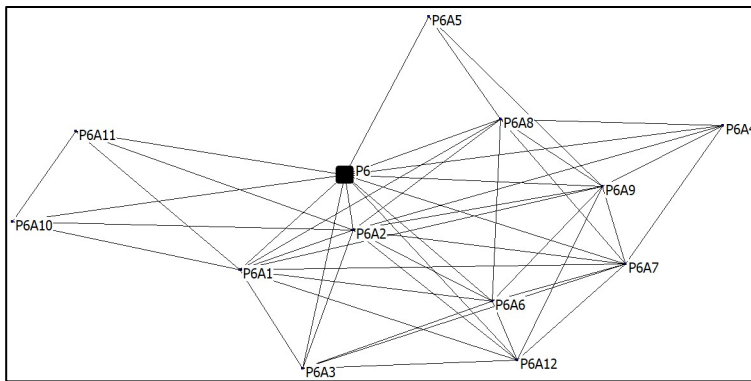


Figure 30: P6 network size

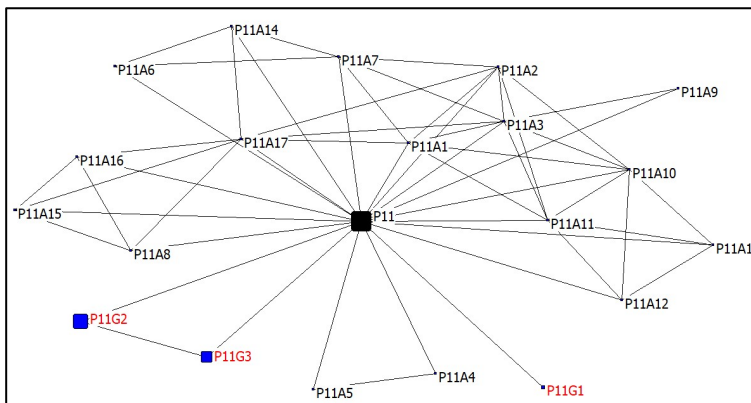


Figure 31: P11 network size

6.2.4.2 NETWORK MEASURES AND HETEROGENEITY

Table 20: network heterogeneity P5, P6 and P11

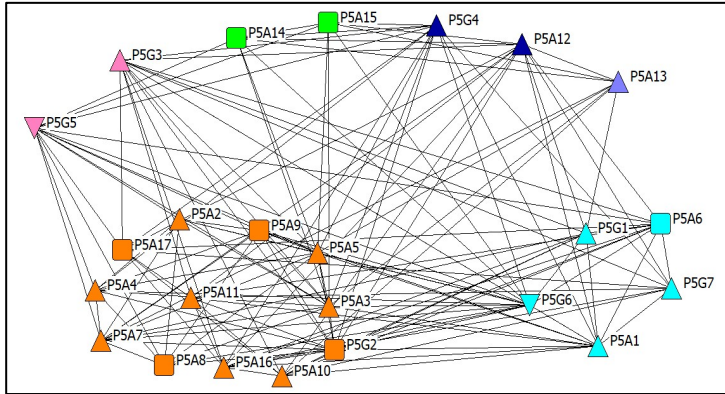


Figure 32: P5 network heterogeneity

Participant	Proportion of network clinical
P5	0.708
P6	0.583
P11	0.762
Study mean	0.623
Study median	0.64
Study range	0.4 – 0.762

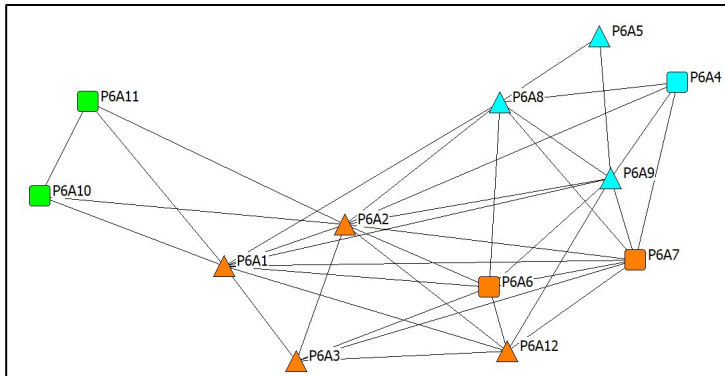


Figure 34: P6 network heterogeneity

	Same site, same clinical employer
	Same clinical employer, different site
	Different clinical employer
	Edge Hill University
	Other university
	Health Education England North
	Geographically distributed nationally
	Personal
	Overseas
	Participant

Figure 33: key for relationship contexts

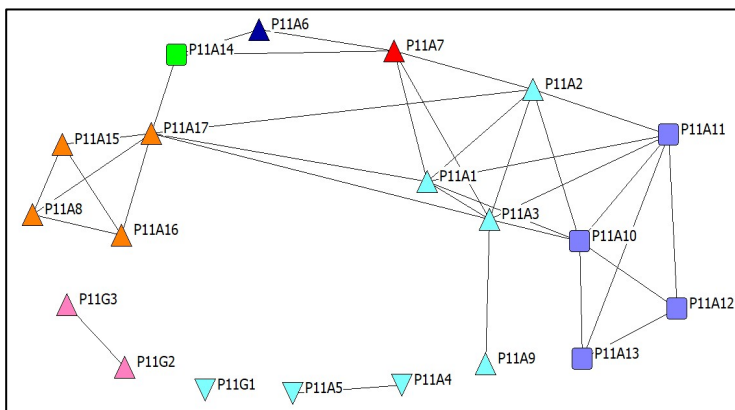


Figure 36: P11 network heterogeneity

	Non clinician
	Clinician
	Learner
	Group of clinicians and non-clinicians
	Participant

Figure 35: key for professional background

Considering figures 32, 34 & 36, above, P11's network is somewhat distinctive in consisting of four separate components. The largest component makes up the majority of the network and is composed of 6 different relationship contexts. The two small components in light blue (same site, same clinical employer category) consist of junior doctors. These components, in conjunction with the largest component, provided support for P11's Trust and HEE North roles. The remaining component in P11's network comprises two nationally dispersed groups, P11G3 and P11G2. These groups supported P11 in their national educational role. Hence, whilst the Trust and HEE North roles required a somewhat heterogeneous mix of support, social resources required to perform the national role would appear to be quite focussed. P11 has the highest proportion of alters from a clinical background in the study group as a whole, which may indicate less heterogeneity in support.

Table 21: network measures P5, P6 and P11

Participant	Efficiency	Constraint	Density	Structural Holes
P5	0.521	0.155	0.500	276
P6	0.500	0.294	0.545	60
P11	0.830	0.148	0.179	312
Study mean	0.680	0.193	0.343	458
Study median	0.735	0.155	0.271	276
Study range	0.500 - 0.830	0.082 - 0.371	0.179 - 0.545	22 - 1510

The splitting of P11's network into 4 components is reflected in the network measures. Referring to table 21, P11's network has the lowest density (0.179) and highest efficiency (0.83) of the whole study. Conversely, P6's network had the highest density (0.545) and lowest efficiency (0.5) in the whole study and their small network was composed of just 1 component. Relatedly, P5's network also had low efficiency and high density and their network was also one component. Theoretically, therefore, the high levels of interconnections between the ties in P5's and P6's networks would suggest redundancy of resources. However, it is notable that, as with all participants, the networks of P5 and P6 contain a mix of clinicians and non-clinicians, whilst P5 also has learners. Hence, with such differences between the alters, redundancy may not be an issue. Although both P5 and P6

had Trust and HEE North roles, P5's network demonstrates greater heterogeneity than P6's. P5 draws support from 6 different relationship contexts, double the number of relationship contexts seen in P6's network. P5 also includes learners within their network, whilst P6 does not. Both P5 and P6 draw support from their alters in all relationship contexts for each of their Trust and HEE North roles, rather than utilising specific relationship contexts for the different job roles.

6.2.5 MID – LATE CAREER

P2, P7 and P10 all completed their MAs after being in substantive senior clinical positions for 20 years or more. Prior to studying for the MA, all had held numerous educational roles throughout their careers. At the time of interview, all three participants worked as NHS consultants and performed educational roles at universities and their employing Trust, P10 having involvement with three different universities. P7 also had a national educational role. Both P7 and P10 were part time faculty at EHU when they began studying for the MA. Their EHU nodes are therefore considered to be contacts they have made whilst working for EHU. For this reason, in chapter 9, their EHU contacts are considered separately to other participants. P2 had two EHU contacts, P2A14 and P2A9. P2 met P2A14 in the course of studying for the MA, whilst P2A9 was a longer standing relationship made in the course of P2's other work.

P2's educational roles took up a third of their overall job. P10's educational workload was similarly time consuming, accounting for 30% of their workload, with additional hours worked for universities. P7's Trust educational role took up 10% of their overall workload, again with extra hours worked for the university and national roles. All three participants described their educational workloads to be compatible with their job plans. Additionally, they described how their university roles were separately remunerated and conducted either during study leave or in their own free time. Such encroachment of education into personal time is indicative of how important the educational roles were to these participants.

It is of note that, at the time of interview, P10 was in the process of scaling down their educational work, pending imminent retirement from clinical practice. The support network was therefore that which P10 had relied on 6 – 9 months prior to interview, when they still occupied all their educational roles. The decision to adopt this perspective was made in conjunction with the participant, as it was felt that this provided the richest picture of their work, allowing full contextualisation of the impact of the MA. P10 graduated from the MA approximately 5 years prior to the interview.

6.2.5.1 NETWORK SIZE

Referring to table 22 and figures 37 - 39, P10 had the largest network in the study group in terms of degree (46), and the second largest number of individuals (629). The largest group in P10's network (P10G2) was a group of 450 individuals who were directly involved in medical education. With 15 groups and 31 individuals who provided regular educational support, P10 had a large support base, but such a network may have been time consuming to manage.

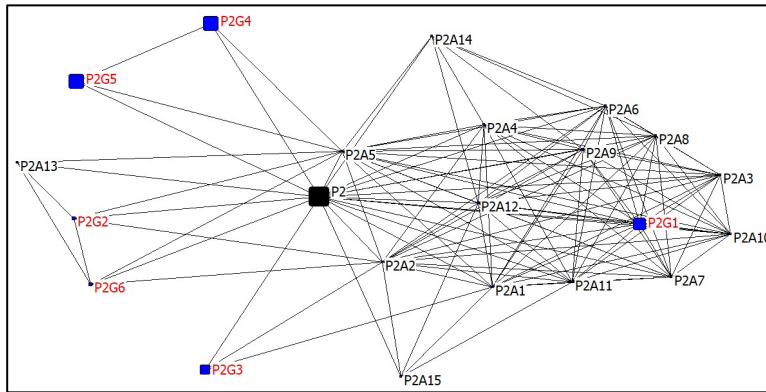


Figure 37: P2 network size

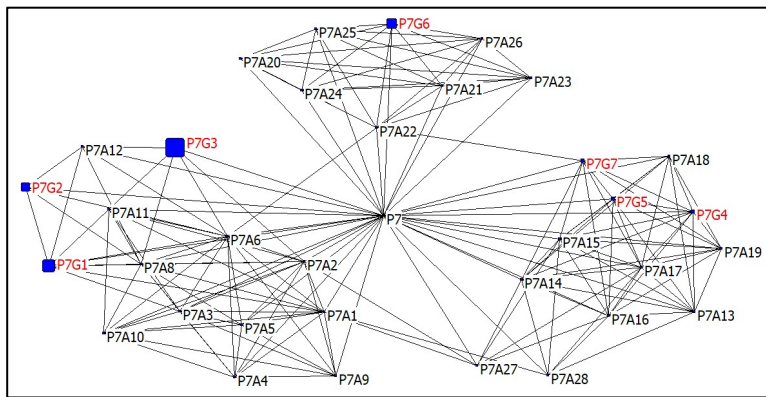


Figure 38: P7 network size

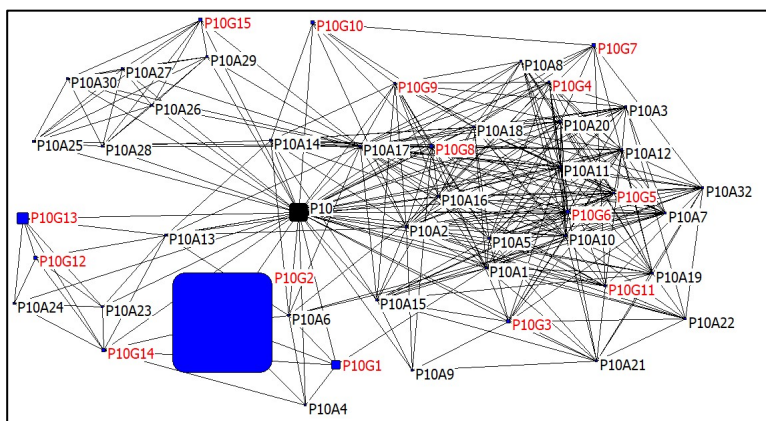


Figure 39: P10 network size

Table 22: network size P2, P7 and P10

Participant	Degree	Number of individuals in network
P2	21	53
P7	35	70
P10	46	629
Study mean	24.1	301.33
Study median	22.5	61.5
Study range	7 - 46	7 - 1964

P7 had a larger than average network in terms of nodes (35) and slightly above the median level for number of individuals (70). Whilst the national educational body to which P7 was affiliated had approximately 400 members, P7 did not describe obtaining support from the whole group, but rather subgroups within the organisation. The largest of these subgroups, P7G3, consisted of approximately 12 individuals. At the time of interview, P7 was still building educational roles; they had been appointed to a new position just 10 months prior to interview. Hence, P7's network was potentially still evolving.

P2's network was below the mean and median study values in terms of both the number of nodes and number of individuals. The largest groups, P2G4 and P2G5, each consisted of approximately 10 people who provided support with medical students and junior doctors. Whilst P2 described regularly engaging in new educational projects, their job roles were relatively long-standing. Hence, as suggested with P6 and P11 above, P2 may have developed a more focussed network.

6.2.5.2 NETWORK STRUCTURE AND HETEROGENEITY

Referring to figures 40, 42 & 44, below, all three participants' networks were in one component. This level of interconnectedness is perhaps not surprising, as all three participants' networks included alters they had known for over 20 years and with whom they had worked in varying contexts.

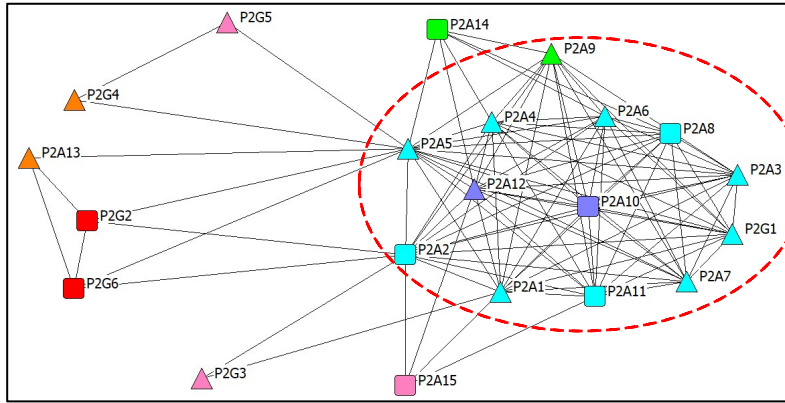


Figure 40: P2 network heterogeneity

Table 23: network heterogeneity P2, P7 and P10

Participant	Proportion of network clinical
P2	0.619
P7	0.735
P10	0.7
Study mean	0.623
Study median	0.64
Study range	0.4 – 0.762

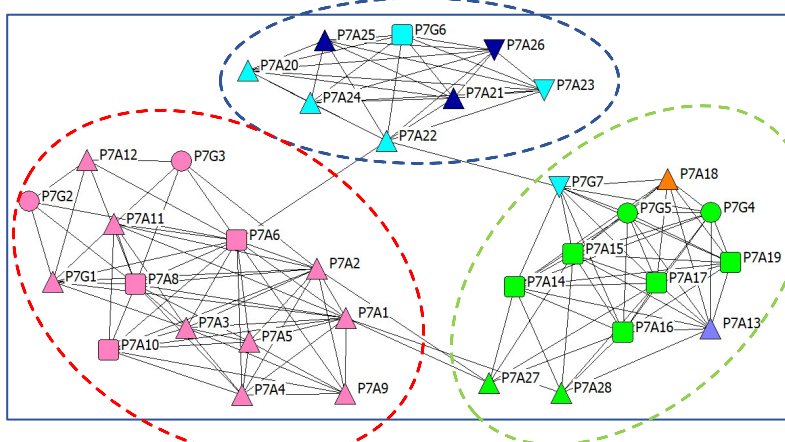


Figure 42: P7 network heterogeneity

	Same site, same clinical employer
	Same clinical employer, different site
	Different clinical employer
	Edge Hill University
	Other university
	Health Education England North
	Geographically distributed nationally
	Personal
	Overseas
	Participant

Figure 41: key for relationship contexts

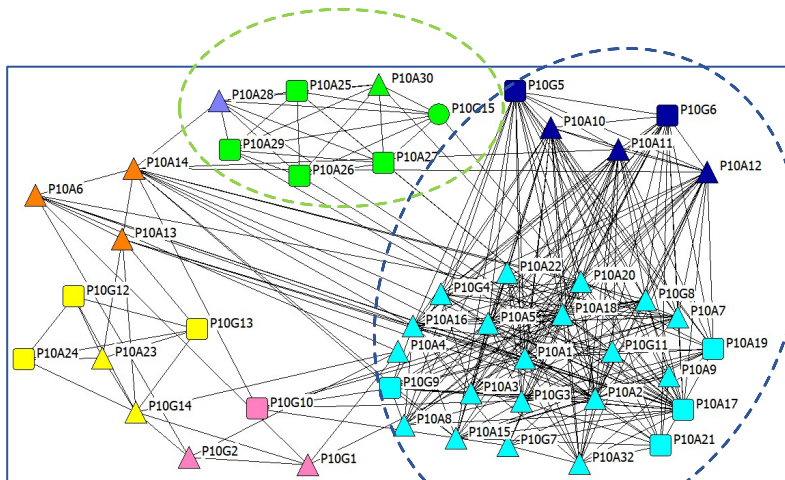


Figure 44: P10 network heterogeneity

	Non clinician
	Clinician
	Learner
	Group of clinicians and non-clinicians
	Participant

Figure 43: key for professional background

Considering table 24, below, P2 has a relatively high-density network, with a density of 0.476. In part, this may be due to the smaller size of their network, but this finding is also contributed to by a dense group of contacts, encircled in red on figure 40. With the exception of P2A9, this group constitutes a clique, and contains more than half of the alters within P2's network. It is this group which therefore also contributes to the lower efficiency (0.546) seen in P2's network. The alters in the encircled group are primarily based at P2's clinical place of work, but also include P2A9 from EHU and two personal contacts. One of the personal contacts is P2's spouse, the other is a former work colleague of P2, who is now a personal friend. However, with the exception of the EHU contact made through the MA (P2A14), the rest of P2's network provided support for their Trust role. P2 therefore drew from a broad range of support for their Trust role, these alters being from 5 different relationship backgrounds.

Table 24: network measures P2, P7 and P10

Participant	Efficiency	Constraint	Density	Structural Holes
P2	0.546	0.177	0.476	220
P7	0.749	0.104	0.259	882
P10	0.735	0.082	0.271	1510
Study mean	0.680	0.193	0.343	458
Study median	0.735	0.155	0.271	276
Study range	0.500 - 0.830	0.082 - 0.371	0.179 - 0.545	22 – 1510

Contrastingly, P7's network had relatively high efficiency (0.749) and lower constraint (0.104). These findings are contributed to by the three distinct subgroups apparent in their network (figure 42). These groups are not separate components, as there are some interconnections, but there are distinct clusters, as shown on the dendrogram in figure 45.

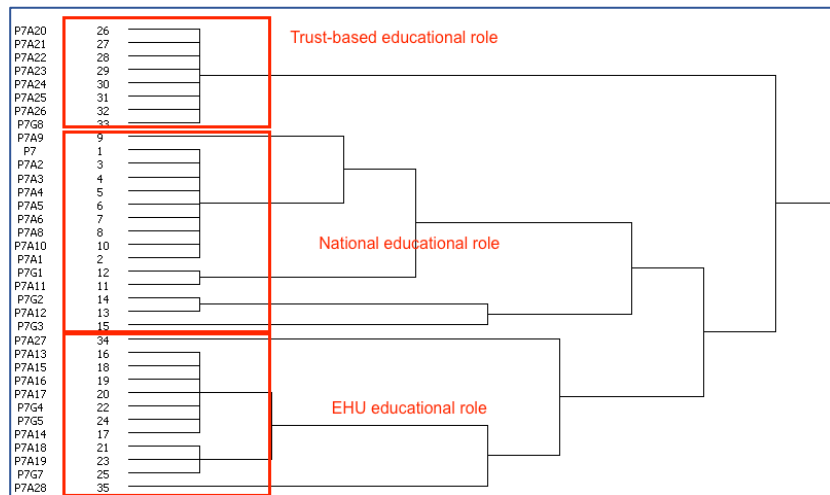


Figure 45: clusters in P7's network aligned with educational roles

Reading the dendrogram from right to left, one can follow the branches to identify the 3 main clusters. These clusters correspond with P7's different educational roles, as indicated in figure 42. Referring to figure 42, the group within the green oval provided support for P7's EHU teaching role. This group included P7's spouse, who was also a medical educator. The largest group within the red oval supported P7 in their national educational position. It is notable that the smallest group, circumscribed by the blue oval, delivered support for P7's Trust educational role. Hence, the vast majority of P7's educational support network was for roles which they undertook in their own time or during study leave. With the support for these roles constituting the larger part of the network, it is not surprising that this is where there is most heterogeneity, including support from 5 different relationship contexts. In contrast, P7's Trust role only required support from Trust colleagues.

P10's network also had relatively high efficiency (0.735). Despite the density in P10's network being in the mid-range of the study group, the relatively large size of P10's network has contributed to the lowest constraint (0.082) in the study and the highest number of structural holes (1510). As constraint is effectively an inverse measure of structural holes, it is therefore unsurprising that P10's network contains two extremes of value for these measures. Such a high number of structural holes indicates the bargaining potential within P10's network. However, as discussed with P3's network above, such

interactions may be extremely time-consuming. In contrast with P7, but similar to P2, the majority of P10's network provided support for their Trust educational roles. Referring to figure 44, this included the Trust connections, encircled in blue, the HEE North connections in orange and the nationally distributed contacts (pink). Support for the university roles is less heterogeneous. Demarcated in green, support for the EHU role includes EHU connections and P10's spouse, who is also involved in medical education. The nodes in yellow delivered support for P10's roles at two different universities. Hence, the majority of the network, in terms of size and different relationship contexts, was providing support for P10's day to day work in their employing hospital Trust.

All three participants named their spouse as part of their support network. Referring to figures 40, 42 & 44, the spouses appear well connected to other parts of the participants' networks, indicating some overlap between professional and personal lives.

6.3 CHAPTER SUMMARY

The most notable aspect of the results presented in this chapter is the marked diversity of the participants and their networks. In terms of size, networks varied from just 7 nodes and 7 individuals (P1) to 46 nodes (P10) and 1964 individuals (P8). The distribution of network size is summarised in figures 46 and 47.

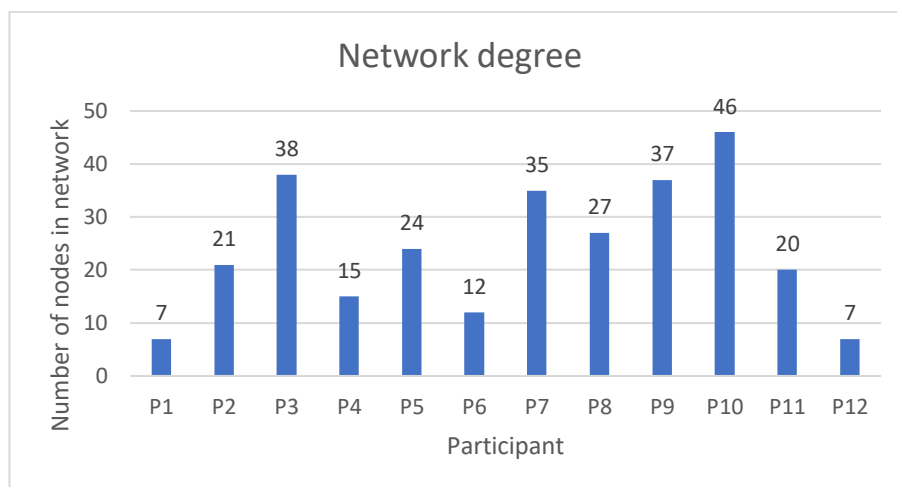


Figure 46: Network degree of study participants

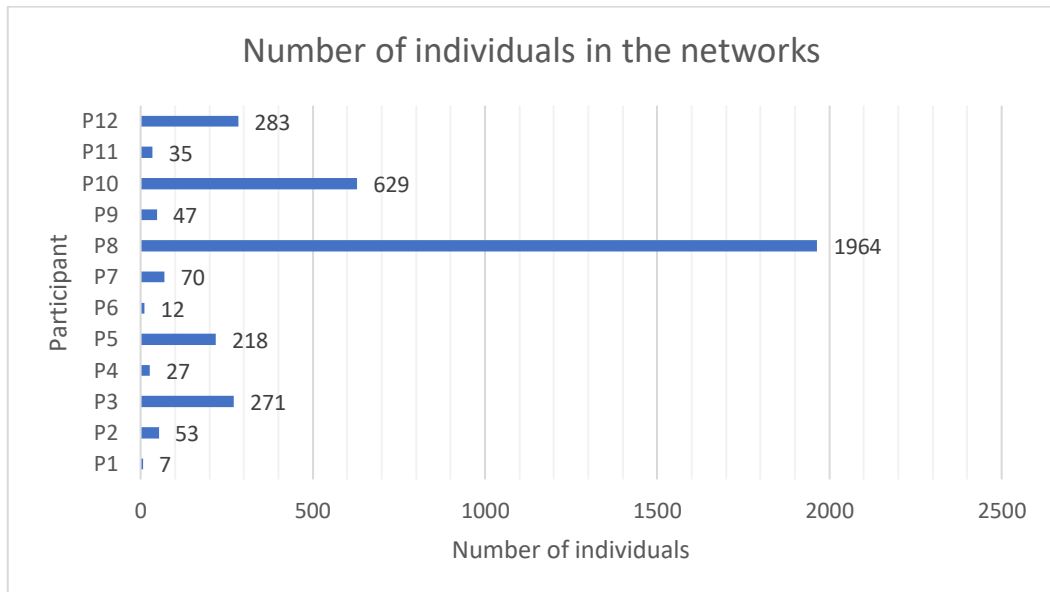


Figure 47: Number of individuals in participants' networks

Considering the career stage at which the participants completed the MA, participants ranged from senior trainee to within five years of retirement. Hence, the participants would have embarked upon the MA with widely varying experience, knowledge and expectations. The participants held a variety of educational job roles at Trusts, HEE North, universities and with national bodies. Hence, it is difficult to make comparisons when the participants and their job roles are so diverse. Even where job roles and level of clinical experience were similar, as was the case for P5 and P6, support networks could still be markedly different. This difference may have been due to discrepancies in availability of support, or variations in interpretation of the question 'Who are the people who support you in your role as a medical educator?'. Participants also differed in how they utilised their networks. Some accessed specific nodes to support a particular educational role (for example P9), whilst others relied generally upon their entire network for all their work (for example P4).

A further area of variation between participants was in the educational workload, which accounted for between 10% (P6) and 80% (P12) of participants' workloads. Seven participants (P8, P1, P12, P5, P2, P7, P10) felt that their job plans were consistent with their educational workloads, whereas five participants (P3, P9, P4, P6, P11) were of the opinion

that they were working in excess of the hours for which they were paid. There did not appear to be any discernible relationship between those who reported working excessive hours and network size, network measures or heterogeneity. Interestingly, none of the most experienced participants, P2, P7 and P10 reported working in excess of paid hours. Hence, with experience, educators may delegate responsibilities more often than their less experienced colleagues or cease undertaking roles which are not adequately remunerated. Additionally, four participants, P2, P3, P7 and P10, all held university roles which they undertook in their own time or during study leave. Such findings demonstrate the dedication of the participants to their medical education roles.

With such commitment to education, it is therefore surprising that only 5 out of the 12 participants included learners in their networks. How learners can be beneficial to educators is discussed in chapter 7. However, all networks included non-clinicians. In terms of relationship context, 50% of the sample (P2, P7, P8, P9, P10 and P12) named a spouse or partner within their network as providing support. The spouses of P2, P7 and P10 were well connected to these participants' work colleagues, which is likely a function of the length of time these individuals have been in their work roles. Considered alongside the extra educational work, paid or unpaid, that participants undertook in their own time, such inclusion of personal relationships demonstrates how medical education can become intertwined with the personal lives of some medical educators. Attitudes towards mixing personal and work relationships are further discussed in chapter 7.

In terms of network measures, a broad variety of networks are present. From small, highly interconnected networks such as P6, with high density (0.545) and low efficiency (0.5), to P11's more sparsely connected network, with low density (0.179) and high efficiency (0.83). How these medical educators work with their support networks is therefore likely to be quite different. However, whilst network measures can provide a framework for understanding participants' networks, they cannot produce a complete picture. For example, P12 had the highest constraint network, which one may suppose provided P12 with lack of bargaining power. Nevertheless, when viewing P12's sociogram, we can see

that this network is actually 3 separate components, providing brokerage opportunities and heterogeneity that would not be apparent from basic network measures. When adding in the qualitative analysis, it becomes evident that these components are from different contexts – workplace, personal life and EHU. Hence, a combination of qualitative and quantitative data is required to provide the clearest picture of the SC of a medical educator and subsequently understand the impact of an educational programme upon that SC.

In summary, the marked diversity in learners and their support networks presented in this chapter clearly presents a significant challenge to institutions in planning, delivering and evaluating educational programmes. However, without an approach such as mixed methods social network analysis (MMSNA), these differences may not even be apparent. Building upon this analysis of the participants' support networks, the following chapter presents an examination of the resources embedded within those networks.

CHAPTER 7: RESULTS PART 2 - SOCIAL CAPITAL RESOURCES OF THE NON-EDGE HILL UNIVERSITY NETWORK

7.1 INTRODUCTION

This chapter examines the social resources, or SC, that participants have mobilised from their non-EHU networks. Non-EHU networks are defined as the social connections made outside of the context of the EHU master's degree programme. As illustrated in the previous chapter, the non-EHU network contacts greatly outnumber the contacts made via EHU. Consequently, the bulk of resources mobilised by medical educators is likely to be accessed from the non-EHU aspects of the networks. Analysis of the resources supplied by non-EHU connections will therefore provide an understanding of the varieties of resources that medical educators require to perform their roles. It is against this backdrop that the impact of the EHU master's may subsequently be examined and understood. Template analysis produced themes and subthemes of resources, which will be presented along with illustrative quotes from the participants. Factors affecting formation and mobilisation of these forms of SC will be covered in chapter 8.

7.2 THEMES

In total, seven overarching themes of support were developed: delivery of education; organisational support; collegiality; career support, flexibility; personal support beyond the workplace and support with academic activities. These themes are summarised in figure 48, along with the related subthemes, all of which will be sequentially defined throughout the chapter. Figure 49 presents a summation of the mobilised resources offered by each tie in the participants' non-EHU networks. Looking at figure 49, the most frequently mobilised resources fall into the 'delivery of education' and 'organisational' categories. Figure 50 illustrates how resources are spread between the participants. Delivery of

education and organisational support are the only two resources that are mobilised in every network, with variable presence of the other resources in the different networks.

It is important to note that labels of themes and subthemes are abbreviated for the purposes of the tables and figures. Longer, more descriptive titles are used in the main body of the text. Lack of reporting of a resource for a specific participant does not mean that they lack the resource, but merely that they have not chosen to include this as an important aspect of their network.

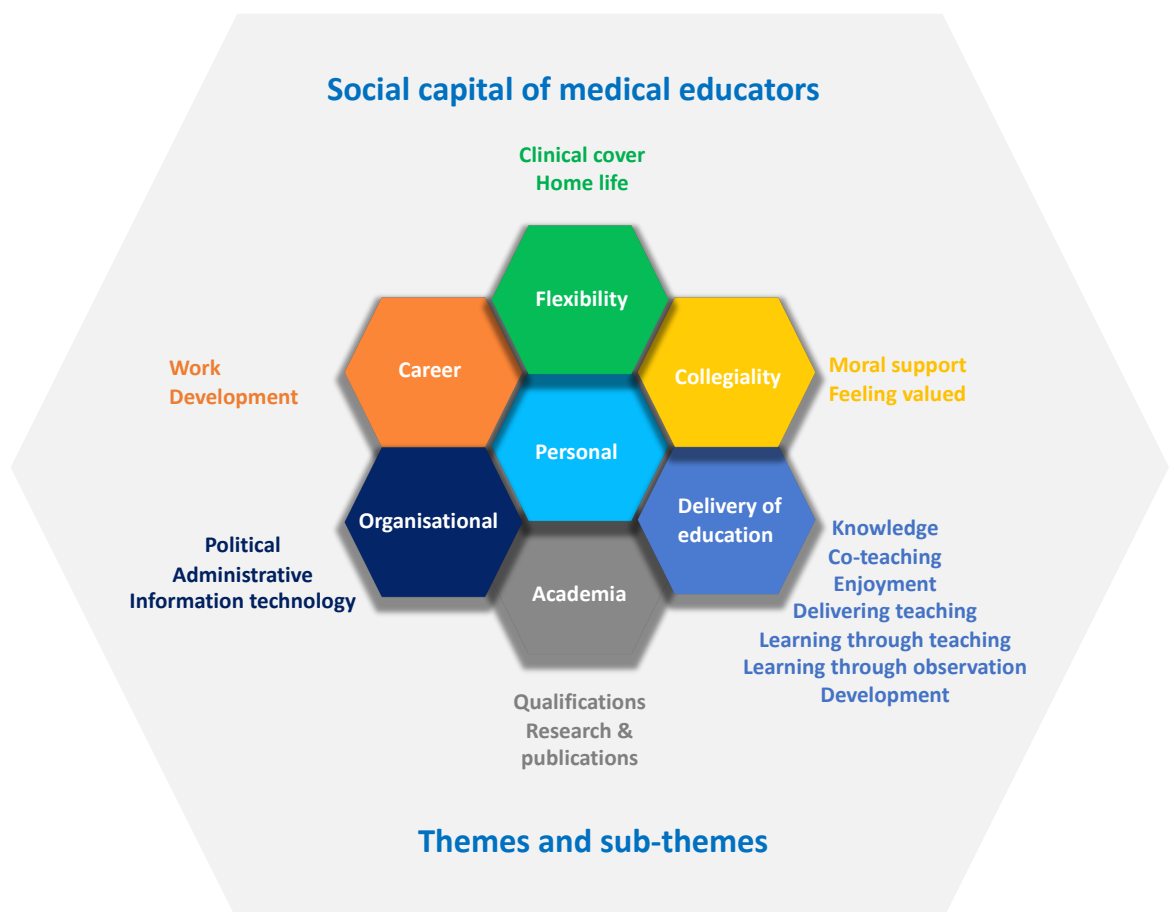


Figure 48: Themes and subthemes of mobilised social capital

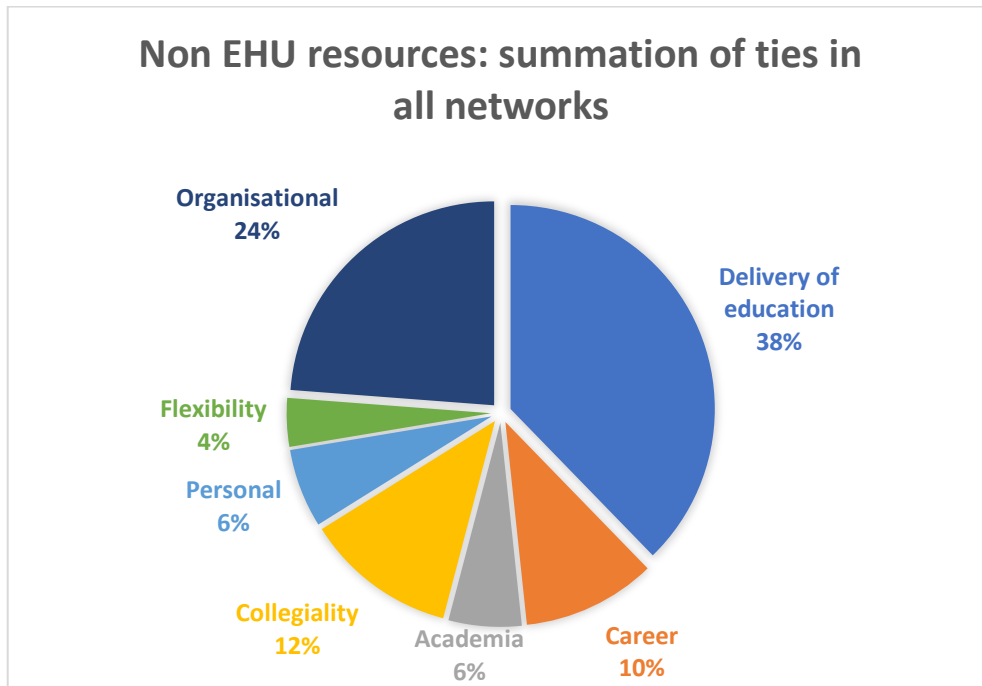


Figure 49: Distribution of non-EHU resources in combined networks of all participants

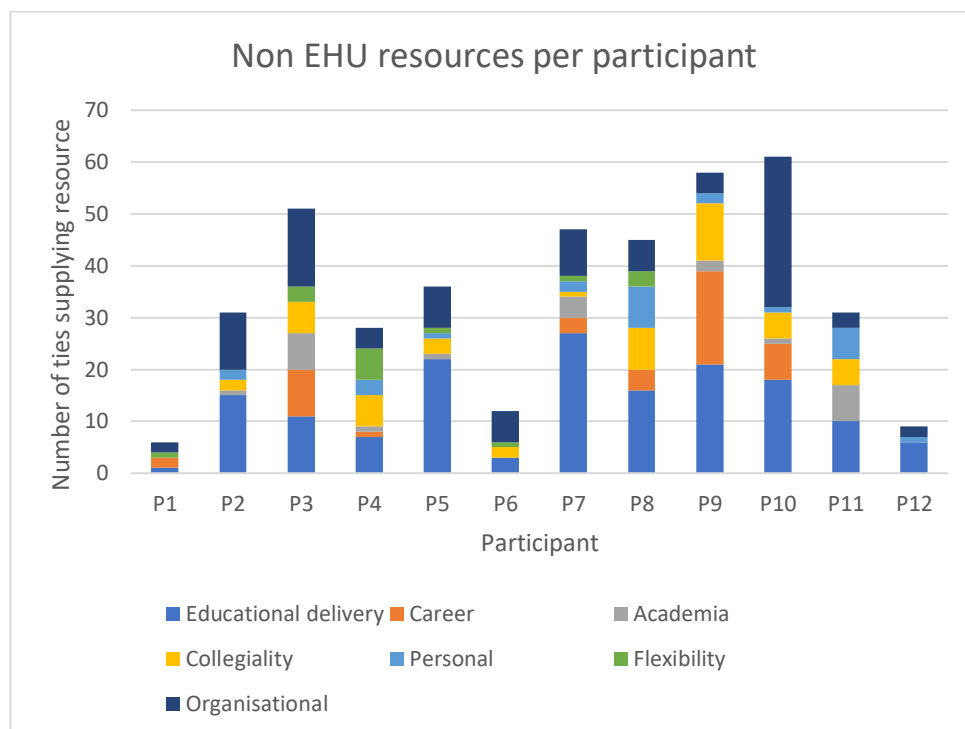


Figure 50: non-EHU resources per participant

7.2.1 DELIVERY OF EDUCATION

'Delivery of education' is the largest theme, both in terms of the quantity of ties offering the resource and the number of subthemes identified. This overarching theme encompasses comments which relate to the different aspects of delivering medical education to the learner. It may include helping ego to deliver teaching or the benefits that ego gains from the social interactions involved in teaching. The overarching theme is broken down into seven subthemes: 'knowledge', 'co-teaching', 'enjoyment', 'learning through teaching', 'delivery of teaching' (by an alter), 'learning through observation' and 'development of teaching'. Figure 51 illustrates the total number of ties offering these resources – the figures are derived from the addition of the ties of all the networks combined. Figure 52 details the distribution of these ties amongst the participants.

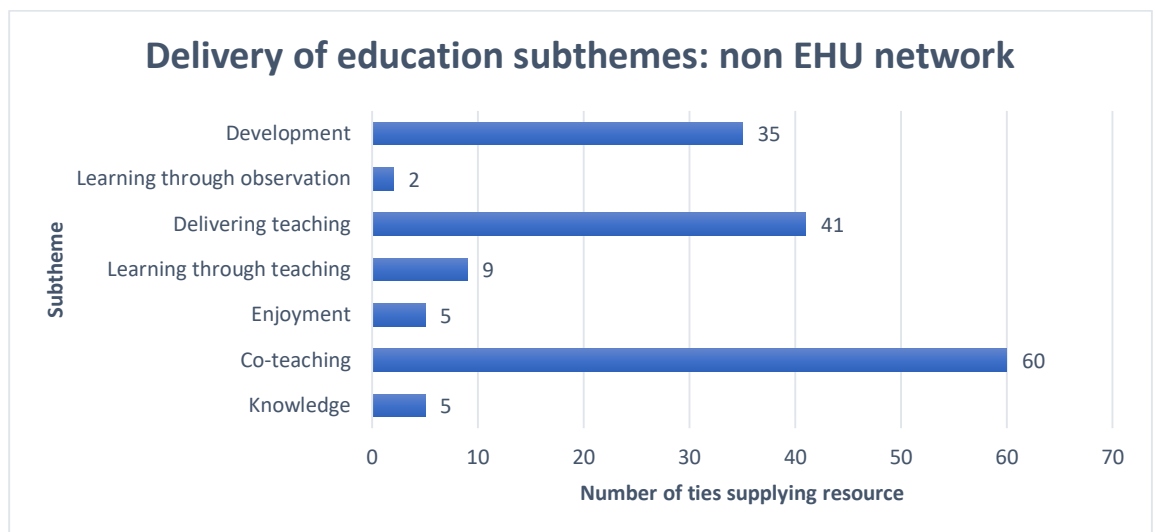


Figure 51: Number of non-EHU ties providing delivery of education subthemes in all networks combined

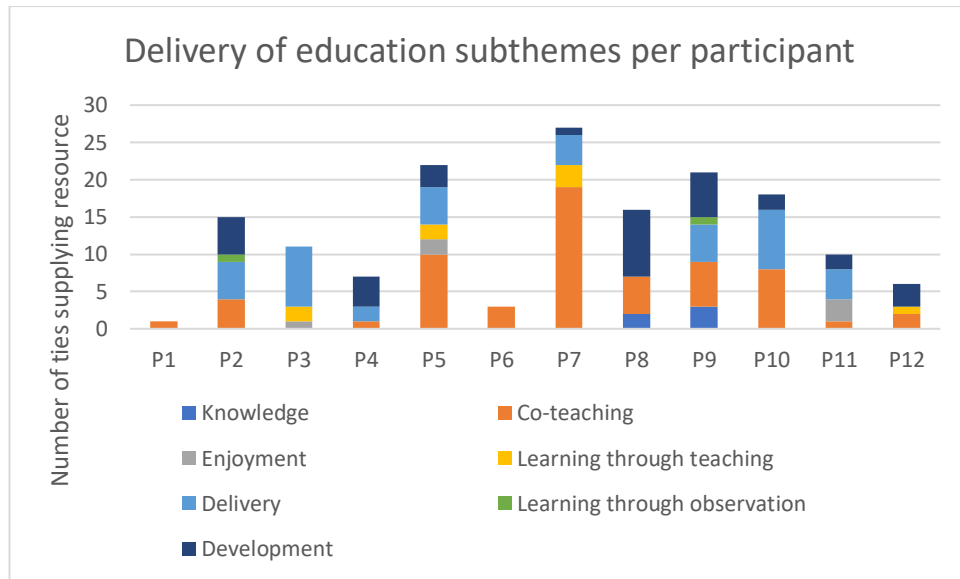


Figure 52: delivery of education subthemes – non-EHU ties per participant

7.2.1.1 CO-TEACHING

‘Co-teaching’ is a situation where ego and alter share responsibilities for teaching. This is the most frequently occurring subtheme in the delivery of education category and P3 is the only participant not reporting a tie delivering this resource.

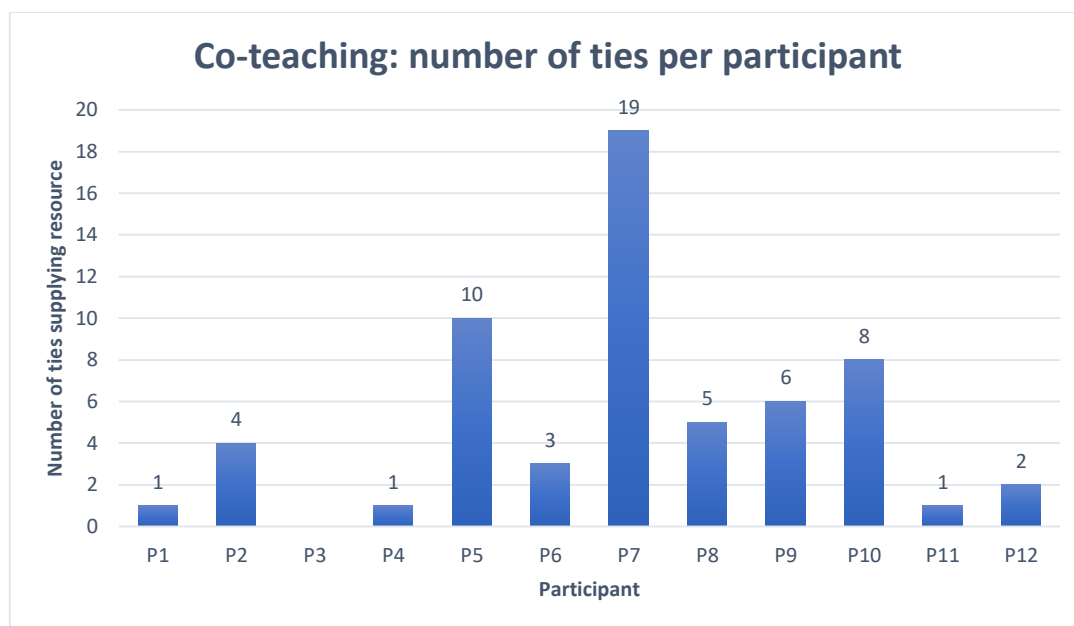


Figure 53: Number of non-EHU ties per participant providing co-teaching resource

As can be seen from figure 53, P7 has the largest number of ties in this category. P7 had a national educational role, which involved working with a team of people on a variety of educational projects. Unfortunately, P7’s quotes could not be used in this section, as their examples were so specific that they would breach the participant’s anonymity.

The following quotes from P1 and P10 illustrate how widely co-teaching interactions can vary. One of P1’s roles involved the organisation and delivery of medical student teaching in the clinical workplace:

Teaching the medical students...I share the role [with my colleague] so that makes it easier because if I’m not there then [they] cover and [if they’re] not there then I cover...as well. So those are the things, which I think practically makes things a bit easier. (P1)

P10 described how they co-supervised a trainee with another consultant:

We had to plan the trainee’s actual work. I mean, obviously, they had a personalised work plan, that said ‘you’ll be in [x and y place]’ but actually, working it out between us, in terms of ‘What are we going to do with these

people? How are we going to make sure they get enough experience in [x]? What are they covering in [x]? Have they actually seen people with [x condition]? Oh, they haven't actually. OK, we better make sure, the next half dozen patients we see, we'll make sure they see them'. And making sure they're getting enough of their [specified activities] and WBAs [workplace-based assessments] and...conversations about writing the supervisor report.
(P10)

These quotes serve to highlight that resources provided within this subtheme are not uniform. P1 is essentially describing cross-cover, which may not require much in-depth or regular communication. However, P10's account is one of a much more involved interaction, emphasising the intensive organisation and planning required to ensure the provision and monitoring of a detailed, comprehensive and personalised postgraduate training plan.

7.2.1.2 SUPPORT WITH THE DELIVERY OF TEACHING (DELIVERING TEACHING)

This subtheme was derived from descriptions of situations where an alter delivers teaching which assists ego in some way. It is different from co-teaching, in that alter and ego do not share responsibility for the delivery of the teaching. There is frequently an element of ego delegating the teaching to the alter. Despite the element of delegation, the spread of ties amongst the participants (figure 54) does not necessarily relate to the seniority of the participant's teaching role. For example, P9 had 5 ties that delivered teaching, but was the only participant who did not have a formal educational role beyond educational supervisor. It was perhaps this lack of formal, paid teaching roles which led P9 to delegate teaching to others. Conversely, P8 had a senior trust educational role and a national role, yet did not cite anyone delivering teaching on their behalf. This may be because they had developed a way of managing their time, which will be explored further in section 8.2.7.2.

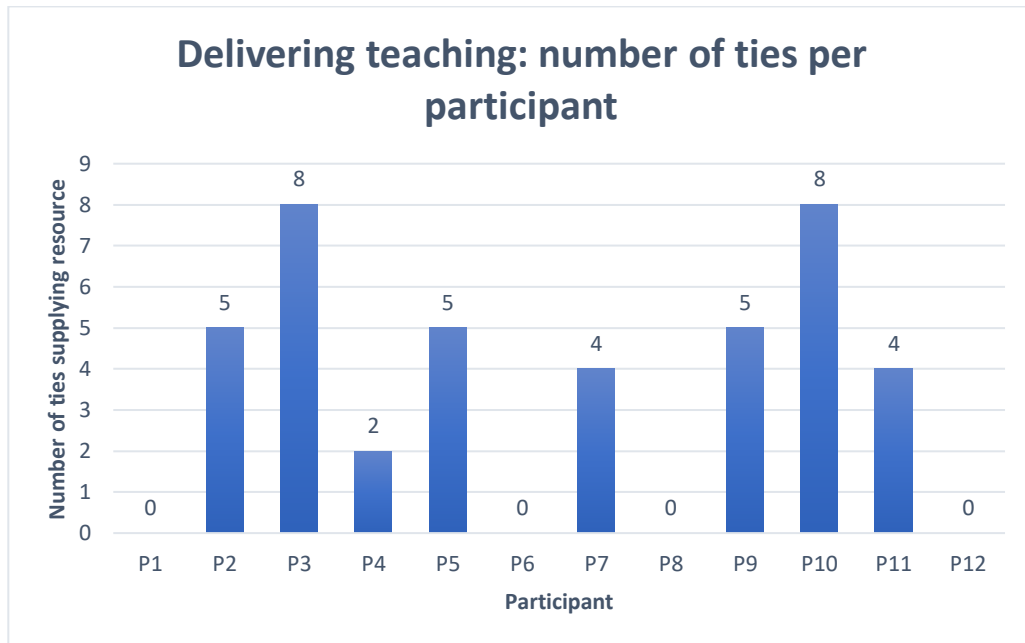


Figure 54: Number of non-EHU ties per participant providing delivery subtheme

Both P3 and P7 had senior roles which entailed responsibility for large groups of learners. One of P3's trust roles entailed responsibility for co-ordinating the training and supervision of 168 junior doctors. Here, P3 described how a team of clinicians provide this resource:

We've got the [teaching] team and there's two leaders in particular to that team and they're clinical educators...These guys are absolute stars, they've seen it all, they go out on the wards, they're the ones that...help supervise the [junior] doctors. (P3)

P7 described the process of utilising networks to deliver a national teaching programme for approximately 400 learners (P7 did not include these learners in their network):

The other thing where networking comes in is pulling the programme together. And that is either trawl through who you know, or you're looking at the programmes of things like ASME and AMEE and thinking, 'Oh that looks interesting, I wonder if he'll come and do that?' (P7)

When dealing with such large numbers, it is clearly not going to be possible for one individual to personally deliver all the teaching. However, P7's comments are suggestive of targeting individuals for a particular skill or knowledge area, something which will be returned to in the section 8.2.1.2 with the consideration of heterophily.

7.2.1.3 DEVELOPMENT OF EDUCATIONAL MATERIAL (DEVELOPMENT)

This subtheme originated from participants' accounts of a creative process whereby the participant and an alter developed work or ideas together to produce something more than either would potentially attain alone. Figure 55 provides an overview of the distribution of this subtheme amongst the different participants.

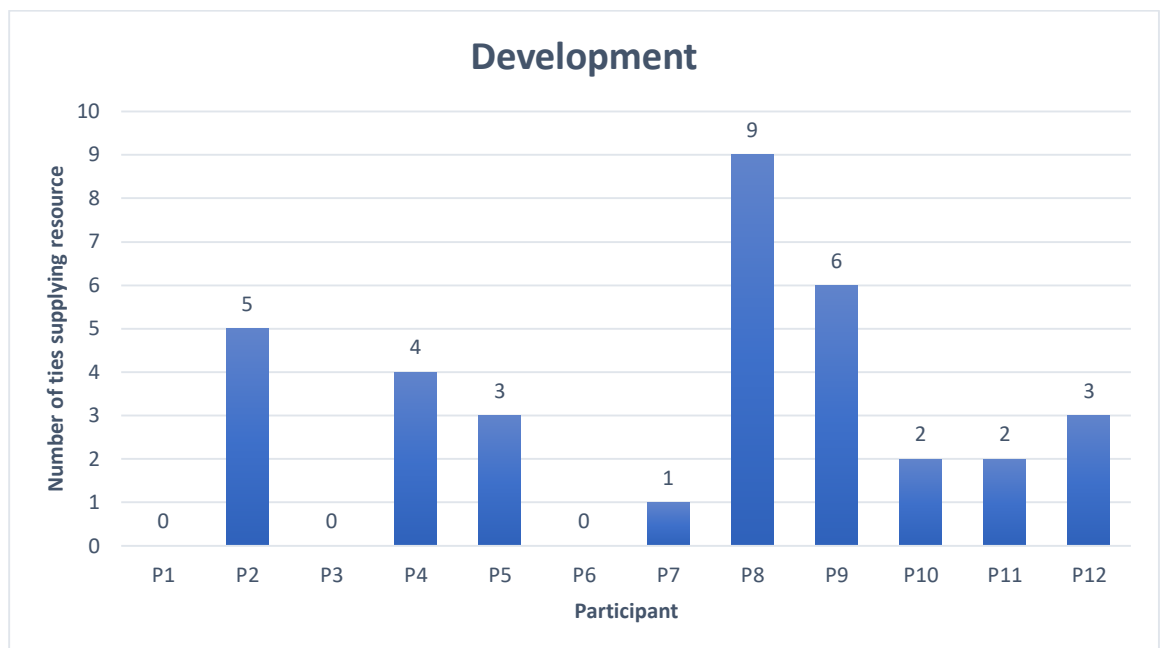


Figure 55: Number of non-EHU ties per participant providing development resource subtheme

P8 had the greatest number of ties providing support with education development, one of these ties being to a Twitter group of 1743 Twitter users. P8's descriptions of how the various groups helped with teaching development are explored in the following chapter, where the importance of heterophily is considered. Whilst P11 and P4 do not have the

highest number of ties in this subtheme, their comments provide clear examples of the reciprocal nature of educational development.

P11 described how group working helped curriculum development in a national educational role:

It started as brainstorming and focussed down...[We were] sparking ideas off each other. (P11)

P4 detailed the nature of development of university-based educational programmes:

We bounce ideas off one another, we develop courses together. (P4)

Both P4 and P11's comments highlight that the development of education is a dynamic process. In contrast with the delivery subtheme, where ego may passively receive a resource, the development resource only exists because of an ongoing, active and possibly quite intensive process.

The remaining delivery of education subthemes are only described by 3 or fewer participants. Hence graphs showing the distribution of ties amongst participants will not be provided for the rest of this theme.

7.2.1.4 LEARNING THROUGH OBSERVATION

This subtheme was developed from descriptions given by P2, P7 and P10 of situations which enabled them to learn teaching skills by either observing an alter teaching or co-teaching with an alter.

P2 described how learning through observation was so important that co-teaching is built into their educational programmes:

We have quite a philosophy here for trying to co-facilitate things and although that's an expensive way of doing things you get a much better...educational input because you've got two people bouncing ideas off one another and then those two people then learn from one another about different ways of doing things, so particularly for new educators we always get them to co-facilitate with people till they feel confident. (P2)

P7 also noted the benefits of co-teaching:

It's always useful to see how other people do things...It means that you can see other people in action and [think] 'I like the way that works', or 'that doesn't work very well' and you can learn from that, so you can pick that up and put it into other things. (P7)

P10 valued observing others teach:

You see how they go about things. Particularly, you know, how do they construct a session? What do they think of putting into it? All teachers ruthlessly pinch other people's ideas. (P10)

Hence, for these participants, the learning through observation resource was supplied in conjunction with the co-teaching resource. Additionally, P2's comments highlight that

there can be a developmental aspect to co-teaching, with a jointly taught session potentially becoming a different entity than if a session had been delivered by either educator independently.

7.2.1.5 LEARNING THROUGH TEACHING

This subtheme was derived from descriptions of situations whereby the process of teaching an alter helped ego to learn. Only three participants, P12, P7 and P5 described this subtheme. The majority of P12's work is within a university, with only 1 day a week of clinical work. In discussing the difficulties of keeping up to date with both clinical and educational roles, P12 remarked how the 200 students in their network helped them maintain their knowledge base:

I think that being an educator in medicine, you do keep up to date by virtue of the job, 'cos the students keep you updated and you have to be on the ball. So, I think the two complement each other very well. (P12)

P7 echoed these thoughts:

I think [teaching] keeps it current in your mind. And I think as you teach it and as you interact with the participants and bounce ideas off each other [you think]: 'oh, I never thought of doing it that way'. (P7)

P5 completed their master's in mid-career and identifies a generational gap between themselves and their trainees. Regular interactions with trainees helped to bridge this divide and potentially assist P5 to learn new skills:

I think it helps you keep a bit more with what that generation's thinking... I mean like they're all brilliant on their phones, like I can't get on FaceTime...But you know, they're very good at all that. (P5)

The quotes from P5, P7 and P12 demonstrate the importance of workplace learning and the presence of ongoing learning following completion of the master's programme. Whilst all the participants delivered some form of face-to-face teaching, looking back to section 6.3, only 5 out of 12 participants included learners within their networks. P5, P7 and P12 all arguably describe generic benefits from the learners, which could be present in a variety of learning scenarios encountered by medical educators. Hence, those participants who do not cite learners as part of their network may be neglecting an important source of SC.

7.2.1.6 ENJOYMENT OF TEACHING

'Enjoyment of teaching' describes a relationship whereby ego teaches alter and is rewarded with feelings of enjoyment and/or fulfilment. Hence, figure 51 only records this subtheme in those participants who included learners within their networks. P3 and P5 were the only participants who reported ties within their networks supplying this resource.

P5 described a parental attitude towards their group of 70 junior doctors:

A lot of [the job is] interactions with the trainees, which I quite like. You have to like it really, or you wouldn't do it. I quite like the interaction with them, they're all young and cheerful...I quite like that, seeing...what they're like, watching them develop and stuff. That sounds a bit naff, but it is quite good seeing them all grow up and fly off. (P5)

P3 included a group of 168 junior doctors within their network:

it's not fair to say I don't get anything back from them because they're one of the reasons I do my job. Just if they're happy, I'm happy. (P3)

Although P4 did not specifically include learners in their network, they described a more general enjoyment of teaching, likening their university teaching to an antidote to their mundane clinical work. In addition to the enjoyment they obtain from teaching, experience with teaching helped P4's self-confidence:

[Teaching] *keeps me interested in going to work...I've always had really [low self-confidence], but I get a real buzz out of teaching now.* (P4)

P3, P4 and P5's comments illustrate how the process of teaching can have a positive impact on the mental wellbeing of educators. It may therefore follow that the presence of ties which reward ego in this way may have a more general impact on the rest of their work, both educational and clinical.

7.2.1.7 KNOWLEDGE

The 'knowledge' subtheme is derived from accounts of situations whereby alter supplied fact-based or procedural knowledge. P8 and P9 were the only participants who described being able to obtain this resource from their non-EHU network.

P9 wanted to know how a private sector company was implementing a specific type of practice, so they went to observe the company at work:

[They] agreed to allow me to attend as long as I didn't take any of what I learnt in specifics outside of the room. (P9)

P9's statement illustrates the specificity of the knowledge that P9 wanted to acquire, in addition to the perceived commercial value of the knowledge to the company. Indeed, P9 went to great lengths to obtain this resource. They spoke to a variety of people at different meetings and conferences before being placed in contact with the person who provided them with access to the above company. In so doing, they had to create a chain of new network contacts to obtain the required resource. In contrast, P8 mobilised resources already within their established non-EHU network:

I've used the experience of the previous head of school in the [specialty] and kind of the course director of the [national course]. [They're] in [their] 60s and

[have] a zillion years of experience. I do kind of lean on them a little bit for that, really. (P8)

Both P8 and P9’s experiences demonstrate that the requirement for knowledge can only be fulfilled by specific individuals, as it is focussed towards achieving a particular aim. This necessity is in marked contrast to the more generic benefits obtained from learners described in the previous two subthemes.

7.2.2 ORGANISATIONAL SUPPORT

The ‘organisational support’ theme was developed from comments pertaining to behind-the-scenes arrangements that did not directly relate to face-to-face teaching, but which were necessary for it to be delivered. This theme is divided into 3 subthemes: ‘administrative support’; ‘political support’ and ‘information technology (IT) support’. As can be seen from figure 56, all participants had at least one tie providing ‘organisational, political support’. Indeed, ‘organisational, political support’ is the only resource subtheme to be present in each of the networks.

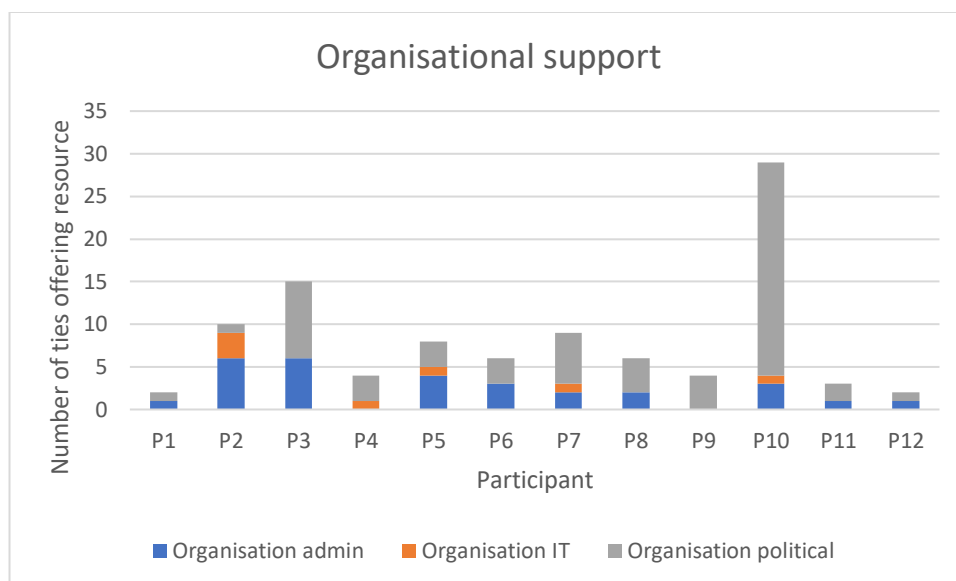


Figure 56: number of non-EHU ties per participant supplying organisational support

7.2.2.1 POLITICAL SUPPORT

The 'political support' subtheme was derived from participants' accounts of systems of power within the workplace. This subtheme includes the following: provision of advice on how systems work; an alter providing their political clout to help ego achieve their aims; and ego informing their line manager or equivalent of a difficult or important situation.

The 'political support' subtheme is the largest within the 'organisational' theme. As can be seen from figure 56, 'political support' was a prominent feature for P10. Interestingly, P10 had been practising as a doctor for longer than any of the other participants at the time they completed their master's. They had the largest network in terms of degree (number of nodes), and second largest in terms of number of individuals. P10 had numerous roles within their employing trust, in addition to working with three different universities. Thus, P10 had multiple organisational structures to navigate. P10's quotes are not used below but will be used in later sections as they serve to highlight more of the complexities of 'political support'. Despite P10 having the greatest number of ties offering 'political support', P10 felt that this was a resource which was lacking within their clinical educational work. This issue is further discussed in section 7.2.9, with consideration of 'unavailable resources'.

P3 discussed how 'political support' was important in resilience in their trust educational role:

it's them [the senior managers] saying, yes, you're right, go ahead, your principles are right, we'll support you and then that helps with resilience, because you're not taking things on yourself. (P10)

P4 described how a senior, more experienced colleague assisted them in navigating the system in their university-based educational role:

whenever I have queries... just generally about how things work in the medical school, [they've] always been there to point me in the right direction. (P4)

P6 and P11 outlined the importance of ensuring a senior person is aware of difficult circumstances. The person in the senior position isn't necessarily expected to do anything; it is sufficient that they merely are aware of what is happening:

I would contact [my line manager] about anything I was unsure about, I'd copy [them] into emails, a lot of emails, just so [they're] aware. (P6)

I'm one of those people who likes to tell people what I'm doing. I don't want them to do anything, but I just like them to know. (P11)

Whilst P4 describes a more active role for the alter in the provision of 'political support', the other quotes highlight that this can be quite a passive role. In some ways this is a form of moral support, in that it reinforces the position that has been adopted by ego. However, this reinforcement is only possible because of the political context in which it occurs; line manager to employee or equivalent. This is discussed further in section 8.2.5.1.

7.2.2.2 ADMINISTRATIVE SUPPORT

The 'administrative support' subtheme was developed from comments relating to assistance with the administrative aspects of an educational role.

As can be seen from figure 56, only P4 and P9 do not report any 'administrative support'. Indeed, P9 reported that this was a resource which was missing from their network (see section 7.2.9). P1 described how their 'administrative support contact', P1A4, was useful as a 'go-between' in their hospital-based university role.

When the medical student comes into the dept, [P1A4] gives out the list and takes the photos and all that kind of stuff...[They] also circulate information about the training and the courses coming from the medical school and also, if you want to pass something to the medical students then you would go through [P1A4] because [they're] the one who knows where they are.

P2 described the wide variety of functions performed by the administrative assistant for their clinical educational role:

Where's such and such, have I got a handout for this? Have we got a manual for that? Can you get the thingy to work? Liaising with other people, for instance [if] one of the tutors hasn't got access to [the VLE, P2A2] will do it for me. (P2)

P6 described the importance of having good 'administrative support' in making their HEE North educational role run smoothly:

The person I haven't mentioned who makes a huge difference to the whole of my life is my secretary. 'Cos I'll just say I'm doing [an educational activity] and [they'll] sort it and if I say I'm expecting this, or I need to meet with a trainee, [they'll] just liaise. (P6)

The comments from P1, P2 and P6 reveal the diverse range of activities that administrative staff perform. P6 is deeply appreciative of the vital role played by their secretary, whilst P1's admin support provides a communication hub between educators and learners. Hence, whether in a trust, HEE North or university role, good administrative support is an important factor in being able to function as a medical educator.

7.2.2.3 INFORMATION TECHNOLOGY (IT) SUPPORT

This subtheme relates to participants' descriptions of assistance with the IT aspects of their educational roles. Five of the participants, P2, P4, P5, P7 and P10, reported having 'IT support' within their network. Interestingly, none of the participants who mentioned IT as being important completed the MA early in their career. This may be pure coincidence, but it is possible that younger educators may consider themselves to be more au fait with technology and therefore perceive themselves as requiring less support in this area. There does not appear to be any link between the mobilisation of 'IT support' and participants' educational roles. Of those mentioning 'IT support', only P5 did not have a university role and their IT support took the form of assistance with literature searching to inform both clinical and educational roles. However, P1, P3 and P12 all had university roles and did not mention IT support as part of their network. P4 and P10 outlined the IT support which they found useful in their university educational roles:

[They're] so helpful in terms of getting the technical aspects of [the VLE] to run. Not just for us, but for the trainees, cos often it's quite an off-putting thing for learners that they can't quite work the technology. (P10)

The e-learning team...helped to develop things like the i-books, they helped to develop online learning resources, so they're quite practically really helpful. (P4)

These statements demonstrate that 'IT support' is quite specialised in nature. Those providing 'IT support' can complete tasks such as development of i-books and maintaining smooth running of the VLE. Such tasks may be difficult for someone with a clinical background. Arguably, it would also be an inefficient use of an expensive resource for a clinician to perform these roles. Additionally, P10's statement shows that IT staff do not only support the educator directly but help with student engagement and satisfaction by

ensuring smooth delivery of educational programmes. Hence, it is possible that P1, P3 and P12 may be neglecting an important source of assistance for their university roles if they do not regard IT as being an important part of their support network.

7.2.3 COLLEGIORITY

This overarching theme encompasses comments participants made in relation to the importance of friendly relationships with work colleagues. There are two subthemes: 'moral support' and 'feeling valued by colleagues' (abbreviated form: 'feeling valued'). Only two participants, P4 and P9, reported the 'feeling valued' resource, therefore figure 57, below, simply shows the number of ties per participant for the overarching theme of 'collegiality'. Neither P1 nor P12 reported 'collegiality' and both had the smallest networks with a degree of 7. Superficially, it may therefore appear that educators who do not feel they require a great deal of support may also not see the importance of 'collegiality'. However, P12 has a relatively large number of individuals in their network – 283 in total. Additionally, in those reporting the resource, the number of 'collegiality' ties does not necessarily reflect the number of overall ties in the individual network. For example, referring to figure 58, P7 has the 4th largest network degree, but only reports 1 tie providing 'collegiality' in their non-EHU network.

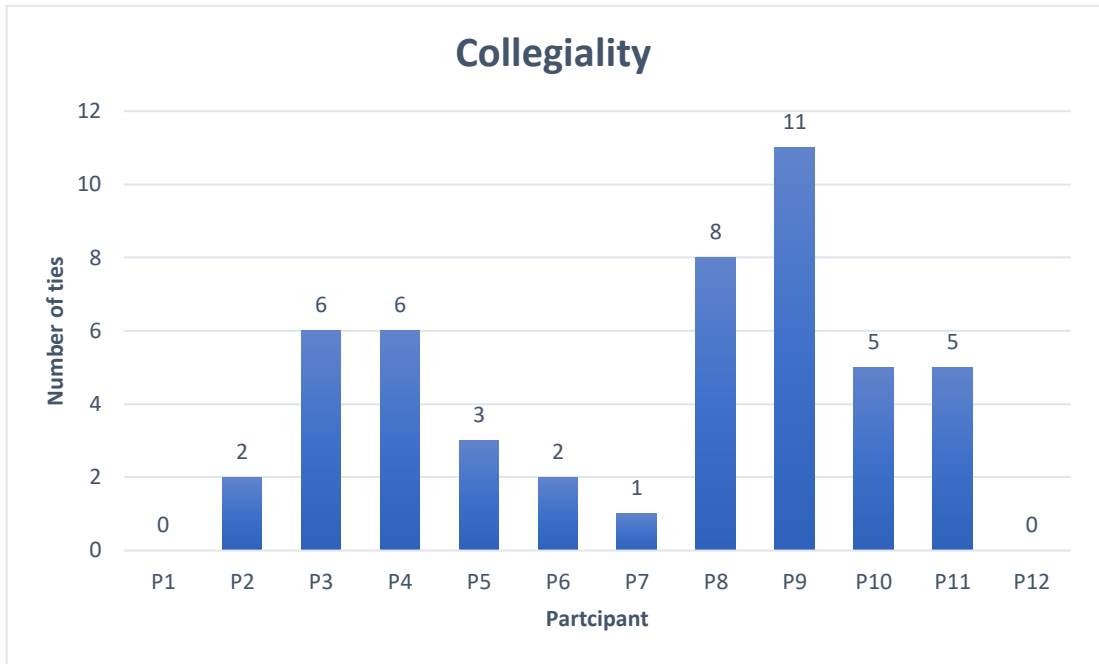


Figure 57: Total non-EHU ties delivering collegiality per participant

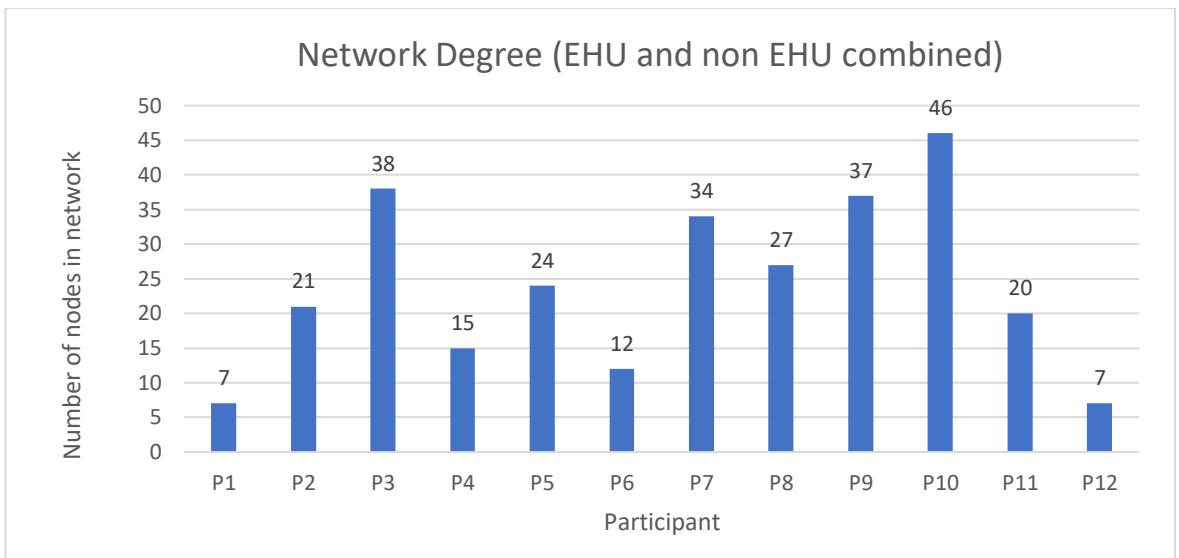


Figure 58: EHU and non-EHU combined network degree per participant

7.2.3.1 MORAL SUPPORT

The ‘moral support’ subtheme was derived from participants’ descriptions of the importance of receiving encouragement and psychological support from colleagues. Their comments were consistent with the Cambridge English Dictionary definition of moral support: ‘If you give someone moral support, you encourage that person and show that

you approve of what they are doing, rather than giving practical help.’ (Cambridge English Dictionary, 2019a)

P8 identified that being a medical educator was ‘potentially...a lonely place’. As can be seen from figure 57, collegiality was an important feature in P8’s network, with 8 out of 18 non-personal ties from the non-EHU network offering this resource. P8 provided their own definition of ‘moral support’:

People have ups and downs, it can be really busy and stressful for a couple of weeks, something that’s bothering you, and the people around you can see, spot that and just kind of intervene, however, they see fit, really. That’s how I’d say about the moral support. (P8)

P3 described how a group of managers provided moral support:

And when there’s something going on, it’s like they wraparound me, basically. (P3)

P6 experienced a challenging phase at work when there had been clinical and educational adverse events which were under investigation. A work colleague provided informal support:

[They’d] just come into my office and say, ‘How are you today?’ and I’d say, ‘A bit shit’ and then [they’d] just hug me and...walk out. And that was great, [they] got me through, really. I’d hear [them] coming along the corridor and think ‘Oh, thank goodness it’s you’. (P6)

P8, P3 and P6 all describe the importance of having supportive colleagues when problems arise. Such situations range from the day-to-day ups and downs experienced by P8 and P3 to the more prolonged and intense period of difficulty faced by P6. However, ‘moral support’ is also important even when work is progressing smoothly:

[It's] making sure that you're not doing anything silly...You know when you just want somebody to say you're doing a good job? Cos you don't always think you are. (P11)

Here, P11 observes the importance of simple reassurance, or positive reinforcement for simply carrying out a job to the best of one's ability. It is likely that medical educators will routinely be providing such reassurance to their learners. However, the comments of P11, who was mid-career when they completed their master's, demonstrate that even experienced medical educators still need encouragement.

7.2.3.2 FEELING VALUED BY COLLEAGUES (FEELING VALUED)

This subtheme was developed from P4 and P9's interviews which highlighted the importance of feeling useful and valuable to colleagues. Whilst some similarity can be seen between the moral support described by P11 above, it is important to note that what P11 was describing amounted to reassurance, whereas feeling valued progresses beyond that to something more active. 'Feeling valued' was so important for P4 that they changed educational roles:

When I was doing my undergraduate tutor roles in my clinical work,... I didn't feel trusted to lead the programme. I felt that I was being told what we had to do, rather than given the ability to develop the course and the teaching. So, I pulled out of doing med ed in my trust and came to do it in the medical school where I feel that my work is somewhat more appreciated and that's a big one. (P4)

Such support can encourage medical educators to take on new challenges:

They've always seemed to have faith and confidence in me, which I perhaps haven't had in myself. So, they've pushed me towards doing things, they give me tasks to do that I might not feel qualified to do, but then I learn and do them. (P4)

P9 also experienced not 'feeling valued' in clinical posts. Below, they describe their experience in their year's fellowship in medical education:

It was the first time that people valued me as a person and with my skills and it really showed me how important it is to put value on people and what they can do, rather than what they don't. (P9)

In fact, P9 was valued so much that a job was written for them:

And I came out on cloud nine thinking 'wow' I'd absolutely no idea that I had that much value to somebody, an institution like this, so it made me really, really believe in myself. (P9)

Hence, 'feeling valued' amounts to more than just reassurance. P4 and P9's comments demonstrate that when a medical educator feels valued, they have more self-confidence, which encourages them to further develop their skills, which ultimately will be beneficial to both colleagues and learners.

7.2.4 CAREER SUPPORT

The 'career support' theme relates to support the participants described in relation to obtaining jobs and with personal development necessary for career progression. The overarching theme encompasses two subthemes: 'obtaining educational work' (abbreviated to 'work') and 'career development'.

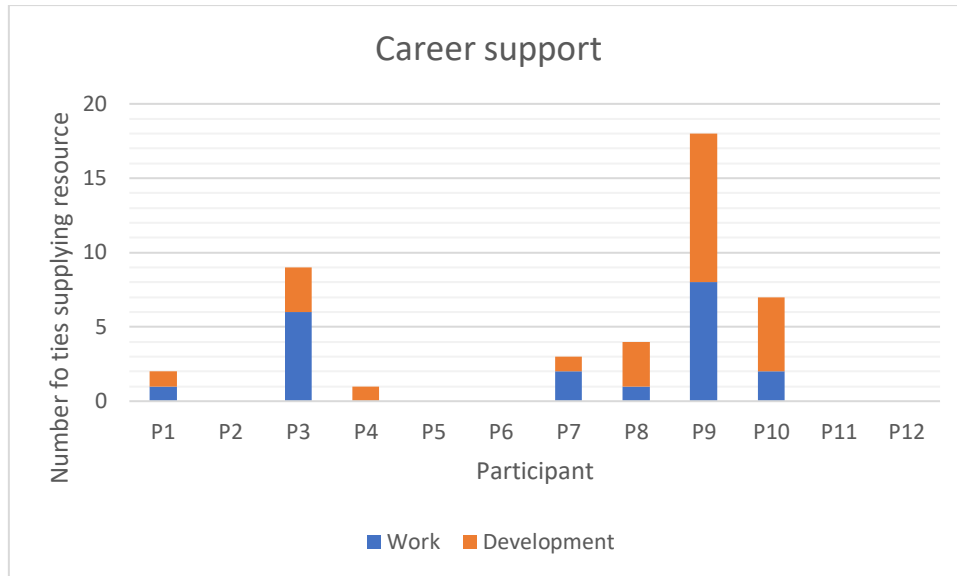


Figure 59: Number of non-EHU ties delivering career resources per participant

Referring to figure 59, It is notable that P9 has by far the greatest number of ties providing career support. Of all the participants, P9 completed their MA at the earliest point in their career, graduating prior to becoming a consultant. They had been in a substantive consultant post for just 18 months prior to interview and were the only participant who did not have a formal educational role beyond ES. Hence, they were still in the process of trying to establish themselves as a medical educator, which may explain the number of ties providing ‘career support’.

7.2.4.1 OBTAINING EDUCATIONAL WORK

This subtheme originated from participants' accounts of support in obtaining educational work. Such support includes: delivering ad hoc teaching sessions; involvement in educational projects or committees; and obtaining a job. This subtheme is abbreviated to 'work' for the purposes of charts (for example, figures 48 and 59).

P10 obtained CPD via P10G2, a group of approximately 450 individuals. This group was also a source of educational work:

[obtaining educational work] was mostly done ad hoc, informally, often at the [national annual CPD meeting] because that's when I'd meet up with people. And it would be very much 'Ok, we're looking at doing this course, would you mind if I have a chat with you about this?' (P10)

Following P9's fellowship year, a post combining educational and clinical roles was created specifically for them. Unfortunately, the clinical aspect of the role fell through and the job did not come to fruition. However, P9 maintains contact with the centre:

they sometimes ask if I can go back as faculty. In my dream, I'd quite like to carry on [teaching a specialist topic]...It would be quite nice to go back and do some stuff for them.

P1 kept in contact with P1A7 to find out about job availability in a university in their country of origin:

I do keep in touch [with] the medical college in [my home country] from time to time by email and when I visit home. The job is available whenever I want it. (P1)

P9 and P10 described a more passive experience of being approached with offers of educational work. Conversely, P1 was actively seeking information about educational work in their home country. However, whichever the direction of communication, it is evident that a medical educator's social contacts can greatly facilitate the process of obtaining work in medical education.

7.2.4.2 CAREER DEVELOPMENT

The 'career development' subtheme incorporates descriptions of support with the developmental aspects of the participant's career in medical education, for example, career advice. P3 and P8 both described mentors – P3's was a formal arrangement, whereas P8's relationship with a senior consultant colleague evolved informally throughout their career and had informed both clinical and educational work:

It would be intermittent, kind of those important junctions of your training, you know, for example, when you're thinking what...training to go into or the ups and downs of ... training, and what to do for your [senior training] life, when you're thinking about consultant jobs. They're the junctions where I would find a mentor come in handy. (P8)

P3's mentor relationship had only been established a few weeks prior to interview. P3 describes what they hope to gain from the relationship:

It's about my [educational] leadership role and where I'm going. (P3)

Therefore, the mentorship relationships offer support in planning career steps and making important career decisions.

P9 spoke about support with developing skills to obtain both educational and clinical work:

[P9A30] *has been instrumental in getting me jobs, purely because [they're] very good at interviews. I am crap at interviews, so [they] gave me some structure to my interview answers. So, I regularly go back to the structure [they've] given me. [They] grilled me for hours on end in [their] house before my consultant interview.*

Hence, P9's 'career development' support equipped them with the skills to obtain further educational work.

7.2.5 FLEXIBILITY

The 'flexibility' theme was derived from descriptions of support which provided the participant with the flexibility to perform their educational role(s). This theme is broken down into two subthemes; 'covering clinical duties' (abbreviated to 'clinical cover') and 'managing home life' (abbreviated to 'home life').

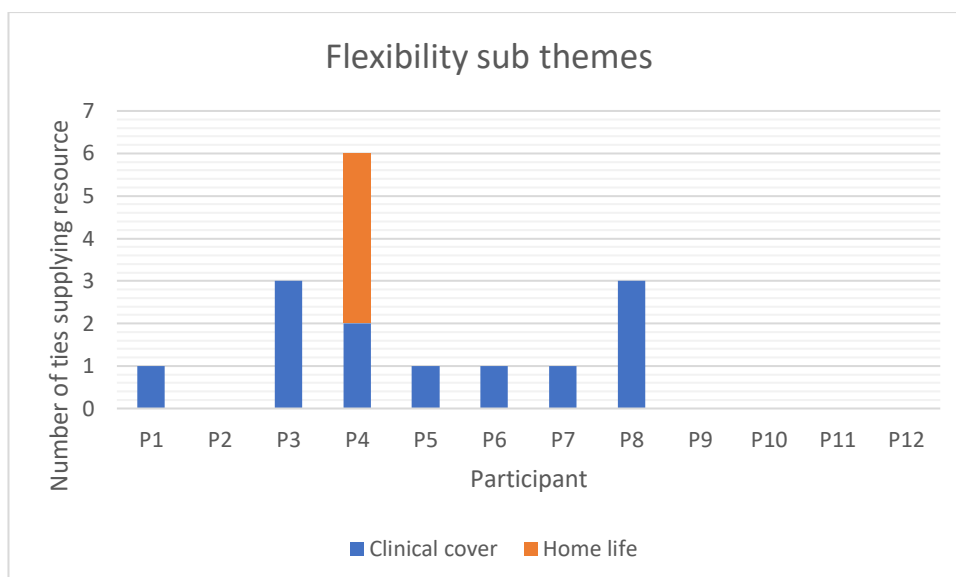


Figure 60: Number of non-EHU ties per participant supplying flexibility

7.2.5.1 COVERING CLINICAL DUTIES (CLINICAL COVER)

All participants had clinical roles in addition to their educational roles. Some of the participants described the importance of ensuring their clinical duties were covered when performing their educational roles. For this, they relied on the support of clinical colleagues. In addition, they may also have required their clinical line managers to approve study or professional leave. These two categories are considered together as they are both concerned with ensuring that there is no gap in clinical cover whilst the educator is performing their educational role(s).

P11 described how their clinical colleagues were the most important supports in their network, both in terms of providing clinical cover and approving leave:

Because to do educational roles, you need the support of your home base, your home trust, and you need to have clinical flexibility and I get given that. (P11)

P5 described the need for formal approval of leave:

The trust are very good about releasing me... When I put in the leave forms, it's never questioned. (P5)

P3 described how they and their colleagues provided reciprocal arrangements for covering clinical duties:

Between us, actually, we've all got these other roles, so I think there's that understanding really, so one of us it always at the [clinical] site, so we cross-cover. (P3)

For some participants, flexibility was of central importance in being able to perform their educational role. P4 was in a clinical role which left them clinically isolated, so they applied for another role:

It was a place where I've always wanted to work, I would have been working in a team with my very best friend. (P4)

However, P4 turned the role down, as it would have required them to have fixed days for clinical and educational work:

But that doesn't work in med ed...We're having a meeting on a Tuesday, or we're doing standard setting on a Friday or on Wednesday we're going to be interviewing and you've got to be there, so I need that flexibility and my current colleagues are great at swapping and just letting me be here [university], as long as I'm working my hours there [clinical workplace], letting me be here when I need to be.

Hence, there is a dynamic interplay between medical educational and clinical roles, with colleagues helping to maintain a workable balance for the medical educator.

7.2.5.2 SUPPORT MANAGING HOME LIFE

This subtheme incorporates comments which relate to the way in which responsibilities in the home can impact upon an individual's ability to work as a medical educator. P4 was the only participant to have active ties providing this resource. Four of their personal context relationships (P4A9, P4A10, P4A11 and P4G3) offered flexibility by providing childcare and support looking after the home.

I have a team. I have a cleaner,...a gardener... [and] a childminder who does some of the childcare. I have 2 or 3 babysitters who pick up the extra hours if I'm at meetings late or if I need to go somewhere, so yea, you need a whole team when you've got three kids... Actually, if I didn't do the med ed, I wouldn't need many of those people cos I'd just be working 6 sessions, 4 short days and I could do it all myself. (P4)

This statement demonstrates the commitment some medical educators have towards their role and suggests that a high level of organisation and effort is needed to co-ordinate all these different support contacts in addition to educational and clinical work roles.

7.2.6 PERSONAL SUPPORT BEYOND THE WORKPLACE (PERSONAL SUPPORT)

This theme is developed from comments about the importance of relationships which extended beyond work. The theme includes both educational work relationships that reach into the personal sphere and relationships which have started outside the workplace, but which somehow help the participant in their educational role(s). The support described is of the nature of moral support, defined as per section 7.2.3.1, and/or friendship, consistent with the Cambridge English Dictionary definition: 'a person who you know well and who you like a lot, but who is usually not a member of your family' (Cambridge English Dictionary, 2019b). Occasional socialising outside work without the participant providing any further description of personal support was not included within this category, as such contact by itself is not clearly providing support to the medical educator. Further discussion of how socialising outside work can impact upon relationships is contained in section 8.2.1.1. This theme should not be confused with the relationship context category 'personal', which is reserved for those contacts who provide support primarily only in the participant's personal life, although there is some overlap, as illustrated in figure 61.

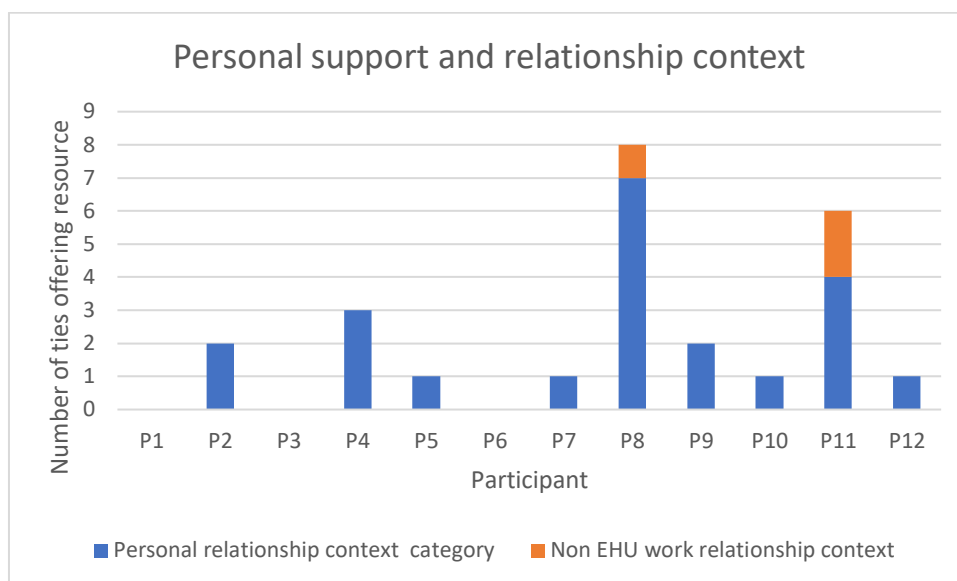


Figure 61: number of non-EHU ties per participant supplying personal support displayed according to the context of the relationship

Figure 61 illustrates the total number of ties per participant that supply ‘personal support’, relating to educational roles. These ties are further broken down to indicate the primary context in which that tie exists; work-related or within the personal context. It is perhaps unsurprising that most ties offering personal support are situated within the personal relationship context. P8 and P11 are the only participants who have reported receiving support in their personal lives from their educational work colleagues, with each of these participants describing specific work colleagues as ‘friends’. P4’s network is somewhat unusual in comparison with the other networks, with almost half of their network (6 out of 14 non-EHU nodes) coming from the personal relationship context. P4 did conduct educational work with friends: P4A5, P4A6 and P4A7. These contacts are classified within the personal relationship context as P4 viewed them primarily as friends. However, P4 also worked with these alters within their educational roles. Indeed, P4 helped some of these people get into medical education.

my best friend [P4A6]. I trained with [them] and because we’ve both been so busy and for whatever reason, we kind of had two years where we didn’t have much contact and we didn’t seem to be quite so close. But I knew [they] had an interest in med ed and I’ve tried my best to support [them] in terms of roles and keep scanning the horizon for opportunities that might be of interest because [they’ve] just changed locality and through that we’ve started to

work on some of the curriculum together and through that we've got close again. (P4)

Hence, there is a circular connection between medical education and personal relationships, with each aspect enriching the other. Medical education can also be a way of making friends, as in the case of P4:

One of my best friends at home as well, because I have the teacher group, we put the business together. I needed to find people who might be interested in doing that and one of the lasses who was interested is now one of my best friends, so I've made friendships. (P4)

P4's experience contrasts with P9, who described the importance of keeping work and personal life separate:

Generally, I tend to separate my social and work. My [spouse] said to me, 'your workmates are your workmates, you can be friendly with them, but generally, they're not your best friends and they won't come to your support if things go wrong' and actually, [they're] right and things have happened and I've gone, 'I've thought you were a friend'. We have dinner parties together, yea, ok, fine, it's just easier to separate it out now. And whilst they do cross sometimes, don't get me wrong, but I tend to not. (P9)

P8 and P11 outlined the importance of having good personal support outside of work:

Family, my partner, my friends. The people who I would call friends outside of work, they're the most important thing and the stability for me. (P8)

I've got two good friends from university who, you know when you've got that best mate who thinks you can do no wrong and they're always supportive of

whatever you do? She's one of those. And whereas the other one's a bit more my conscience. (P11)

These comments suggest that support obtained from personal relationships can be as important in functioning as a medical educator as relationships within the work environment. The ways in which personal relationships can inform educational practice is further explored in section 8.2.1.2.

7.2.7 SUPPORT WITH ACADEMIC ACTIVITIES (ACADEMIA)

The 'academia theme' was developed from participants' descriptions of support with scholarly activities, from which were derived two subthemes: 'research and publications' and 'qualifications'. Assistance in studying for qualifications predominantly refers to support that participants received from their non-EHU network in completing their master's qualification. This support will be discussed in chapter 9, which focusses on the master's degree programme. Hence, the present section will only discuss support with research and publications occurring outside the context of the MA.

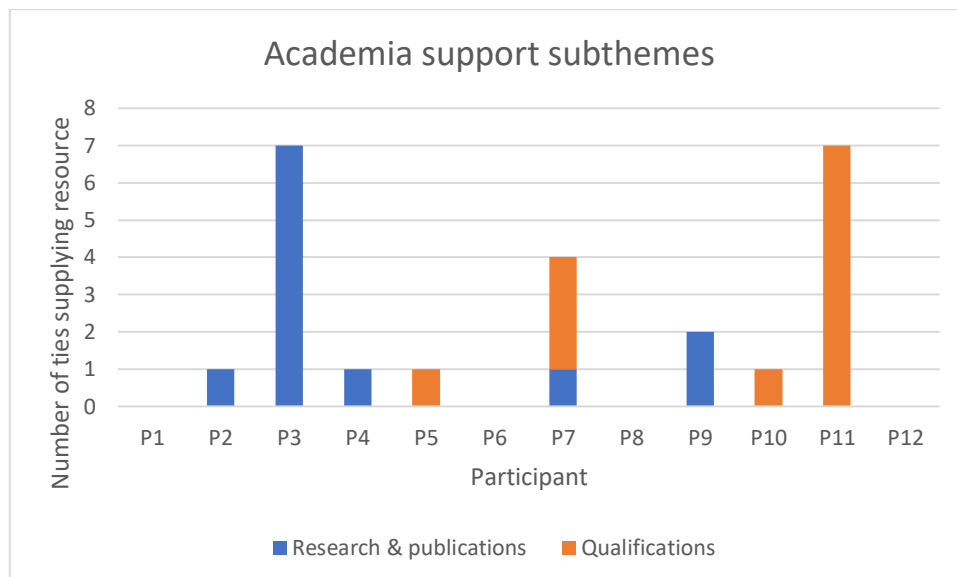


Figure 62: number of non-EHU per participant supplying academia subthemes

Strikingly, figure 62 illustrates that only five participants described support with research as being an important aspect of their non-EHU networks. Of all the participants, P3

reported the most involvement with research. They described how they were enabled to conduct research via links with another university (not EHU).

I'm not naturally inclined to be a [researcher] I'm more a doer, the planning, then the rest, I think, I don't have to. So, for example, we've got some links with [another university] and out of the bid money, we're gonna get a research assistant, then I can do it. And it's knowing that it doesn't have to be me. (P3)

Other participants were less descriptive, for example, P2 explaining the role of a university contact [P2A9] as: '[they] came to do some research for us here'. Interestingly, P2A9 was also from EHU, but initially met P2 outside of the MA course during their research work. Both P2's and P3's comments suggest that they do not view research as a core part of their roles. P3 explicitly stated that they are 'not naturally inclined' to be a researcher. P2 commented that P2A9 came to do research 'for' the hospital and not *with*, suggesting that P2 had separated themselves from the research process. Indeed, P2 also described themselves as 'not a researcher by nature'. P4 was the only participant who declared that they were personally becoming more involved in research; they had established a medical education research group with P4A13. Other participants either did not mention research at all, or said they simply did not have the time.

7.2.8 POTENTIAL CAPITAL

Some of the participants reported having resources in their non-EHU networks that they had not yet mobilised. As described in section 3.2.3, a resource which is accessible, but which has not yet been mobilised, is referred to as 'potential capital'. P11 explained that they kept hold of contact details for former trainees in case they (P11) needed support:

most of the tutors were my trainees, so if I've got a problem, I just ring somebody up. (P11)

P2 had been without a senior trainee for about 8 years, due to lack of funding. Over that time they had continued to attend a group for educational supervisors:

In the hope that one day we might get a trainee, or somebody might say we've got nowhere to put this person. (P2)

P9 described keeping in touch with a group of people in relation to an educational tool they might use in the future:

I have kept in touch with them. So, from that point of view, I think they are potentially useful. That sounds an awful thing to say about people. But you know, they're really nice and they want to be involved for some of it. (P9)

These quotes highlight that medical educators are not only dealing with the issues they are immediately presented with but are actively planning for the future. Such maintenance of relationships can be time consuming; In the case of P2, that involved 8 years of attending meetings in the hope of getting a trainee, without any immediate prospect of satisfying this aim.

7.2.9 UNAVAILABLE RESOURCES

As a part of the semi-structured interview, participants were asked if there was any area of support they felt was lacking. Lack of support is referred to as an unavailable resource.

P1 felt that they were lacking in time to conduct their educational roles:

I can't fit them during the working day, it's quite a lot, so I end up doing them out of hours...or at home. (P1)

P7 described the difficulty of keeping up with an ever-changing NHS and not knowing who to contact:

It's not so much support that you don't get, it's that the environment is changing so fast that nobody knows who is doing what at the moment and therefore it's not that anyone is being deliberately unsupportive, we have absolutely no idea of what the systems and structures are and who's doing what. (P7)

P9 lacked administrative support and was in the process of applying for a more senior educational role which would come with more time, money and a small amount of admin provision.

At the time of the study interview, P10 was near retirement from their clinical role. They were clearly burnt out in this role, feeling that they had no support within the clinical environment for the implementation of educational interventions. They described the type of support they were looking for which they felt that they did not receive:

Well, some of it was practical support. Some of it was just listening to me and taking me seriously. Recognising that the issues we were talking about were real issues, even if we might not see them in the same way. (P10)

On paper, P10 appears to have had a lot of support. They had the largest network, in terms of degree, the largest number of ties providing political support and even described some collegiality in their work ties. However, whilst support was given in certain areas, it was insufficient for P10 to be able to do the work they felt was necessary. Potential underlying reasons are discussed in the following chapter, which considers factors affecting the formation and mobilisation of SC.

P6 also described a situation whereby they felt that they did not have sufficient support. As described in section 7.2.3.1 they had been involved in a clinical and educational incident which became subject to an investigation. Simultaneously, P6 had experienced other significant personal life events. Although they received informal support from colleagues, there was no formal offer of support. Conversely, P6 reported that a substantial amount of formal support was provided for the trainee.

I think the support systems are there if you go and ask for them. I think if I'd have rung up [a senior person] and said, 'can you help me?' I'd have got help, but [because of the impact of other life events at the time] I wasn't in a position to... actually go and actively seek help. (P6)

Both P6 and P10 were experienced consultants at the point that they felt they needed help and did not receive it. P10 asked, and some of their many connections were made in the process of trying to establish some support. In contrast, P6 was in a psychological position where they were unable to ask. The informal support they received was helpful, but, unlike the trainee, P6 did not have someone formally tasked with ensuring her wellbeing. The experiences of P6 and P10 indicate that more formal support is needed for medical educators, whatever the stage of their career.

7.3 CHAPTER SUMMARY

This chapter has identified the extent to which medical educators depend upon a wide variety of social support to perform their roles. Access to and utilisation of such resources represents the formation and mobilisation of SC, as defined by Lin (2001). SC not only assists with the day-to-day functioning of a medical educator, but also helps with an educator's development, both in terms of career trajectory and the acquisition of skills and knowledge to better perform their roles. Some forms of SC, such as delivery of education and organisational support, are universally required by educators. Other varieties of SC are only required in specific circumstances; for example, the flexibility in managing childcare described by P4 and P7. Not all the contacts within a network provide active support.

Medical educators maintain contact with individuals or groups who may be able to provide support in the future. At times, as was the case with P2, such actions can be extremely time consuming for the educator, without any guarantee of a return. Where support is lacking within the network, medical educators can actively seek to fill that gap. For example, P9 developed a chain of new network contacts to gain support with an educational intervention. P10 sought political support for their clinical educational roles, but unfortunately did not receive all the support they desired. However, even experienced medical educators cannot always identify or vocalise their needs. This is exemplified by the case of P6, who, retrospectively, did not feel they were psychologically able to ask for formal support when going through a difficult spell in their professional and personal life.

This chapter has therefore provided a detailed account of the SC required by medical educators. The following chapter explores the factors which facilitate and hinder medical educators in the formation and maintenance of relationships and the ensuing mobilisation of SC.

CHAPTER 8: RESULTS PART 3 - FACTORS AFFECTING THE FORMATION AND MOBILISATION OF SOCIAL CAPITAL

8.1 INTRODUCTION

Having considered the SC embedded within the non-EHU networks in the form of resources, this chapter examines the factors which influence the formation and mobilisation of SC within these networks. This inquiry is essential for two reasons. Firstly, such investigation will contextualise the impact of the MA, which will be explored in chapter 9. Secondly, once the impact of the MA is understood, an appreciation of factors which affect the formation and mobilisation of SC may help to inform future educational practice and policy. Template analysis (King and Brooks, 2017) was utilised to identify themes and subthemes of the factors which influenced the development and mobilisation of SC. As with the previous chapter, these themes and subthemes will be considered together with illustrative quotes from the participants.

8.2 THEMES

For the sake of brevity, the themes and subthemes of factors affecting formation and mobilisation of SC will be collectively referred to as influential factors. The influential factors identified in the present chapter are related to resources obtained from non-EHU contacts. Data pertaining to the EHU contacts are presented in chapter 9. In total, seven over-arching themes were established from the interview data: 'similarities and differences'; 'availability'; 'depth of relationship'; 'reciprocity'; 'structural position'; 'being recognised as an educator' and 'non-social resources'. The themes and subthemes are summarised in table 25 and will be sequentially defined as they are examined throughout the text.

Table 25: Influential factors

Theme	Sub-theme
Similarities and differences	Homophily
	Heterophily
Availability	Propinquity
	Opportunity
	Mode of contact
Depth of relationship	Multiplexity
	Knowing someone well
	Trust
	Reliability
Reciprocity	
Structural position	Hierarchy
	Bridge
	Role conflict
Being recognised as an educator	
Non-social resources	Medical educator development programmes
	Time
	Money

To facilitate further analysis, the influential factors presented in table 25 were cross tabulated against:

- 1) co-occurrence with other influential factors, and
- 2) resources embedded in the network (as presented in chapter 7)

Cross tabulation represents each occasion where influential factors and/or resources are co-coded within a section of interview transcript. For example, a segment of text may have been coded as: 'depth of relationship, multiplexity' (influential factor); 'reciprocity' (influential factor); and 'delivery of education' (embedded resource).

For simplicity, embedded resources were classified using over-arching rather than subthemes, with the exception of the 'organisational' over-arching theme. The 'organisational political' resource (as defined in section 7.2.2.1) was the only resource subtheme to be included in all of the participants' networks and was therefore considered to be sufficiently important to be analysed separately.

Cross tabulation as described above produced a large matrix of influential factors and embedded resources. The full matrix contains details of which participant(s) the codes were derived from and is presented in section 12.3. For ease of interpretation, the matrix was converted into a heatmap, a technique for visualising complex data whereby data values are represented with colours (Wilkinson and Friendly, 2009). For each heatmap, the key in figure 63 is applicable. Here, different colours represent the number of participants in whose interviews the factors and resources were co-coded.

Key	Number of participants
	12
	9 to 11
	6 to 8
	4 to 5
	2 to 3
	1
	No data
	Category overlap

Figure 63: heatmap key

To enable in-depth analysis, the full matrix was divided into the seven over-arching themes of influential factors to produce seven smaller heatmaps, which are presented and analysed in the separate sections below. The purpose of the heatmaps is to guide the reader in understanding the key areas for each influential factor. In each section of influential factor themes, quotes from participants will be utilised to provide illustrative examples of important points. It should be noted that in some of the quotes participants refer to 'the deanery'. In using this term, they are referring to HEE North.

8.2.1 SIMILARITIES AND DIFFERENCES

This theme relates to participants' comments about similarities and differences between ego and alter. The theme consists of two subthemes: 'homophily' and 'heterophily'.

			Influential factor		
			Similarities and differences		
			Homophily	Heterophily	
Influential factor	Similarities and differences	Homophily			
		Heterophily			
	Availability	Proximity			
		Opportunity			
		Mode of contact			
	Depth of relationship	Multiplexity			
		Knowing someone well			
		Trust			
		Reliability			
	Reciprocity				
	Structural position	Hierarchy			
		Bridge			
		Role conflict			
	Being recognised as an educator				
	Non-social resources	Money			
		Time			
		Medical educator development programmes			
	Resource	Organisational	Admin		
			IT		
Political					
Delivery of education					
Flexibility					
Career support					
Academia					
Collegiality					
Personal relationships					

Key	Number of participants
	12
	9 to 11
	6 to 8
	4 to 5
	2 to 3
	1
	No data
	Category overlap

Figure 64: similarities and differences heatmap

8.2.1.1 HOMOPHILY

The 'homophily' theme was developed from comments participants made in relation to the benefits of an alter being similar to them in some way. As demonstrated in figure 64, 'homophily' was linked with all resources, but was especially important for 'collegiality' and support with the 'delivery of education'.

Having similar ways of working could be helpful in the 'delivery of education'. P6 reported how a new work colleague was easier to work with than their predecessor, who worked very differently, describing their new colleague as:

much more singing from the same hymn sheet...[we] are working very well together. (P6)

P12 explained how the delivery of education was facilitated by similar attitudes between colleagues:

We all want the best for the students, which helps. (P12)

P5 elaborated on why they felt it was important to share similar standards with colleagues when it came to trainees' assessments:

Cos you know, if everyone in the room is saying you're being mean, you start going 'Am I being mean?' But you're on your own aren't you, saying, 'No, this is the standard'. (P5)

Consequently, having a comparable outlook on education not only aids co-working, but also helps medical educators to feel less isolated.

Possessing a shared educational knowledge base was also important. P10 explained how working with people who had an understanding of medical education facilitated the development of educational material.

They...actually...had some idea about teaching and learning. And therefore, you could actually have an explicit conversation, 'Shall we try this, shall we try that?'. (P10)

Therefore, connections which were homophilous in terms of knowledge enabled P10 to have informed educational discussions, which helped to develop new approaches to teaching.

Interestingly, throughout all of the interviews, gender was only once mentioned as being an issue. A female participant described how socialising outside work with an all-female group could enhance collegiality:

We also socially go out as a group of females. We know it's not politically correct, probably, but...we've got the XX group...It's good, because we go to work, we go out for dinner and we can grouch about things that are non-medical but are family related...This is gonna sound awful, but I don't think you can understand a working mother unless you're a working mother.

(Female participant)

It is noteworthy that gender is not the sole issue here, as it is specifically those women who are mothers whom the participant regards as being sympathetic.

Comparable job roles could also enhance collegiality. P7 explains their interaction with a colleague:

[They have] an equivalent role within [another specialty] so we can have a cross party whinge on there. (P7)

P7's comments suggest that some difficulties encountered by medical educators may be particular to their specific hierarchical position. Therefore, moral support may best be provided by someone who is able to understand the relevant issues.

Some of the participants explained how lack of similarity to their colleagues could present difficulties. As part of one of their Trust educational roles, P10 worked hard to involve non-medical clinicians in educational programmes. Although these colleagues worked on the same site as P10, they were managed within a different organisational division of the Trust. P10 explains the difficulties of trying to work between different political structures.

All our AHPs [Allied Health Professionals] actually were based in a different division and so I wasn't supposed to speak to them. But...they actually worked in teams in [my division]...and therefore they needed to be involved in educational programmes within the division. That wasn't the point [from the perspective of the divisional leads]. They were in a different division and we did silo working very well. And if you weren't in the right silo, you weren't in the right silo. So, it took me about 2 years to break that down...They shared an office about 100 yards from mine. But it was a gravitational well that you couldn't cross. (P10)

Belonging to a different clinical specialty to other medical educators could be unhelpful. P1 intermittently attended a CPD group for their medical education work. Here, P1 explains why they did not seek educational support from any members of the group:

No, no I don't, I've never, because most of them, they can range from GPs to anybody and I'm from [a hospital specialty], so I haven't really contacted anybody at all or felt the need to contact them. (P1)

P5 described how their perceived lack of credibility with another specialty made it difficult to do their job.

I used to [perform a senior Trust educational role], which I did for 18 months and then I resigned because it was too much...I felt like a lot of the problems were with [a different specialty] and they're not gonna listen to me. I just found I didn't really feel I had that credibility. (P5)

The lack of credibility felt by P5 may explain why P1 did not feel the need to contact people from the CPD group outside of the teaching sessions; P1 perhaps felt that these people had nothing to offer because of their difference in clinical background.

8.2.1.2 HETEROPHILY

The 'heterophily' theme relates to participants' descriptions of scenarios where it was beneficial for there to be a difference between ego and alter. Referring to figure 64, above, this theme occurred much less frequently than 'homophily'. Where present, it appeared particularly important for the 'delivery of education'.

In contrast to the above comments of P1 and P5 about the benefits of sharing a clinical background, P8 explained why they felt it was unhelpful to seek support with the 'delivery of education' from people who worked within the same specialty:

I think generally that people in the same specialty think the same way, cos of the way they've been brought up and often they would have been trained in the same deanery with the same portfolio. Because we're churning people out like in a chicken factory, everyone's coming out the same...I'm really not sure that's a good idea. (P8)

P8 went on to describe why they preferred to access support from people with a non-medical background:

I find sometimes that getting that perspective of people who aren't doctors and who aren't educators, is sometimes better than from the doctors, cos they'll often go to protocol stuff and formal stuff, rather than thinking about it outside the box. You think, 'Oh, I'd not thought about it like that', so 'You'd do that in Ford's factory, would you? Oh, OK, that's interesting, so why don't we think about that?' (P8)

Hence, P8 specifically targeted non-medics for support, echoing the approach utilised by P7 in the delivery of a national teaching programme (see section 7.2.1.2). P12 also found it advantageous to work with people from different backgrounds:

I think having that mix [of people with different skills] and being able to bounce ideas between people is how you get the best outcomes. (P12)

P5 described how the balance of different clinical skills amongst their educational colleagues was beneficial in delivering education:

We've all come at it from different backgrounds...so I suppose we're all coming at it with a slightly different perspective, which I think is important... So, you need that, you need [to cover all the clinical areas]. (P5)

In addition to variation in professional background, different personality characteristics could be helpful. P2 explains the benefit of different ways of thinking when delivering education:

P2A5 is the other consultant. We think really differently, so it's really helpful sometimes. She'll see an aspect of things that I don't see at all. She's much more structured than I am. (P2)

P3 explained how a team who provided organisational political and admin support were able to work well together with their personality differences:

I think...we cover them all, we've all done our Myers Briggs. [P3A9's] very report orientated, needs to see it on paper,...whereas P3A8, [is] definitely a blue sky thinker. [P3A6] you'll never get [them] to write anything down at all, absolute nightmare, but is doing it as well, then you've got [P3A1], who's boxy, so that's [useful] with regards to the upcoming [inspection] visit. (P3)

That P3 is aware of the outcomes of formal personality testing (Myer's Briggs) performed on their work colleagues suggests that this is a topic which has been openly discussed. Hence, there is some overt awareness within the workplace of the role of heterogeneity within teams.

8.2.2 AVAILABILITY

The 'availability' theme relates to comments participants made about the ease and means of access to the resources in their network. There are three subthemes: 'propinquity', 'mode of contact' and 'opportunity'.

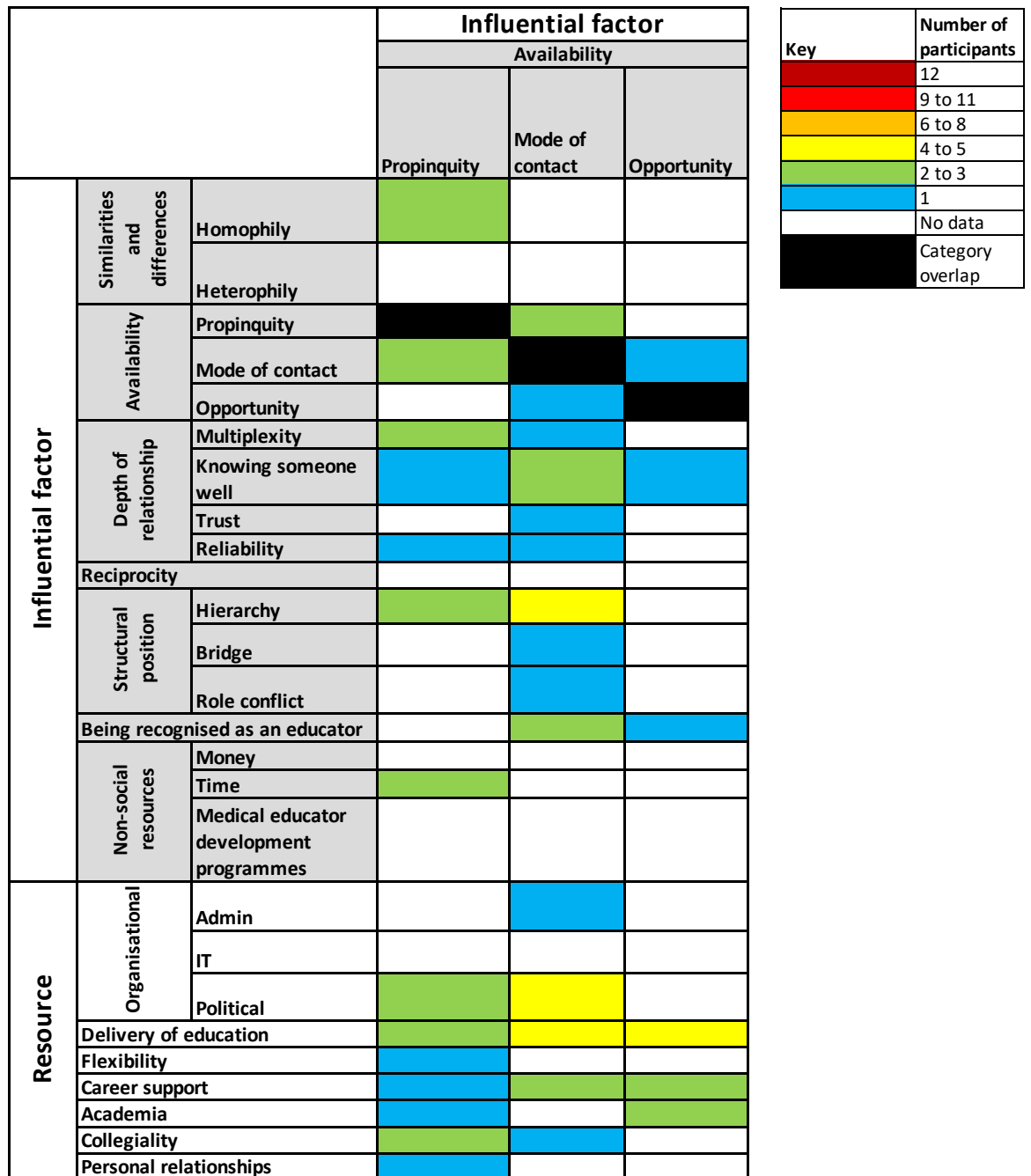


Figure 65: availability heatmap

8.2.2.1 PROPINQUITY

The 'propinquity' subtheme was derived from participants' accounts of the relevance of physical proximity to the people in their support networks. Figure 65 illustrates how propinquity was linked with homophilous relationships and all over-arching resource themes.

Physical proximity to an alter could facilitate collegial relations, as illustrated by P7's quote:

I probably whinge to [them] quite a lot on this sort of stuff [educational role], but that's as much because [they] sit...next to me. (P7)

Whilst P7's collegial interaction was facilitated by their office layout, P4 deliberately sought out proximity to colleagues. P4 described how their clinical post was geographically isolated, which left them feeling lonely:

Sometimes I'll do [educational work] from [P4A3's] clinic base just to connect with a colleague from time to time. Because I don't really get many connections with my colleagues because I work in the sticks. (P4)

Physical separation could also be important in managing social interactions. To minimise clinical interruptions to educational work, P8 arranged to undertake their educational role on a different site from their clinical work.

But how I've worked it in my job plan is, I'm not physically there as much. I am not in the building. (P8)

As this arrangement was in P8's job plan, it could only have been achieved via the mobilisation of organisational political capital from an alter in an appropriate hierarchical position, for example Clinical Director. Hence, in this instance, the social resource

facilitated the non-social resource of time, a concept which is discussed further in section 8.2.7.2.

8.2.2.2 MODE OF CONTACT

The 'mode of contact' subtheme relates to participants' descriptions of the means by which ego and alter contact one another; for example, face-to-face meetings or email. Referring to figure 65, 'mode of contact' was particularly important for 'organisational political' and "delivery of education' resources. It was also linked with 'knowing someone well' which is further discussed in section 8.2.3.2.

Preferred communication method varied according to what the participant wished to discuss with the alter. Some participants preferred face-to-face contact for difficult discussions. P11's quote neatly summarises how other participants viewed the pros and cons of emails and face-to-face communication:

Those deanery away days, especially the overnight one, it is an opportunity to just run stuff past people...It's the face-to-face contact. It's the social aspect. And I suppose it almost feels like it's a bit of a safer space. You know on email, it feels a bit formal...I like emails in some ways. Cos you know it's really good if you're making a plan, you can make a list out and everybody's got the plan. But if I'm trying to get a bit of a sense check about what I'm doing, I don't think email always gives it to me. I think [face-to-face contact is] a chance to feedback to each other, watch the body language a bit. It's the personal touch. It's a lot better talking to people face-to-face than on email. (P11)

Hence, email could be helpful for situations where a clear record of communication is required, for example when mobilising an organisational political resource. Conversely, where there was uncertainty, face-to-face may be preferable. The latter was facilitated by

situations which enabled physical proximity; the encounters in the above example were not formal one-to-one meetings, but P11 was able to take advantage of physically meeting up with an alter in another context.

However, not all participants felt face-to-face contact was essential:

So much business is done by email, I don't know to what extent having physically met someone does make that difference. I think it would be a lot easier if it was all on one site, just because you've got one set of people that you're dealing with...I think there's a lot of left hand not knowing what right hand is doing, to be quite honest. (P7)

Here, P7 referred to the difficulties of working in a Trust with multiple geographical sites. Negotiating different political structures and multiple individuals was P7's main concern, as opposed to lack of physical proximity and face-to-face connection

Whilst the advantage of electronic discussions lay in the presence of a paper trail, such a record could also be a disadvantage. P10 described the issues that arose from an online educational discussion group.

One of the goals was to provide an online support and discussion system and after about 18 months, when there was quite a lot of clinical discussion... the main worry was some of it wasn't anonymised enough. (P10)

Although such dialogue may pass unnoticed at a face-to-face training day, an online group can lay discussions open to all members. Unfortunately, due to the difficulties in re-directing online discourse to be more appropriate, the network was discontinued. Consequently, the inappropriate behaviour of some people meant that no-one could benefit from this particular mode of communication, something which would be highly unlikely to happen with a face-to-face training programme.

P8 was the only participant to include Twitter in their support network. They observed that Twitter enabled smaller Trusts to recruit trainees:

When you're [in a small town]...you do feel a bit isolated. And it's our way, the doors are open. This is what we do, this is what we can do. The trainees look at that and think 'Oh, they're not bad up there...actually they do loads of stuff. (P8)

Twitter was also useful for making introductions to people P8 may otherwise not have connected with:

So, when I was at the College awards, the guy who's won it came straight over and said 'Hi, [I] saw you on Twitter, great stuff you're doing...'. You've instantly a barrier that's been broken down cos you've seen these people on social media...You'd never approach each other really, but the barriers are broken down. And you feel like you can go and chat to them. (P8)

Furthermore, Twitter could help an educator to learn:

You're learning and sharing from other people as well...[Y]ou're making quicker links, you're getting ideas from elsewhere. (P8)

However, social media was not without its drawbacks. P9 explained why they had withdrawn from social media:

I think I've become far more worried about social media after [a high-profile medical case in the media]. Some of my colleagues were sent death threats. They weren't related to the case at all, but they were sent death threats... My social imprint...worries me a bit and I know some of my colleagues have come off of things like Facebook cos they just get continuous requests by patients...I mean anyone can follow you. So, I just tend not to Tweet anymore. I did for a

while, cos a lot of people feel that you should improve your social profile certainly in lots of areas, but I worry now, cos it's not just my social profile in an educational sense, where you probably aren't gonna get yourself in trouble. (P9)

Here, P9 highlights the potential clash of personal and professional worlds presented by social media. They acknowledged that they were potentially at a disadvantage for not using social media, but, on balance, they did not feel the risks were worth the benefits.

8.2.2.3 OPPORTUNITY

The 'opportunity' subtheme was developed from comments participants made in relation to an unplanned situation that facilitated either making a new contact or the mobilisation of a resource. This theme was particularly important for support with the 'delivery of education', 'career support' and 'academia support'.

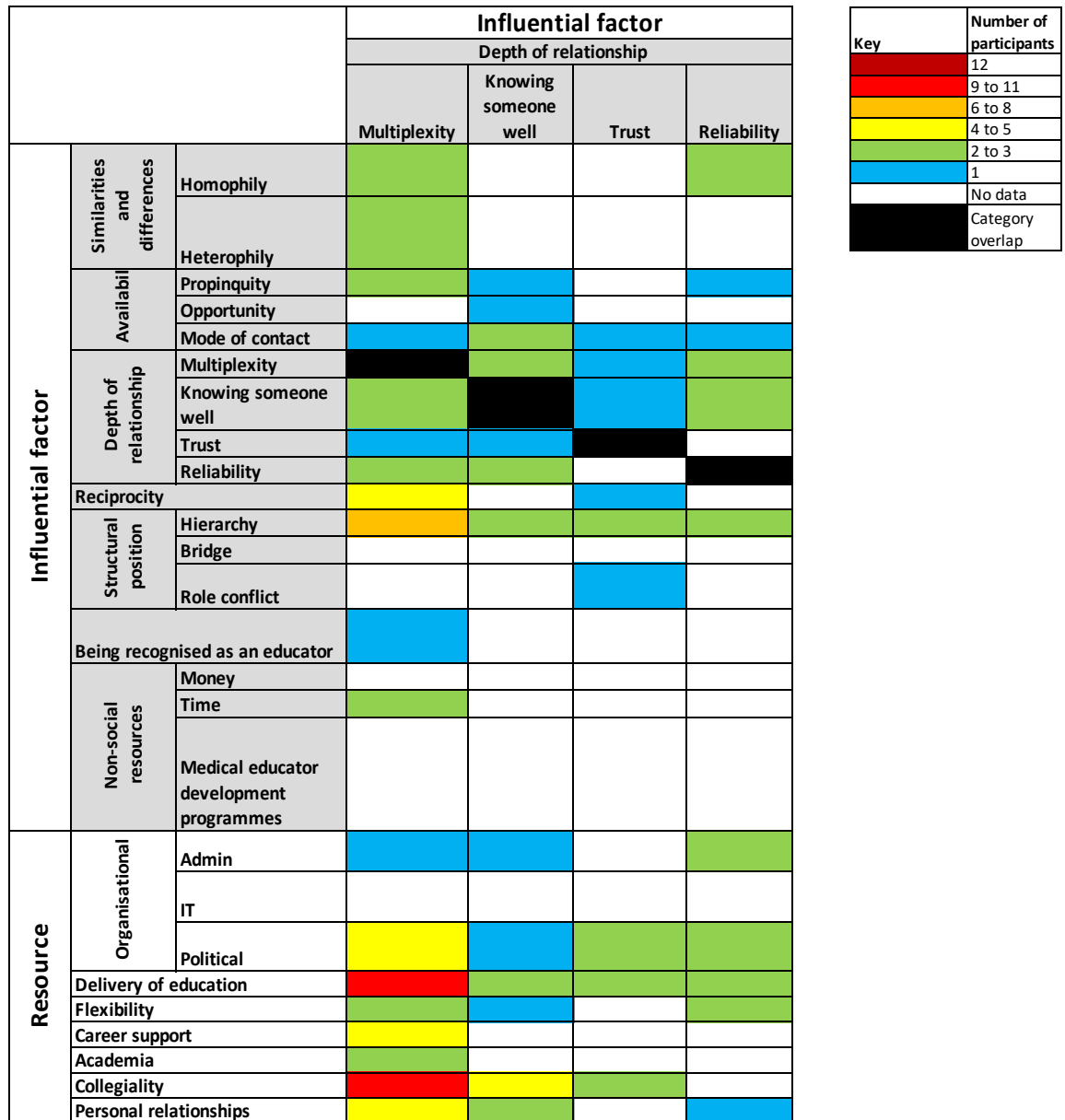
Whilst P11's networking at away days was planned (section 8.2.2.2), unexpected opportunities could also arise. P3 described how they made a new contact when presenting at a recent conference:

[A] trainee who was in the audience came up afterwards and said 'that's really interesting, I'm doing this [work on a related topic]...could I you drop you an email? So, you network like that. (P3)

P3's quote provides a typical example of the unexpected opportunities that can arise which facilitate new connections or the mobilisation of resources. As evidenced by P8's above account of meeting a new contact at an awards ceremony (section 8.2.2.2), such opportunities may be more likely if an educator has built up a social media profile.

8.2.3 DEPTH OF RELATIONSHIP

The ‘depth of relationship’ over-arching theme relates to participants’ comments in relation to some aspect of the quality of the relationship with an alter. This theme is divided into four subthemes: ‘multiplexity’; ‘knowing someone well’; ‘trust’ and ‘reliability’.



Key	Number of participants
12	12
9 to 11	9 to 11
6 to 8	6 to 8
4 to 5	4 to 5
2 to 3	2 to 3
1	1
No data	No data
Category overlap	Category overlap

Figure 66: depth of relationship heatmap

8.2.3.1 MULTIPLEXITY

'Multiplexity' is a situation whereby a participant described a single alter as supplying resources from more than one of the over-arching themes of mobilised SC. Consequently, this category does not include potential capital. Of all the influential factors discussed in this chapter, 'multiplexity' was the only factor which was known for each alter in all networks. Hence, for context, table 26 presents the proportions of 'multiplex' ties to all non-EHU alters, ranked from lowest to highest proportion of 'multiplexity', along with non-EHU network degree. Notably, the proportion of ties which were 'multiplex' varies substantially between networks, from 0.167 of non-EHU ties in P12's network to 0.600 of P8's non-EHU network.

Table 26: Multiplexity in non-EHU ties and network degree

	Proportion of non EHU ties multiplex	Number of non EHU ties
P12	0.167	6
P5	0.182	22
P1	0.200	5
P6	0.200	10
P2	0.238	21
P10	0.256	43
P3	0.314	35
P7	0.452	31
P9	0.459	37
P11	0.500	20
P4	0.571	14
P8	0.600	25
Mean	0.322	22.417
Median	0.285	21.500
Range	0.167 - 0.600	5 - 43

It is notable that the networks with the smallest number of ties (P12 and P1) have amongst the lowest proportions of 'multiplex' non-EHU ties. This is perhaps counterintuitive, as it may be expected that those with a smaller network would compensate for this by drawing more resources from each tie. Whilst the heatmap in figure 66, above, demonstrates the

presence of 'multiplexity' in ties supplying resources in all the over-arching resource themes, 'collegiality' and 'delivery of education' were the two embedded resources most commonly co-coded in ties with non-EHU networks. It is therefore of importance that neither P1 nor P12 reported any non-EHU ties supplying 'collegiality'. Hence, it would appear that P1 and P12's support requirements may have been quite similar to one another, yet different to the rest of the study sample, an issue which will be returned to in the chapter 10 ('Discussion').

P10 described how 'collegiality' was important for the 'delivery of education'. Indeed, the latter resource could not be mobilised until the former resource had developed:

For the first year, that [role] was about team building, cos mainly... that team had...really not worked together at all. It had been a very dysfunctional, broken up team. So, the first thing was team building. (P10)

Likewise, P5 tried to foster 'collegiality' in relationships with co-educators:

When I see [them], we'll have a general chat, you know, 'How are you?'...It's just nice having decent working relationships with people, isn't it, rather than it all being a bit cold and what have you? (P5)

P5 and P10's comments illustrate that 'collegiality' is not just a resource that materialises, but it is something which medical educators work hard to cultivate in order to improve their working lives and undertake educational work.

8.2.3.2 KNOWING SOMEONE WELL

This subtheme was derived from participants' descriptions of a familiarity between themselves and an alter. This familiarity may have arisen from either a long-standing or a particularly close relationship. Perhaps unsurprisingly, this subtheme was linked with 'personal support', 'collegiality', 'mode of contact' and 'multiplexity'.

P11 described the importance of close friends and colleagues knowing them well:

Cos...what they all do, is they all know me well and they all kind of know the things that push my buttons. So, they know when to challenge but also when to support. (P11)

P5 explained how it was helpful having a long-standing relationship with an educational colleague:

I've known [them] since medical school...It's just you're very familiar. It's just nice, cuts all the crap out doesn't it?...[Y]ou're just straight in there. (P5)

P11's and P5's above comments should be viewed in conjunction with P5's and P10's reports (section 8.2.2.2) that work is required to develop collegial relationships. The quotes from P11 and P5 suggest that pre-existing or long-standing relationships do not require the same amount of input. Consequently, it may be easier for medical educators to mobilise SC from such relationships.

However, a pre-existing relationship did not always influence a medical educator's decision on whom to contact for support:

It depends on what the issue is, not whether I know them or not. If the issue should be dealt with by the CD [Clinical Director], I'd contact the CD whether I know them or not. Cos I think I think you have to give the person whose responsibility it is the chance to sort it out before you go above them. (P7)

Therefore, the role or position a person occupies within a hierarchy can be more important than the actual person themselves. The influence of hierarchy is discussed further in section 8.2.5.1.

8.2.3.3 RELIABILITY

This subtheme relates to comments made by participants about the reliability of an alter.

Participants valued being able to rely on certain people to support them, particularly with 'organisational admin' and 'political support', 'delivery of education' and 'flexibility'. P2 described why they appreciated the support of the admin liaison for medical students attending their clinics:

You know who's coming, what's expected of them, what days they need to be at university. If there's a problem somebody will deal with it. (P2)

P4 valued the dependability with which a colleague would provide clinical cover for them to attend medical education meetings:

[They're] really flexible so if I've ever emailed and said can I work a Tuesday instead of a Friday this week for [the medical school, they] just say...yes, I've never had a no. (P4)

P5 highlighted how they became exasperated by colleagues not being reliable in their responses to emails concerning the organisation of a teaching programme:

And people faff about with dates and say, 'I may be able to' and I'm like, 'I'm not interested in may be able to, I want a date and I want a subject and I'm not messing about.' That can be a little frustrating. You can't maybe about 70 people, pulling them out of work. So, I sometimes get a little bit frustrated with them not realising that. (P5)

P5's comments illustrate the importance of 'homophily' in such interactions. If P5's alters shared P5's prioritisation of the teaching programme, they may have been more reliable in their provision of the delivery of education resource.

8.2.3.4 TRUST

This subtheme is derived from comments participants made in relation to trust in the relationship between themselves and an alter. Linked resources included 'collegiality', 'delivery of education' and 'organisational political support', the relationship between the latter and 'trust' being discussed in section 8.2.5.3.

Compared with 'reliability', 'trust' requires a more in-depth relationship. Trust involves more than just replying to an email in a timely fashion. P8 explained their understanding of 'trust' and why it was important in working relationships:

I like to connect with people that I know and I trust and...you can say, 'How do you define trust?' Trust embodies a lot of values for me, so you respect them, you know,...they're gonna be compassionate towards you...For me, I've got to trust someone. (P8)

P8 viewed the 'mode of contact' as being important in developing trust:

I think it's time and face-to-face and seeing what people do and how they interact and how they interact with other people as well. (P8)

P6 explained how 'trust' facilitated a collegial relationship with a fellow educator, who was also a clinical colleague:

[They're] a good colleague. I trust [them]. I've told [them] things that I don't want to go any further and I know they won't go any further. (P6)

The comments from P6 and P8 demonstrate that 'trust' is based on a personal connection with an alter, something which would be difficult to achieve with a remote relationship. Indeed, P8's comments link in with P11's earlier description of the benefits of face-to-face communication (section 8.2.2.2), with both participants noting the importance of being able to observe first-hand the behaviour of another.

8.2.4 RECIPROCITY

The 'reciprocity' theme was developed from participants' comments relating to situations whereby two people or groups of people helped one another.

			Influential factor	
			Reciprocity	
Influential factor	Similarities and differences	Homophily		
		Heterophily		
	Availability	Proximity		
		Opportunity		
		Mode of contact		
	Depth of relationship	Multiplexity		
		Knowing someone well		
		Trust		
		Reliability		
	Reciprocity			
	Structural position	Hierarchy		
		Bridge		
		Role conflict		
	Being recognised as an educator			
	Non-social resources	Money		
		Time		
		Medical educator development programmes		
Resource	Organisational	Admin		
		IT		
		Political		
	Delivery of education			
	Flexibility			
	Career support			
	Academia			
	Collegiality			
	Personal relationships			

Key	Number of participants
	12
	9 to 11
	6 to 8
	4 to 5
	2 to 3
	1
	No data
	Category overlap

Figure 67: Reciprocity heatmap

Participants described 'reciprocity' existing between individuals and within groups. Referring to figure 67, key resources associated with 'reciprocity' were 'delivery of education', 'flexibility' and 'collegiality', with 'multiplexity' being a feature of reciprocal relationships for 5 participants.

P11 described a tacit reciprocal situation of accessing clinical cover to attend educational meetings. They explained the arrangement they had with their line manager:

Some of the sessions I do pay back and it's kind of on an understanding that...when I'm really busy in May, they'll cover. Whereas come June/July they know I'm around and I'll do whatever they want me to do. (P11)

P6 explained how they and another colleague provided one another with moral support:

If I have a problem, if I'm upset about something, [they're] a good support and I think probably I am the other way. (P6)

Both of the above examples are of a 'like-for-like' reciprocal arrangement. However, P10 utilised a different approach to obtain organisational political support from people senior in the hierarchy of the Trust:

You don't get anything with senior management unless you've got some mutual... 'I can help you with this, if you'll help me with that'. And it's not difficult to find things with which you can help senior management. It's just making sure that you don't end up solving all their problems while they do nothing for you. (P10)

Hence, P10's comments demonstrate that the reciprocity principle can be used as a form of leverage for mobilising SC. Unlike P11 and P6, P10's arrangement is not a like for like exchange. P10's comments demonstrate that they are performing a calculation of the value

of the support from management and what resource they feel would be appropriate in return; potentially a form of SC exchange rate.

The comments so far are all consistent with medical educators being conscious of a form of social debt. P1 explained how they considered their involvement in medical education as paying back a debt which they feel they accrued many years ago:

I just feel like I have to because the people who were teaching me, they gave up their time just to be with me and they helped me with exams, all that kind of stuff. They gave up their time. So, I feel like I have to do the same. (P1)

Hence, the social obligation to reciprocate can persist until it is perceived that the debt has been paid. Additionally, that debt was not repaid to the original resource giver, but to the wider group. For P1, repayment had to be in a similar format to the resource that was received. However, this is not always possible. P10's comments show that sometimes a different resource is required, particularly where there is an imbalance in terms of hierarchical position, a factor which is discussed in the following section.

8.2.5 STRUCTURAL POSITION

The 'structural position' theme was derived from comments participants made concerning the position of ego and/or alter within the network structure. It is composed of three subthemes: 'hierarchy'; 'bridge' and 'role conflict'.

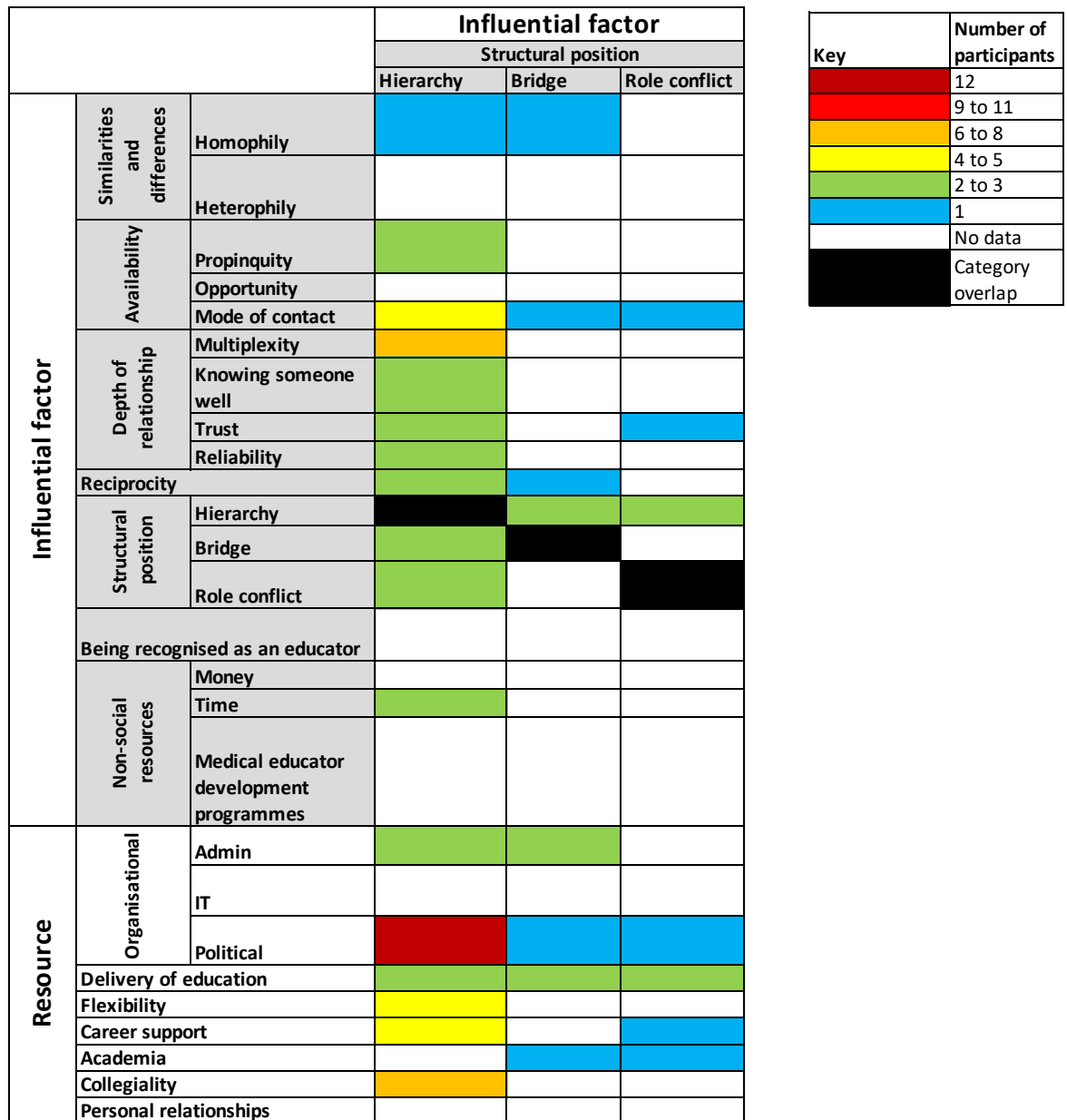


Figure 68: structural position heatmap

8.2.5.1 HIERARCHY

This subtheme relates to participants' discussions of a hierarchical relationship between alter and ego, or ego's position within a hierarchy. Referring to the heatmap in figure 68, 'hierarchy' is co-coded with 'organisational political' at least once in every participant's interview. However, within the interviews, these two subthemes are not always co-coded, hence, it is evident that they are separate categories. However, a difference in hierarchical position between alter and ego is frequently required for the mobilisation of the 'organisational political' resource.

P7 explained how they used their position in the educational hierarchy to support a trainee who was having issues obtaining annual leave:

I can go [to human resources] and say 'Right, is this true?' And it's amazing when somebody more senior comes and says, 'Is this actually true?' that somehow a way was found to do it. (P7)

In this situation, P7 had merely repeated what they had been told by the trainee. Yet, because they were senior in the hierarchy, they were listened to and the trainee obtained their leave. It is important to note that P7 was the resource-giver in this example, but their statement demonstrates the role of hierarchy in achieving desired ends.

P3 described a difficult situation in their educational role where they were having to deal with an external body. The Trust management backed up P3's stance:

[T]hey were like, right, send an email, copy us all in. (P3)

Here, the simple act of copying an email to senior managers helped resolve P3's issues. As with the example given by P7, this provision of 'organisational political support' was made effective by the hierarchical position of the managers, of whom no action was required.

Medical educators were very aware of their hierarchical position. P2 held senior clinical and educational positions in their place of work. They explained their relationship with a colleague:

I'd regard [them] as my second in command, both clinically and educationally. (P2)

Whilst P2 had been in senior clinical and educational roles for some time, P3 was in the early stages of their career. They explained how their Trust educational role had enabled them to form relationships with the Trust hierarchy:

[T]his role has got me more strategically in the Trust - Divisional Director, Medical Director stuff. (P3)

P3 went on to explain how there was an expectation from some individuals that one should not progress up the hierarchy too quickly. They described how they were informally offered jobs at large teaching hospitals:

[B]ut I very much didn't want to because I knew, with the hierarchy and stuff, I wouldn't get the opportunities [in education]. Cos you look around, you know and [people in senior posts], they're all in their 50s and they've got there through an order. (P3)

P3 evidenced this statement by describing an interaction at a conference they had attended early in their career as a medical educator, when they were already appointed to a senior educational position.

[T]he guy from a [big teaching hospital] was sat there saying, 'Well nobody should even be [in a senior educational role] until they've been a consultant for 5 years,' and looked at me. And that's the attitude isn't it? So, had I been in said big hospital, there's no way I would have had the opportunities I've had [in my current position].

Elsewhere in their interview, P3 described the immense support they were given from senior Trust managers in applying for their Trust medical educational roles. However, it was P3's belief that had they gone elsewhere to work, such support may not have been present and their career would not have progressed as rapidly. P10 described how, when they were a trainee, their seniors recommended them for educational work:

It was 'Oh, just get [P10] to do this.'...It was people who were a little bit ahead in the programme, people who were relatively newly into consultant jobs that you still knew a bit. (P10)

Having close relationships with people in senior hierarchical positions could also present medical educators with some difficulties. P4 explained how their relationship with a colleague changed when the colleague became Associate Medical Director (AMD).

[W]hen [they] became AMD [they were] distanced from the rest of us in many ways and we only communicated...about work really. And now [they're] not AMD things are feeling a bit easier, even though [they were] always a good one. You can say what you want and don't feel you have to put any pretence. (P4)

Therefore, whilst a senior hierarchical position could facilitate the supply of 'organisational political support', this may be at the expense of 'collegiality'.

8.2.5.2 BRIDGE

'Bridge' as a subtheme refers to participants' descriptions of themselves or an alter acting as a connection between two otherwise unconnected individuals or groups. Associated resources included 'organisational admin' and 'delivery of education'.

Administrative colleagues were a useful liaison between ego and other educational colleagues or learners:

If you want to pass something to the medical students, then you would go through [the admin support] because [they're] the one who knows where [the students] are. (P1)

Medical staffing are really handy as well. And I guess they'll be your link between [different people in the Trust]. (P8)

Hence, the non-clinical contacts of P1 and P8 were able to save the educators time and effort, enabling them to focus on their educational work.

In their lead role in a national organisation, P7 was asked to deliver a teaching programme in order to form a link with another group:

[They] wanted to re-establish that link... [so they asked] whether me as president, not me as [me] would be happy to run the [educational] module. (P7)

Therefore, P7's ability to function as a 'bridge' was purely associated with their hierarchical position. It was not P7's teaching skills, but their official role which was important in forming new links.

P3 valued an alter's ability to function as a 'bridge', enabling P3 to access support with the delivery of education:

P3A6 is a star, if you go wandering around with [them, they know] everybody. Nursing background, [they] do...bank nursing shift at weekends [in different departments]. [P3A6] knows everyone and...if you need to get in somewhere, [P3A6] can get you in. (P3)

It is notable that P3 was using their alter as a 'bridge' simply in order to perform their educational role and not in an attempt to gain an advantage over others. Indeed, none of the participants mentioned that they had personally acted as a 'bridge' in a way that meant they were utilising any potential bargaining power associated with this structural position, a point which will be returned to in chapter 10 ('Discussion').

8.2.5.3 ROLE CONFLICT

This subtheme was developed from participants' descriptions of situations whereby they were placed in a position of conflict or difficulty because of a clash between work-related or personal roles. 'Role conflict' was linked with 'hierarchy', 'delivery of education' and 'organisational political support'.

P7 described a conflict in roles when they continued to be a mentor to someone who was their Clinical Director:

[it] is quite bizarre, cos although [they're] junior to me in age and experience, [they were] actually my CD for a bit. So that was quite interesting. (P7)

Here, the clashing of roles – P7 being simultaneously mentor and subordinate – occurred because of the relative hierarchical positions of P7 and the alter. P7 regarded themselves as senior in terms of age and experience, something which the alter clearly acknowledged in having P7 as their mentor. Yet the alter was the line manager for P7. Whilst P7 did not report any difficulties arising from this clash of positions, P10 had a very different experience. They had been increasingly unhappy in their clinical role and explained how this permeated through to their educational work:

It was just the awfulness of trying to do the [clinical work] with no support, trying to do the work with [clinical department] with no support, just gradually losing respect for quite a lot of people...So, this person, because of what they'd done to me over other things, I began to think, 'I don't trust you

for anything, really'. And that made it more difficult to do my education role.

(P10)

This quote serves to highlight the importance of 'trust' in work relationships. P10's experience serves as a reminder that the roles of medical educators and their colleagues do not occur in isolation; each have numerous responsibilities and it is not always possible to disentangle them.

P11 also experienced a conflict in roles, occupying a senior position in HEE North, whilst simultaneously working as an Educational Supervisor in their Trust. P11 described how, with the support of a colleague, they tried to minimise conflict between those roles:

[The College Tutor is] very careful about who [they give] me as a trainee, because of the line management problems. [They're] always careful to give me somebody that might not be escalated to me [in my HEE North role] if I can avoid it. Cos of my conflict of interest... It's really hard not to undermine your CT when you've got a lead role. So, I try and keep in the back as much as I can. (P11)

Again, the conflict is secondary to a relative difference in hierarchical position. P11 had one educational role in which they were senior to their CT and another in which they were junior. If P11 were to have a trainee with difficulties which required escalation to HEE North level, P11's position within HEE North would place them in conflict with their ES role and may also create difficulties with the CT. P11's awareness of this has led to them dealing with the issue in an up-front manner, which appears to have been successful.

8.2.6 BEING RECOGNISED AS AN EDUCATOR

The 'being recognised as an educator' theme pertains to comments made by participants in relation to others recognising them as a medical educator. Such statements are part of a wider picture of developing an identity as a medical educator. This theme is built upon in chapter 9, in relation to the MA.

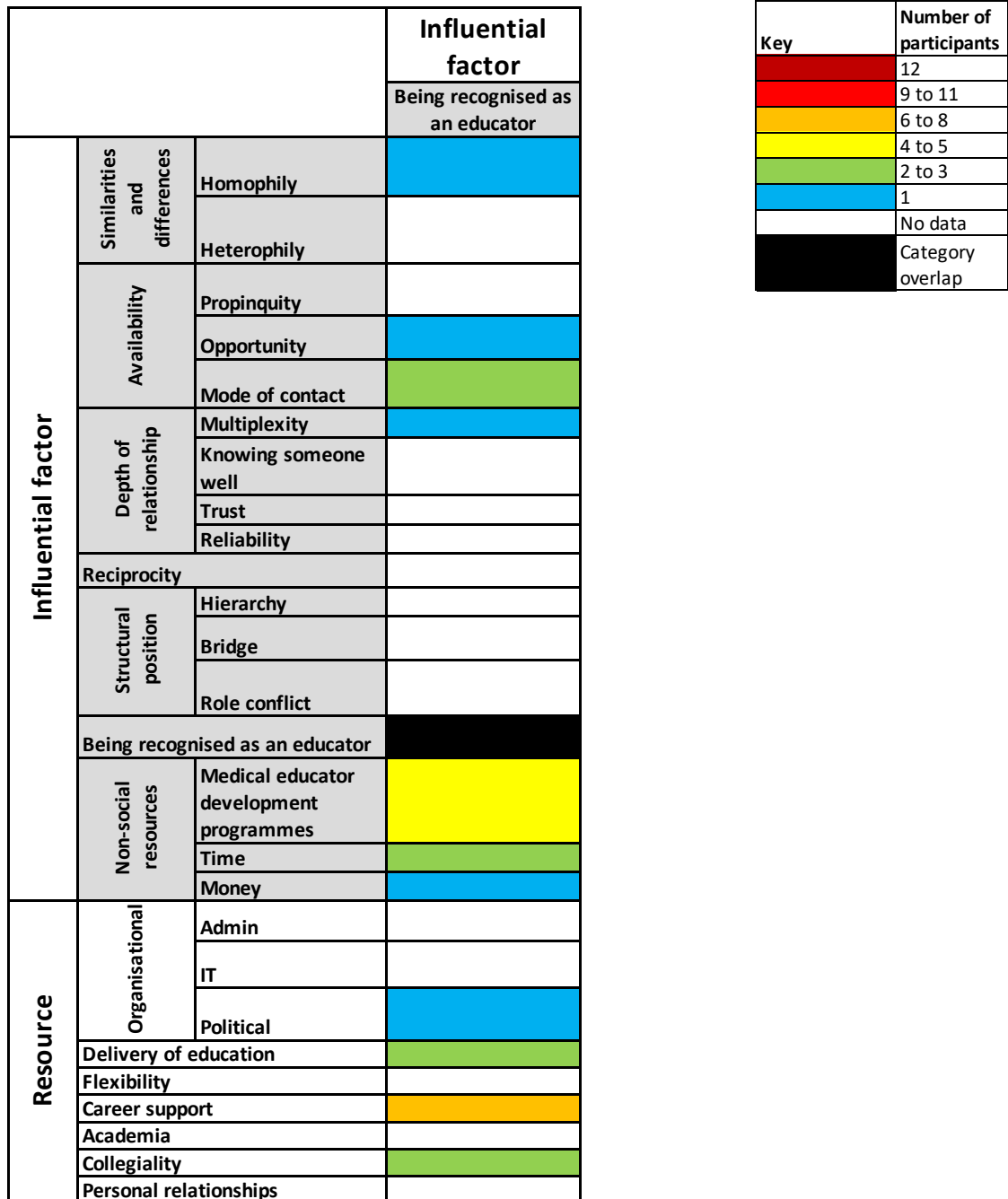


Figure 69: being recognised as an educator heatmap

As is evident from the heatmap in figure 69, many of the comments relating to this theme were made in relation to medical education development programmes, hence will be discussed in the next section on page 38. A further feature of figure 69 indicates a link between 'being recognised as an educator' and 'career support'.

An individual can become recognised as an educator by undertaking educational work. P10 stated that they first became involved in the delivery of teaching as an undergraduate when they undertook an intercalated BSc. Their educational work progressed from there:

[I taught] people...when I was a trainee, so...medical students and more junior trainees. And then I got asked again. It was just somebody who I knew who was looking for somebody to teach and I got asked would I do some teaching for another university...so that was when I was known by them. And, would I teach for the registrar programme?...And so, you just gradually, you get asked. (P10)

Hence, there is a circularity to P10's experience. To become known as an educator and obtain educational work, P10 first had to work as an educator. For P10, the first major step onto this pathway was their formal teaching role in their intercalated BSc.

P9 became identified as an educator after they emulated a senior colleague who was heavily involved in medical education:

So, I'm kind of following in [their] footsteps in a way that my dept also see me as [their] successor. So, in everyone's eyes, they turn to me and go, 'That's your thing, that's your bag, that's what you do, that's your strength'. (P9)

Therefore, by behaving like other medical educators, one can be perceived as the same. For P9, this led to colleagues passing on educational work.

Whilst P9 and P10's above comments describe informal recognition, formal recognition beyond a formal job title can also be received:

One of my trainees recently nominated me for something none of us knew existed, which was the [local] deanery trainers award. So, I got a certificate and I didn't even know that [it existed]. (P9)

Whilst P9's nomination did not necessarily lead to widespread recognition, P8 Tweeted about their teaching award, which led to rather more extensive acknowledgement:

I was shortlisted for a national award recently. I won a regional award for trainer of the year and you get a lot of thanks and congratulations, so actually, it's a bit of an ego boost...I'll be honest,...I'd won this award...get loads of people congratulating you, following you and it's just nice. (P8)

'Mode of contact' can therefore play a key role in recognition. Whilst for P10 and P9, their recognition mainly developed via teaching alongside others, P8 was able to obtain more general and rapid recognition via the use of social media.

8.2.7 NON-SOCIAL RESOURCES

Analysis of the interview data produced three 'non-social resources' which were important to the medical educators: 'medical educator development programmes'; 'time' and 'money'.

			Influential factor		
			Non-social resources		
			Medical educator development programmes	Time	Money
Influential factor	Similarities and differences	Homophily		1	
		Heterophily			
	Availability	Propinquity		2 to 3	
		Opportunity			
		Mode of contact			
	Depth of relationship	Multiplexity		2 to 3	
		Knowing someone well			
		Trust			
		Reliability			
	Reciprocity			1	
	Structural position	Hierarchy		2 to 3	
		Bridge			
		Role conflict			
	Being recognised as an educator		4 to 5	2 to 3	1
	Non-social resources	Medical educator development programmes	Category overlap	1	
		Time	1	Category overlap	1
Money			1	Category overlap	
Resource	Organisational	Admin			
		IT			
		Political		2 to 3	1
	Delivery of education			1	2 to 3
	Flexibility			2 to 3	1
	Career support		2 to 3	2 to 3	1
	Academia			1	
	Collegiality			1	
	Personal relationships				

Key	Number of participants
Red	12
Red	9 to 11
Yellow	6 to 8
Yellow	4 to 5
Green	2 to 3
Blue	1
White	No data
Black	Category overlap

Figure 70: Non-social resources heatmap

8.2.7.1 MEDICAL EDUCATOR DEVELOPMENT PROGRAMMES

As described in chapter 6, P3 and P8 both undertook a Medical Education Fellowship (MEF) programme during the latter stages of their postgraduate training. P9 took a year out from their training rotation to work as a Clinical Teaching Fellow. As a new consultant, P4 undertook a 2-year post to develop leaders in medical education. These experiences of P3, P4, P8 and P9 are collectively referred to as 'Medical educator development programmes'. Figure 70 illustrates how these programmes were linked with recognition as an educator and career support.

P8 and P9 describe how their educational fellowships opened doors to other educational roles:

I think that the thing that led to most other things in terms of the domino effect was the medical education fellowship, cos that...opened the door for the [national course] and, with pot luck, that turned into the regional course, which gave me a tonne of experience, which probably opened up the doors to the [senior educational Trust] job. (P8)

I think [the fellowship] gave me a lot of value to people. And it was interesting, cos [consultants] I was friendly with at the time...then earmarked me for different projects. And in fact, at that time, I came out of that and there was a job written for me based on me doing UG education. (P9)

P4 described how their programme helped them to assimilate into the world of medical education:

I'd worked in [the medical school] for a number of years... I was part of their culture already...I guess I was one of the staff. And so that gave me a big footing into getting the roles I've got now. (P4)

Hence, P4, P8 and P9 describe how their educational development roles were about more than just gaining experience. These roles were instrumental in providing access to new contacts and educational roles, with a gradual progression to more senior roles for P3, P4 and P8. The comments from P4, P8 and P9 demonstrate that these development roles were about more than experience, they were integral to changing how those undertaking the fellowships were perceived by others.

8.2.7.2 TIME

This subtheme is developed from comments participants made in relation to time and their medical educator roles. Referring to figure 70, 'time' was linked with a broad spread of resources and, interestingly, 'being recognised as an educator'.

For P3, the MEF programme provided time. This programme afforded a reason for P3 to go to educational meetings which they otherwise may not have been able to attend due to clinical commitments.

What it did was it gave me the recognition that... [I had to go to meetings or teaching]...it just gave me more power to do that sort of stuff. (P3)

P10 also stressed the importance of having an educational role written into their job plan:

One of the advantages of this [Trust role] was giving me two sessions a week...where I could say, 'Sorry, I can't do that, I've got an educational meeting'...And it was, 'What's in your job plan?' That's one of the advantages with working for a trust that's obsessed with paperwork is that when you flourish the paperwork at them, they go 'Oh, alright then'. (P10)

Both P3 and P10's comments illustrate the importance of clearly defined job titles to reinforce recognition as an educator and the allocation of appropriate resources (in this instance, time).

As discussed in chapter 1, insufficient time was a widespread issue, with 5 out of the 12 participants (P3, P9, P4, P6, P11) reporting that their educational workloads were in excess of their paid hours. Interestingly, even those who felt that their workloads were commensurate with their job plans reported having to work in their own time.

Unfortunately, there's no easy way other than me doing some of the roles or some of the things that I'm supposed to do, I do them at home. (P1)

P10 explained the impact of undertaking their university role outside contracted working hours:

I mean, you need your own time and certainly it hasn't helped getting to your mid-50s and being completely exhausted. It'd be great if we had time in our job plans. (P10)

P11 described the tension between clinical work and their HEE North-based educational role:

Time would be nice. More time. Sometimes what you don't have is the headspace to think about things. You're fire-fighting every day. It's like that clinically as well. I mean we've got a particular problem at the minute cos I've got four consultant colleagues off, which means we're all covering. Even though my education's important, the way we work as a team, clinically...you're still covering all this clinical stuff, cos you don't want anyone to have to do too much, you want the load evenly spread. And I suspect that's a little bit of a guilt of doing education isn't it? It's like the person who writes

the rota; you always kind of want to over-compensate a little bit for your time out. It isn't time out, it's just time doing something different. (P11)

Hence, P11 was lacking the resource of 'flexibility (clinical cover)' due to lack of consultant colleagues. They were in the position of trying to balance the demands of their different roles without the social resources to help. Interestingly, the use of the word 'guilt' in relation to medical education perhaps suggests it is viewed as a privilege when compared with day-to-day clinical work.

In an attempt to create time for their educational role, P3 set aside separate days for clinical and Trust-based educational work:

I keep my days separate, that was the key thing when I took this job on,... otherwise you get pulled, but yea, it's hard...I dropped a clinic, but those patients are still there..., so they just get shoehorned into my [other] clinic. [The associate specialist] does the easy stuff...so it means my [clinical work is] more intense, because it's the stuff that only I can do...So I think what it does is it increases the intensity of my [clinical] work and the busy-ness. (P3)

P3's comments demonstrate that even where there are colleagues employed to provide some clinical cover, those colleagues need to be equipped with the skills to be able to do the job. P8 was more successful in their job-planning:

I had my [clinical] sessions cut back when I [commenced the Trust role], cos that's such a big role...It was support from the DME at the time, was that that had to be reduced...But I think it coincided that we were a bit better off with consultant cover. (P8)

P8 was able to create time in their job plan with organisational political support from a figure senior in the hierarchy. This change was facilitated by the availability of appropriate clinical cover.

Referring back to chapter 6, only 5 out of 12 participants included learners in their support networks. Some participants felt that supervising trainees could be time-consuming:

The trainees who are not performing as what they should be...it's taking time to support them and sort out what is happening...It involves meetings with various people, so that takes a lot of time and makes things difficult for us to do. (P1)

However, trainees could also help create time for the medical educator:

It's funny when you talk about time with trainees, cos if you invest in them, then you get a lot back in terms of your time...You engage them, they're more interested, they know patients, so they're keen to see patients, how they're improving, how they're not improving, what you're doing, so they're learning...You're getting a lot back, cos they're more motivated. I put less in than what you get back from the trainees, I think. (P8)

Unsurprisingly, P1 did not include learners in their network. However, despite P8's positive depiction of the input of trainees, learners were not incorporated into their support network. This response highlights the variation in the participants' interpretation of 'support' and underlines the difficulty of providing an educational programme for individuals with such disparate perspectives and requirements.

8.2.7.3 MONEY

Interestingly, as demonstrated by figure 70, above, money was infrequently discussed by participants. P9 was the only participant to mention the financial benefit of taking on a more senior educational role.

I kind of want to get in on the [new educational role] because it's making it more official what I'm trying to do and I'll hopefully get a bit of time and payment recompense for doing it, which will be nice. (P9)

It is notable that P9's main objective was to obtain recognition and time for their role, with money mentioned almost as an aside.

In recognition of the importance of job-planning in delivering education, P10 explained how they had tried to help ensure medical educators had job plans which were commensurate with the amount of teaching they were expected to provide. As discussed in chapter 2, Trusts receive payment for providing both undergraduate and postgraduate medical education. Hence, P10 contacted the Trust accountants for support:

And they were quite helpful because you could get them to go to their CDs [Clinical Directors] and say, 'These job plans don't add up'. And they were fantastically useful as colleagues when we were doing the money search, which was 'Lots of money comes into the Trust, where does it all go?' Nobody knows. I still don't know. But I found two or three accountants who felt that was an offence to their accountancy integrity and caused a great deal of trouble. (P10)

Here, P10 actively looked for contacts who would help them address the problem they faced. Unable to get an answer by going through the usual hierarchical channels, they adopted the more creative approach of meeting with the Trust accountants, whose involvement enabled P10 to apply political pressure. Ultimately, P10 reported that a new manager had addressed this issue as a result of the accountant's investigations.

On a more personal level, P4 described how they had to spend so much money on their 'team' (see section 7.2.5.2) to care for their house and children, that they were worse off financially for being a medical educator.

*But I never have any money. I spend more on my team than I do earning.
Actually, if I didn't do the med ed, I wouldn't need many of those people cos
I'd just be working 6 sessions, 4 short days and I could do it all myself. (P4)*

As already discussed in section 7.2.1.6, P4's enjoyment of teaching kept them interested in going to work. Here, it is apparent that P4 enjoys teaching so much that they are possibly paying to conduct this work. This finding connects with P11's comments in section 8.2.7.2 about feeling guilty for undertaking medical education work and the concept that medical education may be considered a privilege by some clinicians.

8.3 SUMMARY

This chapter has built upon the findings of the previous chapter to deepen the understanding of the intricate social world of the medical educator. Within this world is an extremely complex interplay of factors which influence the formation and maintenance of relationships and the subsequent mobilisation of resources, or SC, from those relationships. Seven influential factors were identified: 'similarities and differences'; 'availability'; 'depth of relationship'; 'reciprocity'; 'structural position'; 'being recognised as an educator' and 'non-social resources'.

A mixture of homophilous and heterophilous contacts were helpful to the medical educator. Homophilous contacts could help keep work running smoothly in situations where different views may cause difficulties. Conversely, heterophilous relationships brought new ideas and skills in the delivery of education.

Educators could obtain more than one resource from their alters, the most frequently co-occurring resources being 'collegiality' and 'delivery of education'. Underpinning the development of collegiality was a relationship whereby ego and alter knew one another well, which could accordingly lead to trust. Equally important for the formation of trust and collegiality was face-to-face contact, which allowed for the detection of social cues. Conversely, email was preferred where a record of communication was required. Social media could facilitate learning and provide opportunities for meeting new contacts, but this form of communication was not without its downside; namely the intrusion into personal life.

The intersection of work and personal life was not the only clash of social worlds. Medical educators and their colleagues possessed multiple, overlapping roles and careful thought and action was required to minimise the potential for any conflict. The position of ego and alter within a social structure was important, particularly for the mobilisation of organisational political support, which, in turn, could aid career support. It was observed that a resource may only have value if there was a hierarchical difference between the resource giver and resource receiver. Reciprocity was inbuilt into medical educators' working lives and the concept of a SC exchange rate was explored.

A central factor to obtaining career support was being recognised as a medical educator. A circular relationship was identified; working as a medical educator led to recognition as a medical educator, which led to further work. Key to such acknowledgement for four participants was involvement in medical educator development programmes. These schemes provided participants with varying levels of educational experience, which allowed them to become recognised as an educator, facilitating the mobilisation of career support from relevant ties. Such career support could provide formal recognition via appointment to an educator role, with associated time and money allocated within a job plan. Insufficient time to conduct educational work was a feature for many participants, some of whom lacked organisational political support from individuals in a senior hierarchical position to arrange a suitable job plan with appropriate clinical cover.

In summary, medical educators exist within an extraordinarily complex social world. Access to and mobilisation of SC depends upon an elaborate and dynamic matrix of influential factors, which varies not only between educators but also according to the specific role an individual educator is undertaking. It is within this setting that I now move on to explore the impact of a master's in clinical education.

CHAPTER 9: RESULTS PART 4 - CONTACTS MADE THROUGH THE MASTER'S DEGREE PROGRAMME

9.1 INTRODUCTION

Having gained an understanding of the social world of the medical educator, this chapter provides an in-depth analysis of the impact of the MA within that milieu. The data are a mixture of quantitative and qualitative, the majority being within the latter category. Template analysis (King and Brooks, 2017) was utilised for qualitative data analysis and illustrative quotes will be presented with relevant themes and subthemes. Quantitative data were analysed via UCINET (Borgatti, Everett and Freeman, 2002) and Excel (Microsoft, 2020b). As clarified in section 2.4.4, any reference to the 'MA' also includes the PGDip in Clinical Education, since there is substantial overlap between the two programmes.

To further contextualise the findings, the chapter will first briefly explore the reasons why the participants chose to study for the MA. This is followed by consideration of the dynamic interplay between the participant and their network during the period of studying for the MA. The main body of the chapter is focussed upon the impact of the MA after graduation. This section commences with a qualitative examination of the impact of the MA on the individual and the subsequent effect on their interpersonal interactions. The chapter then moves on to present the main analysis; new network connections made via the MA programme. This section begins with quantitative data analysis to provide a foundation from which to subsequently examine the qualitative findings. The chapter concludes by presenting the participants' comparison of the benefits of the MA with the support they received from their networks.

9.1.1 A NOTE ON METHODS

As discussed in chapter 6, both P7 and P10 were part time faculty on a level 7 programme at EHU when studying for the MA. The same faculty taught on that programme as on the MA, hence P7 and P10 already had an alternative means of making new contacts on the programme. Their networks are therefore excluded from the quantitative analysis, which examines *new* relationships formed from the MA. However, their qualitative experiences before, during and after the MA are still of relevance and will be examined accordingly. Additionally, there are two participants, P2 and P3, who made EHU contacts prior to the MA when they were studying on the PGCert in Workplace-Based Postgraduate Medical Education (hereafter referred to as the 'PGCert'). Clarification will therefore be provided where relevant as to the origin of P2's and P3's relationships.

9.2 WHY DID PEOPLE STUDY FOR THE MA?

In the SRTs, participants were asked to state why they had studied for the MA. Responses were subsequently discussed in further depth in the interviews. The SRT data were analysed with the initial template presented in chapter 5, in addition to the templates presented in chapters 6 and 7 pertaining to mobilised resources and influential factors. This procedure produced two main themes of participants' reasons for undertaking the MA. Firstly, participants reported a desire to deepen their educational expertise, consistent with 'knowing what, and knowing how'. The second theme centred on credibility. Some participants wanted the qualification to make them more credible in an existing role, whilst others stated that obtaining a higher qualification in medical education was required to further their career. Of note, the tables in this section (tables 27 and 28) only record where a theme was identified within the participants' data. The absence of a theme simply means that the theme did not arise, not that the participant specifically refuted that the theme was of importance to them.

In addition to the above two main themes, three other themes were found to have influenced participants' decisions to study for the MA: competition; medical educator development programmes; and as a distraction from life events.

9.2.1 KNOWING WHAT AND KNOWING HOW (KNOWLEDGE)

This theme relates to participants' comments about wishing to enhance their factual and/or procedural educational knowledge by studying for the MA. The theme name is abbreviated to knowledge and is similar to the resource subtheme of 'education, knowledge' defined in section 7.2.1.7. The important distinction between the resource subtheme 'education, knowledge' and the desired outcome of knowledge is that the former is supplied by a social contact and the latter is a desired outcome of an educational programme. As illustrated in table 27, 10 out of the 12 participants' rationales were within this theme.

Table 27: Participants' rationale for undertaking the MA – 'knowledge' theme

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
Knowledge												

P7 and P1 provide typical examples of participants' explanations within this theme:

I do like knowing the theoretical background to what I'm doing. I'm one of these people who'll read three books on something before [they'll] actually try doing it. (P7)

[H]aving done the theories of learning in the PGCE, I said... 'What's behind all these?' I was asking myself, and 'How does learning really happen in these settings?' (P1)

The above comments are characteristic of participants' expressed interest in education and a desire to broaden their knowledge and skills in this area, simply for the sake of knowing more and doing a better job.

9.2.2 CREDIBILITY

This theme was developed from participants' comments relating to a desire to gain credibility. Table 28 illustrates the distribution of participants within this theme.

Table 28: Participants' rationale for undertaking the MA - 'credibility' theme

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
Credibility												

P7 and P10 both commenced studying for the MA when they began to teach on a level 7 programme. They each felt they needed to validate themselves in their roles by studying for the MA.

[T]here was no pressure from Edge Hill to do it. I do feel it gives me more credibility, teaching a master's level course, if you actually have a master's.

(P7)

I rapidly thought 'If I'm teaching on this, I'd better do this'. (P10)

P6 and P11 were already in senior educational roles with HEE North when they undertook the MA. Like P7 and P10, both reported feeling they needed to possess a qualification to justify their position:

[S]o I stepped up to doing that role and I thought, actually, I need to have something, I need to have a bit of paper with some qualifications on. (P6)

So, I kind of did it, cos I thought I can't ask other people to have an educational qualification if I haven't got one. And now, any job in education now, you've at least got to have a PGCert. (P11)

In addition to a need to obtain credibility, P11's statement indicates an idea of fairness. This concept resonates with the influential factor reciprocity, discussed in chapter 8, in particular P1's experience of feeling they had a social obligation to teach because others had helped them in the past. By asking those in a lower hierarchical position to undertake an educational qualification, P11 felt that they needed to reciprocate by doing likewise.

P5 and P9 felt that they needed an MA in order to be able to apply for jobs. P5 was already an established consultant applying for a senior educational position:

I remember when the job spec came out for [my current educational role]. I think I'd already started the diploma and it said... 'desirable', so I thought I may as well just carry on because whatever role I want to do, if I want to do any role in education, it's probably going to look good to have your master's, isn't it? (P5)

In contrast, P9 was still a trainee in a highly competitive specialty:

[P]retty much everybody I'm against has an MA or a PhD...and you've got to have published at least one paper a year... and...all this stuff and actually, you are at a bit of a disadvantage if you haven't done a higher qualification and I'm the only one I think, locally, that's done that in education. They've all done

a PGCert, there are others that have it ongoing, but it meant that I could sell myself in that way. (P9)

For P5, the qualification was for a specific educational role, whereas, P9's MA was undertaken for the purpose of applying for a clinical position. These participants' comments highlight how they anticipated that having the MA would make them more competitive in the job market, an influential factor theme which did not arise in the analysis of the non-EHU network. The concept of competition as an influential factor is returned to in section 9.3.

9.2.3 MEDICAL EDUCATOR DEVELOPMENT PROGRAMMES

As discussed in chapter 7, four of the participants undertook medical educator development programmes during their senior training or early consultant careers. Participation in these programmes influenced participants to study for the MA in two different ways, producing two subthemes, 'stepping-stone' and 'integral to the programme'.

P3 viewed their medical educator development programme as a stepping-stone to the MA. They received full funding for the first two modules of the PGCert in Workplace-Based Postgraduate Medical Education as part of their MEF programme, the PGCert being a core requirement for entry to the MA.

I kind of see the master's as a follow on from the fellowship, cos we started the PGCert with them and then carried on. (P3)

Hence, while the MA was not a part of the MEF programme, P3 viewed it as being a natural progression.

In contrast, P4 reported that the MA was an integral part of their medical educator development programme:

[T]he job consisted of coming in a day a week and being paid to do a master's degree in education, to be involved in all the sort of teaching and training opportunities. (P4)

Whilst their medical educator development programmes had influenced P3 and P4 differently, a common theme emerges. Rather than the MA being an end in itself, it was part of a greater process of evolving as a medical educator with all the other experiences that the development programmes could provide.

9.2.4 DISTRACTION FROM LIFE EVENTS

P6 described an additional reason for undertaking the MA, something not expressed by any other participants. As discussed in chapter 7, P6 was experiencing difficulties in their personal and clinical life around the time of undertaking the qualification. The MA helped to provide a different focus:

[the MA] was also a bit of a distraction...I was enjoying it and I was enjoying getting back to academia...I lost a lot of confidence clinically and this was something that was completely different that distracted me and really kept me going in one direction. So, it's probably not your usual reply and it was really good from that point of view. I learnt a lot, but it also kept me sane at a very, very bad time....I think it's important. People do things for different reasons and I think it's not always actually 'I want to be an educator' sometimes it's 'I need something else to focus on'. (P6)

P6's comments demonstrate the diverse nature of medical educators' needs. Fortunately, P6 found the MA to be a release from their other difficulties, but their experience highlights

that postgraduate students may require pastoral support. As their needs are likely to differ significantly from undergraduate students, a personalised approach to such support will be essential.

9.3 STUDYING FOR THE MA: THE ROLE OF THE NON-EHU NETWORK

This topic was not initially intended as a focus for the study. However, during the interviews some participants reported how their networks had influenced their progress in the MA. Their comments were analysed via template analysis (King and Brooks, 2017), with the resources and influential factors identified in chapters 7 and 8 serving as the initial template. The resource supplied in all cases was academia, support received in studying for qualifications, abbreviated to academia, qualifications. Qualifications is a new subtheme of the over-arching resource theme of academia, the latter being defined in section 7.2.7. The subtheme of qualifications was derived from participants' comments relating to support received in studying for qualifications. Within the present section, only support given by non-EHU contacts in relation to the MA is considered. The distribution of this support amongst the participants is illustrated in figure 71.

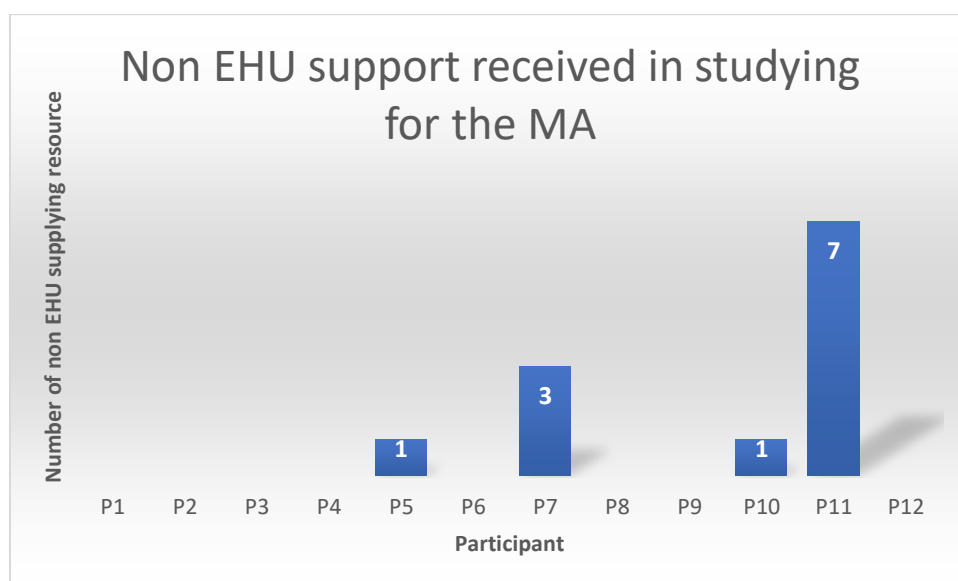


Figure 71: participants reporting non-EHU network support with their MA

The participants' comments revealed some important influential factors in the mobilisation of this resource, including a new influential factor of competition, developed from participants' comments about an element of competitiveness in their ties. The relationship between the influential factors and mobilised resources in this context is summarised in the heatmap in figure 72, this being a similar format to the heatmaps in chapter 8.

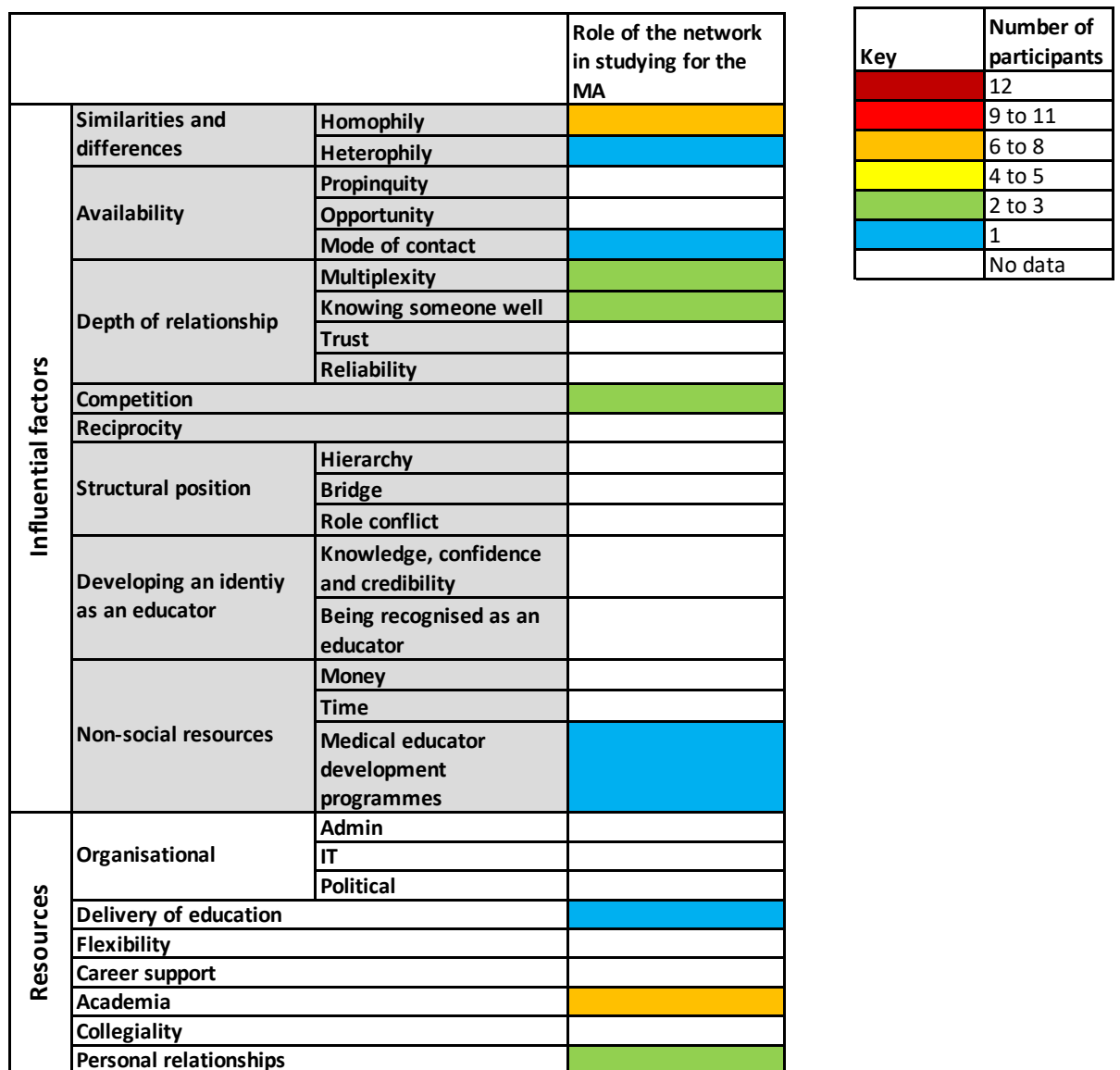


Figure 72: Heatmap of the role of the network in studying for the MA

The 'competition' theme is characterised by P5's and P11's descriptions of undertaking the MA at the same time as others within their network. P5 studied for the MA at the same

time as work colleagues and a relative. I asked if their decisions to do it influenced one another:

We're like racehorses aren't we, trotting along together? 'Well, they're doing it, I'd better do it'. There is a bit of that. I suppose it gives you someone to benchmark yourself against. (P5)

P11 also knew work colleagues who were undertaking the MA at a similar time.

It made me more determined to do it, cos I felt a bit of an idiot that I hadn't done it. But I just needed to get my head together and do it. (P11)

'Competition' is an unusual influential factor. P5 and P11 were not trying to gain support from their colleagues, merely keep pace with them. By virtue of a friendly rivalry within the ties with their alters, they gained support with their MA, even though they were not overtly looking for help. Indeed, their alters may not have realised they were providing support of any kind.

In contrast, P10 and P7 each undertook their MA at the same time as their spouse. They explained how this helped them to progress with their studies.

There was a lot of mutual discussion about it. I don't think we ever did the same module at the same time, but there was a lot of discussion about research projects. (P10)

We were writing them at the same time and comparing notes and that kind of thing...[S]o we might discuss research methods a bit and the pros and cons of interpretative phenomenological analysis vs phenomenography, or whatever...I think it did help. As much as the specifics, it actually helped having somebody else who wants to do this thing for the same reason and therefore

understands why you need this block of time or why you're going to write your assignments at this time. And then just supports you in the general 'How are you getting on?' sort of thing. (P7)

These quotes demonstrate the importance of homophily. P7 and P10 each benefitted from a spouse who possessed a similar level of educational knowledge, something which P10 also found to be helpful in work colleagues, as described in section 8.2.1.1. Furthermore, P7 refers to the advantage of sharing the same experience, which assisted the additional mobilisation of moral support, as defined in section 7.2.3.1.

P7 was also able to access support from their EHU work colleagues, who became participants in P7's research project.

[T]hese were mainly people I'd co-facilitated with...So we'd worked together as trainees, or I'd taught...with them or something like that. They were the ones that said 'Yes' and did it. The ones that said 'Yes' and didn't do it were the ones that were [colleagues] but I hadn't actually met previously...So the ones that did it, there was some prior contact. (P7)

Reflecting on the influential factors in the previous chapter, P7 here describes the importance of knowing people well in mobilising resources, as the only people who provided support were those with whom P7 had a pre-existing relationship.

9.4 THE POST-GRADUATION IMPACT OF THE MA

The post-graduation impact of the MA on the SC of the participants is considered in three ways. Firstly, the participants reported changes within themselves, which for many participants was linked with the second aspect of analysis; a qualitative alteration in their interactions with others. Such changes are extremely difficult to quantify; therefore, these

first two aspects of the data are analysed qualitatively. As they are closely intertwined, they are also considered together in section 9.5. Thirdly, and the main focus of the chapter, the participants all formed new relationships with faculty and/or peers on the MA programme. These relationships were only considered to have made a contribution to the SC of the participant if they were maintained beyond graduation from the MA. This approach is consistent with the research objectives listed in section 5.3.2, which relate to an analysis of the SC of a medical educator *after* completing a higher qualification in clinical education. Of note, EHU contacts are defined as those contacts which were made during the course of the PGDip/MA programme. Non-EHU contacts are relationships established outside of the programme. The EHU aspect of participants' networks are analysed in sections 9.6 and 9.7.

9.5 THE IMPACT OF THE MA UPON THE INDIVIDUAL AND THEIR INTERPERSONAL INTERACTIONS

Template analysis (King and Brooks, 2017) was utilised to examine participants' comments for the presence of i) the influential factors identified in the non-EHU contacts as presented in chapter 8 and ii) the resources established in results chapter 7. Following the analysis in the previous section, 9.3, of the role of the network in undertaking the MA, 'competition' was added to the template as an additional influential factor.

Participants described how the MA had increased their knowledge, given them more confidence and boosted their credibility. Whilst being conceptually different, knowledge, confidence and credibility are closely linked, as will be evident from the participants' comments, below. Hence, they are classed together as a new influential factor subtheme. In conjunction with their increased knowledge, confidence and credibility, participants also perceived a subtle change in the behaviour of others towards them, as they became recognised as an educator, an influential factor already explored in chapter 8. Considered together, the subthemes of being recognised as an educator and knowledge, confidence and credibility combine to represent professional identity development. This over-arching

theme is therefore termed developing an identity as an educator. The heatmap in figure 73 provides a summary of associated influential factors and mobilised resources.

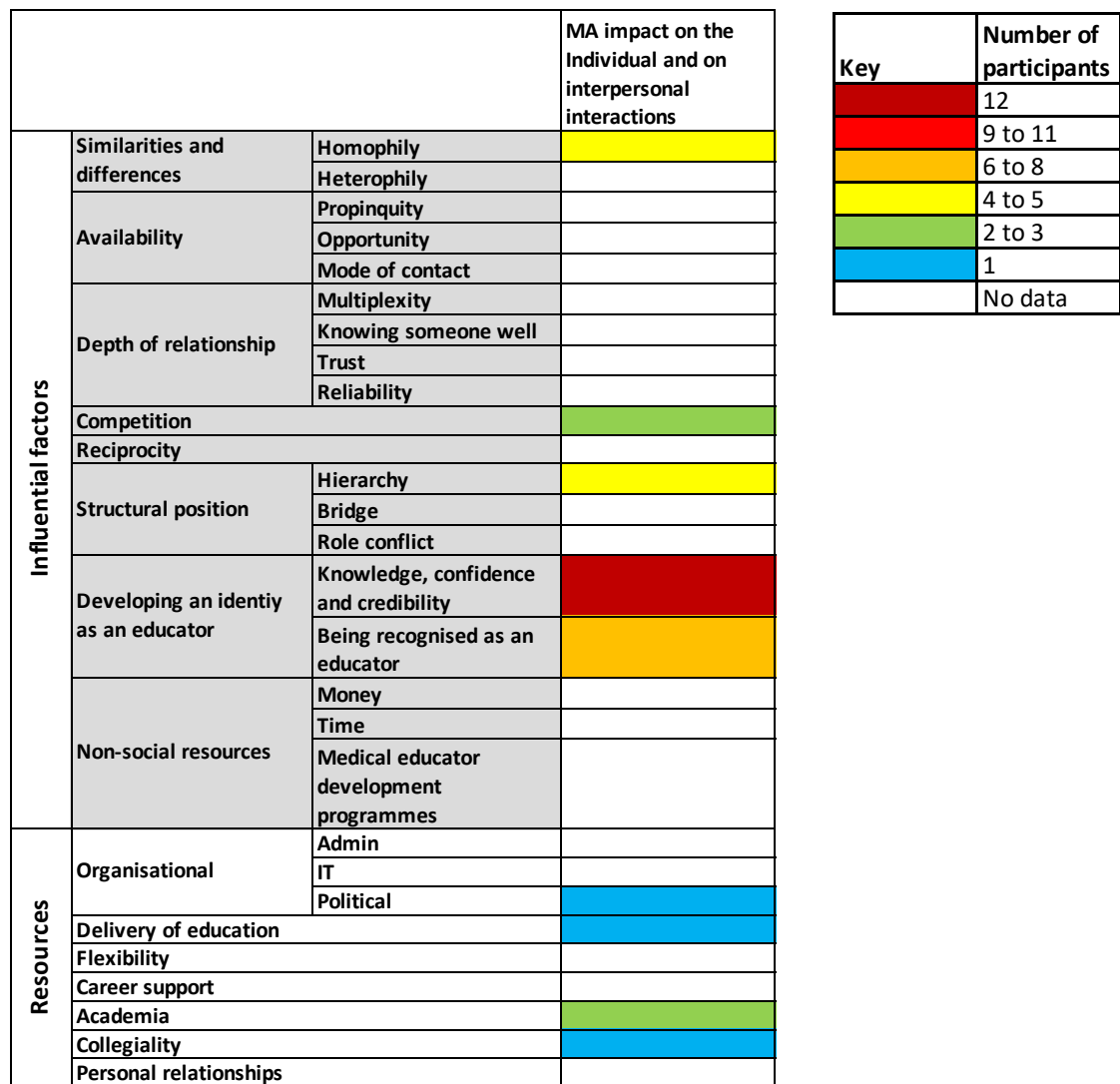


Figure 73: Heatmap of themes and influential factors related to the impact of the MA on the individual and their interpersonal interactions

As is evident from figure 73, all of the participants felt that the MA had increased their knowledge, confidence and credibility. P12 explained that the MA had provided them with the knowledge to perform their educational role and credibility in the job market:

[I]t's added more specialist knowledge in areas that are particularly of my interest...I think the PGCert was a good foundation, but I think that the MA has deepened that knowledge and gives me more credibility in my teaching roles...[to] [m]y employer and when applying for jobs. (P12)

Hence, the MA may have enabled P12 to be more competitive in the job market. P2 observed that the knowledge instilled by the MA had helped them become more confident in their teaching:

[T]he idea of doing a master's is to have mastery of something, making you feel as though you have a good knowledge and a good skill base in something. Then you feel in control of it and it's not in control of you. (P2)

P3 described what they meant by having more confidence following the award of their MA:

This is confidence that I do know what I'm talking about... So I've got some areas in the trust where it's really difficult and the trainees don't get a good time and...a lot of it comes down to the...educational leadership and so actually having done all that about leadership where I'm faced in these situations...I actually know about it and say...'How do you want to change the culture of the trust?' And it's those conversations, the MA gave me the confidence to have those. (P3)

Consequently, P3's confidence comes from their knowledge, empowering them to have difficult conversations with other educational leaders. P3 further explains why it is important that the knowledge is officially certified with an MA:

So even if I'd studied it, without the MA, I could say, 'Well I've read about this', but it's 'I've got a master's in this'...It should be that people just listen to what you have to say. But ultimately, in a historically hierarchical organisation, that still comes in. (P3)

Hence, in P3's experience an MA provides an official endorsement of a medical educator's knowledge and suitability for the role they are undertaking. In other words, it provides credibility.

P6 also felt that the MA had provided them with credibility. They explained how colleagues' attitudes towards them had changed since obtaining the MA:

I feel like, and this is my own personal view, that I'm more respected in my role...I feel that people think, 'Oh, yes, [they've] got a master's...and [they] know...what [they're] doing'... I get asked for my opinion possibly a little bit more...I think it does step you a little bit apart from other people who are doing literally the same role who haven't done any [qualifications]. (P6)

In other words, the MA enabled P6 to feel recognised as an educator by their colleagues.

P10 had hoped that the MA might provide the credibility needed to obtain organisational political support for their Trust educational role, but ultimately felt they did not receive this resource. They described the hierarchy within their Trust to be part of a rigid organisational structure:

You had to have a role. And once you'd got a hat, people would listen to you. But you could have a hat and not know what you were talking about and you would be listened to. Or you could not have a hat and know what you were talking about and you could be ignored. And so, in that sense, I felt that perhaps having an MA might be a useful thing to flourish about. As it happened, it wasn't; it was a waste of time in that sense. (P10)

That the MA did not give P10 the desired credibility may have been secondary to a difference in attitudes and knowledge:

Most people clearly didn't understand the words I was using, and I could try and explain them in other words, but when it came to try and discuss things about critical thinking, about the working environment, for instance...you didn't inhabit the same thought world. (P10)

Hence, lack of homophily between P10 and their colleagues may explain why the MA did not provide the desired credibility, impairing P10's ability to mobilise organisational political support.

In addition to providing knowledge to assist with educational delivery, the MA also supported participants to gain research skills, an area some participants did not previously feel comfortable with.

It's helped me know that [research is] doable. I'm not naturally inclined to be a [researcher] I'm more a doer, the planning, then the rest I think, I don't have to [do]. So for example, we've got some links with [a university] and out of the bid money, we're gonna get a research assistant, then I can do [the research]. And it's knowing that it doesn't have to be me. (P3)

I do now have the confidence to get involved in research projects I wouldn't have had the confidence to get involved in. So we're putting together a research project...and I felt on the back of my master's research that I had the knowledge to actually think about how to take the steps to get the research going, to put in the ethics application, to do semi-structured interviews and all sorts of things, so I felt that certainly helped. (P4)

P3's and P4's statements not only demonstrate a gain in research skills, but also indicate the impact upon the participants' relationships. Both were able meet new people by becoming involved in research projects; during this process, they mobilised SC from these relationships to provide support for the research. It was not possible to discover exactly

how many new contacts these participants made, but their statements indicate just how widespread the effects of the MA can be.

Not all participants felt that the full impact of the MA was long-lived. P4 observed that whilst the MA had provided them with knowledge and confidence at the time of the qualification, their knowledge had deteriorated over time:

[T]he master's...give[s] you the tools, the skills, the opportunities, but at the end of the day a lot of the knowledge gets forgotten and that's something I'm acutely aware of. (P4)

P4's comments highlight not only the importance of CPD, but also indicate the potential benefits of maintaining contact with faculty, the latter subject being revisited in the qualitative analysis of new relationships formed via the MA (section 9.7).

Some of the participants felt that the MA had helped them to obtain job roles. P4 felt that the credibility bestowed by the MA had helped them to obtain further educational work at their local medical school.

[The MA has] given me the ability to stay around and continue to meet people who come and work here and also given me some credibility. I think credibility's the word I'm looking for. I think having a master's gives you credibility in medical education. (P4)

P4 went on to explain how the MA had given them the confidence to set up an educational business, which led to the formation of a new relationship:

I didn't know [them] before we did the teaching business and I wouldn't have thought about the teaching business if I hadn't had the qualifications to do it, so that's sort of a master's fall out. (P4)

For P8, the MA also was an important factor in obtaining an educational role:

I think the master's is one of the things that led to some of the roles. I think...the master's kind of underpins the academic bit of what you do, which is important, and I think therefore it makes you a little bit better at everything else. And therefore, if you're a bit better, it means you're more likely to get a role. (P8)

Here, P8 is describing how the MA can alter the behaviour of a medical educator. In turn, this can help an individual become recognised by others as an educator and subsequently obtain educational work.

As discussed above (section 9.2.2) one of P9's reasons for undertaking the MA was to make them more competitive in the job market. On applying for a consultant post, P9 felt that the MA had fulfilled this purpose:

I left my substantive interview and the medical director apparently turned round and said to my colleagues, 'There you go, there's the future of our medical education'. So clearly, I sold myself on that occasion very well on the education side. So it did definitely help me. (P9)

In addition to helping support participants obtain new job roles, participants reported a more subtle impact on social interactions. P3 explained how they felt existing relationships may have been different had they not studied for the MA:

[L]ittle things like my friendship with [P3A14]. I think some of it's a confidence thing. [They're] very well read on leadership, education, all the theory and stuff, and had I not [done the MA] would I be able to relate to [them] the same? I'm not sure I would. That relationship may not have been the same if I'd not had my master's...The conversation I had with [P3A17, a university contact] would have been a completely different conversation. And we would have still bonded, just because [they're] so full of ideas, but part of our bonding was around what I'd found out through my dissertation and the

interest of it ...We would have talked about something else, but who knows what and how successful that would've been without that?...And just the confidence with dealing with the universities without the master's to back it up would probably have had an impact. (P3)

Consequently, the MA assisted P3 to form homophilous relationships, from which they were able to mobilise support with academic activities. P10 also found that the MA helped them engage with others on a different level, reporting that the MA provided:

[A] vocabulary to speak about practice that I didn't have before. (P10)

I asked P10 with whom they were conversing that such a vocabulary was required:

Internally, to [my spouse, who also has the MA], to some extent to people [at EHU]. Occasionally, speaking to other people. So, it was useful...in the teaching and learning lead in the other university. It was useful with other educators around the place. (P10)

P10 went on to describe how undertaking the MA and simultaneously teaching at EHU made them feel part of a 'community of educators'. In contrast with the difficulties in communication with many of their Trust colleagues, as described above (pp.251-3), they enjoyed their interactions with EHU faculty and peers:

Oh, it was wonderful. You know, being able to have adult conversations. Instead of having to reduce everything down to 6-year olds. (P10)

Here, P10 provides clarity about P3's observations, with homophilous connections being facilitated by the use of a language that is common only to fellow educators. In P10's case, this homophily was linked with collegiality, the effect of which was so immense that P10 termed it 'anti-burnout medication', as it helped them to cope with the day-to-day rigours of their Trust roles.

As already discussed, P6 experienced substantial difficulties within their personal and professional lives at the time of studying for the MA. They explained how graduating from the MA had more generally altered their belief in their abilities:

You know people say, 'Oh you must be clever, you're a doctor', but I've never really... quite believed I'm good enough...And this sort of made me feel that actually that I might be clever...[I]t was really ridiculous in your 50s to find out you're not as thick as you thought you were. (P6)

This effect had lasting repercussions on other aspects of P6's life. Their increased confidence led them to join a sports club, something they had never done before:

And I did my first [competition] yesterday and I felt so bloody clever and I never ever, I never [did that particular sport] when I was younger. But it's things like that and I think...some of it is the master's. I know it's not related to exercise or anything, but I think it helped me believe in myself... I've lost count of how many events...I've done...and I think, actually, you can do things, you're not quite as silly as you thought you were. And it certainly rescued me from the [difficult time with clinical work and personal life], cos I think if I hadn't had something to focus on and do reasonably well at and almost justify my existence, I might have gone under. (P6)

Here, P6 describes how profoundly the MA has influenced their life. The impact of this qualification has reached out beyond educational work into P6's personal life, imbuing them with the confidence to attempt new activities and expand their social world. Moreover, their comments make apparent the immense difficulties of performing a full evaluation of the impact of an educational programme. Indeed, as P6 did not include any of the above information on their SRT, it was only with the aid of an interview that their experiences could be discovered.

9.6 QUANTITATIVE ANALYSIS OF NEW RELATIONSHIPS FORMED VIA THE MA PROGRAMME

This section focusses on quantifying the contribution of the MA to the SC of the participants. This is achieved by examining the number of ties added per network and sequentially analysing the quantitative impact of these ties. The section begins by examining the MA's impact at ego-net level, before drilling down to node level analysis of new ties formed from the programme. The section concludes by analysing the MA impact in terms of the heterogeneity measures developed in chapter 6.

9.6.1 A NOTE ON METHODS

Whole network and node level analysis require knowledge of alter-alter ties; unfortunately, this information is not available for P9. As discussed in section 9.1.1, the networks of P7 and P10 are excluded from the quantitative analysis as they were both part time faculty at EHU when studying for the MA, hence could not be said to have made new contacts whilst studying on the programme. P2 and P3 studied for a PGCert at EHU prior to the MA, during which time they established relationships which were maintained beyond graduation from the MA. Hence, where appropriate, P2 and P3's PGCert contacts and associated analyses are listed separately, with adjusted values for the group mean, median and range for the MA and PGCert combined. As the study sample is small, unusually small or large values may substantially impact upon the mean, median and range for the different measures, with the median least affected by such results (Rugg, 2007). This is discussed further where relevant.

9.6.2 DESCRIPTIVE STATISTICS

Table 29, below, illustrates ties added by each participant during the MA, noting where ties represent mobilised or potential capital. Table 29 lists the PGCert contacts of P2 and P3; all of these ties represent mobilised capital. P2 maintained contact with one faculty member from the PGCert but did not sustain any new relationships formed during the MA. In table

29, the figure for P3's non-EHU ties includes ties made from the PGCert. All non-EHU ties represent mobilised capital.

Table 29: Ties added via the MA programme

	Number of non EHU ties	Number of ties added through MA	Number of individuals	Contact type	MA ties: mobilised or potential capital	Percentage (%) increase in ties	Percentage (%) increase in ties (mobilised capital only)
P1	5	2	2	peer; faculty	1 mobilised; 1 potential	40.000	40.000
P6	10	2	2	faculty	2 mobilised	20.000	20.000
P12	6	1	1	faculty	Potential	16.667	0.000
P5	22	2	2	faculty	2 mobilised	9.091	9.091
P9	34	3	3	faculty	3 mobilised	8.824	8.824
P8	25	2	2	faculty	1 mobilised; 1 potential	8.000	4.000
P4	14	1	1	faculty	1 mobilised	7.143	7.143
P3	36*	2	16	peer; learners	2 mobilised	5.556	5.556
P11	20	1	1	faculty	Potential	5.000	0.000
P2	21*	0	0	N/A	N/A	0.000	0.000
Mean	19.300	1.600	3.000	N/A	1.200 mobilised	12.028	9.461
Median	20.500	2.000	2.000	N/A	1 mobilised	8.412	6.350
Range	5 - 36	0 - 3	0 - 16	N/A	0 - 3 mobilised	0.000 - 40.000	0.000 - 20.000

*Figure includes contacts made via the PGCert

Table 30: Ties added through the PGCert and MA programmes combined. All PGCert and non-EHU ties represent mobilised capital only. In the interests of simplicity, group values for MA & PGCert ties combined represent both mobilised and potential capital.

	Number of non EHU ties	Number of ties added through PGCert	Number of individuals	Contact type	Percentage increase in ties
P2	20	1	1	faculty	5.000
P3	34	2	4	faculty	5.882
Group mean (MA & PGCert)	19	1.900	3.500	N/A	13.143
Group Median (MA & PGCert)	20	2.000	2.000	N/A	8.96
Group range (MA & PGCert)	5 - 36	1 - 3	1 - 16	N/A	5.000 - 40.000

Referring to table 29, participants added between 0 and 3 ties to their network, with a mean of 1.600. This figure increased to 1.900 with the inclusion of PGCert contacts, with mean and median being similar. Participants mobilised SC from a mean of 1.200 of MA ties. All ties made through the PGCert represent mobilised capital. Whilst the largest number of new ties was 3 (P9), P3's MA ties included a termly changing group of approximately 15 students, whom P3 was invited to teach whilst a student on the PGDip. P3 was the only participant to include learners in their EHU network. P3 also maintained relationships with 4 members of faculty whom they initially met on the PGCert, 3 tutors being classed as 1 group, and therefore 1 tie, by P3. Because of this inclusion of groups, the mean number of individuals added overall (3.000 for the MA alone, 3.500 for the MA and PGCert) is higher than the mean number of ties. No other participants reported ties with groups. Interestingly, only 2 participants formed relationships with peers which persisted beyond graduation, the majority of other ties being with faculty. This finding is further explored in the qualitative analysis of new ties formed during the MA. Placing the addition of ties into the context of the participant's networks, there was wide variation in the proportional increase in the number of ties. Considering a combination of mobilised and potential capital, P11 experienced just a 5% increase in number of ties, whilst the size of P1's network expanded by 40%. Notably, P1 had the smallest non-EHU network in the study, and the 40% increase seen in their network skews the mean percentage increase, as indicated by a mean increase of 12.028% compared with the median of 8.412%. When only considering ties representing mobilised capital, the increase in P1's network drops to 20% and the mean and median for the group increase by 9.461% and 6.350% respectively. These findings suggest that the impact of the MA may vary substantially between medical educators.

9.6.3 NETWORK LEVEL MEASURES

Tables 31 and 32, below, illustrate the network measures of efficiency, constraint, structural holes and density for the participants' networks, with and without MA contacts. MA contacts in table 31 represent both mobilised and potential capital, whereas MA contacts in table 32 represent mobilised capital only. For all calculations in table 32, MA

ties that represented only potential capital were removed from the participants' networks. Table 33 provides the same network measures for P2 and P3, with and without their PGCert and MA contacts, along with adjusted mean and median for the study group. All of P2 and P3's ties represent mobilised capital.

Table 31: whole network measures with and without MA contacts. Whole network figures represent networks with both MA and non-MA contacts. All non-MA contacts are mobilised capital only. MA contacts represent mobilised and potential capital.

	Efficiency		Constraint		Structural holes		Density	
	Whole network	MA contacts removed	Whole network	MA contacts removed	Whole network	MA contacts removed	Whole network	MA contacts removed
P1	0.714	0.520	0.362	0.530	28	8	0.467	0.600
P2	0.546	0.546	0.177	0.177	260	260	0.476	0.476
P3	0.742	0.721	0.099	0.105	1034	898	0.265	0.287
P4	0.787	0.755	0.197	0.221	162	134	0.229	0.264
P5	0.521	0.509	0.155	0.168	276	216	0.500	0.667
P6	0.500	0.380	0.294	0.350	60	28	0.545	0.689
P8	0.767	0.731	0.129	0.143	532	432	0.242	0.280
P11	0.830	0.828	0.148	0.153	312	280	0.179	0.181
P12	0.592	0.444	0.371	0.478	22	10	0.476	0.667
Mean	0.667	0.604	0.215	0.258	298	252	0.375	0.457
Median	0.714	0.546	0.177	0.177	260	216	0.467	0.476
Range	0.500 - 0.830	0.380 - 0.828	0.099 - 0.371	0.105 - 0.530	22 - 1034	8 - 898	0.179 - 0.545	0.181 - 0.667

Table 32: whole network measures with and without MA contacts. All figures represent mobilised capital only.

	Efficiency		Constraint		Structural holes		Density	
	Whole network mobilised capital	MA contacts removed	Whole network mobilised capital	MA contacts removed	Whole network mobilised capital	MA contacts removed	Whole network mobilised capital	MA contacts removed
P1	0.667	0.520	0.396	0.530	18	8	0.400	0.600
P2	0.546	0.546	0.177	0.177	260	260	0.476	0.476
P3	0.742	0.721	0.099	0.105	1034	898	0.265	0.287
P4	0.787	0.755	0.197	0.221	162	134	0.229	0.264
P5	0.521	0.509	0.155	0.168	276	216	0.500	0.667
P6	0.500	0.380	0.294	0.350	60	28	0.545	0.689
P8	0.751	0.731	0.134	0.143	482	432	0.258	0.280
P11	0.828	0.828	0.153	0.153	280	280	0.181	0.181
P12	0.444	0.444	0.478	0.478	10	10	0.667	0.667
Mean	0.643	0.604	0.231	0.258	287	252	0.391	0.457
Median	0.667	0.546	0.177	0.177	260	216	0.400	0.476
Range	0.5 - 0.828	0.380 - 0.828	0.099 - 0.478	0.105 - 0.530	10 - 1034	8 - 898	0.181 - 0.545	0.181 - 0.667

Table 33: Whole network measures with and without PGCert and MA contacts. All PGCert and non-EHU ties represent mobilised capital only. In the interests of simplicity, group values for MA & PGCert ties combined represent both mobilised and potential capital.

	Efficiency			Constraint			Structural holes			Density		
	Whole network	MA contacts removed	MA and PGCert contacts removed	Whole network	MA contacts removed	MA and PGCert contacts removed	Whole network	MA contacts removed	MA and PGCert contacts removed	Whole network	MA contacts removed	MA and PGCert contacts removed
P2	0.546	0.546	0.530	0.177	0.177	0.185	260	260	230	0.476	0.476	0.495
P3	0.742	0.721	0.697	0.099	0.105	0.112	1034	898	772	0.265	0.287	0.312
Group mean	0.667	0.604	0.599	0.215	0.258	0.260	298	252	234	0.375	0.457	0.462
Group median	0.714	0.546	0.530	0.177	0.177	0.185	260	216	216	0.467	0.476	0.495
Range	0.500 - 0.830	0.380 - 0.828	0.380 - 0.828	0.099 - 0.371	0.105 - 0.530	0.105 - 0.530	22 - 1034	8 - 898	8 - 772	0.179 - 0.545	0.181 - 0.667	0.181 - 0.667

Referring to table 32, there is a trend towards reduced network efficiency when MA contacts are removed, with mean efficiency decreasing from 0.667 to 0.604. A more marked effect is observed with the median, this reducing from 0.714 with MA contacts to 0.546 without MA contacts. These differences are lessened with removal of ties

representing only potential capital, the mean and median for the whole networks being 0.643 and 0.667 respectively. The changes in mean and median efficiency become more pronounced when P2's and P3's PGCert and MA contacts are removed from the network, with the mean reducing from 0.667 to 0.599 and median 0.714 to 0.530, as illustrated in table 33. Hence, there is a small trend for contacts made via the EHU programmes to make the participants' networks more efficient, with a larger difference in mean and median efficiency being observed in networks with more EHU contacts. However, these differences were not statistically significant.

Similarly, there is a trend towards MA and PGCert relationships contributing to an increase in the number of structural holes in the participants' networks. With removal of MA contacts, the mean number of structural holes decreases from 298 to 252, this figure further reducing to 234 with removal of PGCert contacts. When considering mobilised capital only, mean number of structural holes decreases slightly from 298 to 287. Of note, the mean value for the structural holes is skewed by the high value of 1034 in P3's network. This is evident with the lower value of median number of structural holes at 260 for the whole network (mobilised and potential capital) and 216 with removal of MA and PGCert contacts. Whilst these results suggest that EHU contacts may contribute to bridging capital within the networks of graduates, the differences were not statistically significant.

There is a slight trend towards the networks becoming more constrained with the removal of EHU ties. Mean constraint increases from 0.215 to 0.258 with removal of MA ties and a further marginal increase to 0.260 with removal of PGCert ties. However, when looking at the median, there is very little change in constraint, with marginal increase from 0.177 to 0.185 with removal of MA and PGCert ties and no change with only removal of MA ties. These small differences were not statistically significant.

The figures in tables 32 and 33, above, also suggest that EHU contacts may contribute towards reducing the density of networks. Mean density increases from 0.375 to 0.457

with removal of MA contacts and further increases to 0.462 with the removal of PGCert contacts. Mean density increases from 0.375 to 0.391 when MA contacts representing potential capital are removed. As with structural holes, there is less of a change in the median, with values increasing from 0.467 to 0.476 for MA ties and to 0.495 for PGCert ties. However, these results were not statistically significant.

Whilst these results were not statistically significant, the study sample is small. Taken together, these small network changes suggest that EHU contacts may be less well connected within the participants' networks, which would imply that they may be able to offer access to more heterogeneous resources. Table 32 clearly shows that the impact of the MA varies between networks, with more pronounced effects seen in the smaller networks of P1, P12 and P6. For example, removal of all MA contacts from P1's network reduced efficiency from 0.714 to 0.520 and structural holes from 28 – 8, whilst increasing constraint from 0.362 to 0.530 and density from 0.467 to 0.600. Therefore, whilst providing a general overview, the whole network measures do not deliver a full picture of the impact of MA contacts. Analysis of the networks for the presence of components in relation to MA and PGCert contacts can offer a more nuanced approach.

9.6.4 COMPONENT ANALYSIS

The results presented in chapter 6 illustrated that out of the 11 participants for whom there was information on alter-alter ties, 5 had networks which were split into separate components (P1, P4, P8, P11, P12). EHU contacts formed a separate component for 4 out of those 5 (P1, P4, P8, P12), with the EHU contacts of P4 and P12 being isolates, as illustrated in figures 74 - 77.

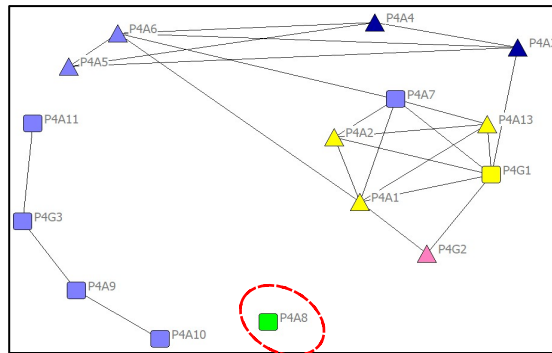


Figure 74: P4 component analysis

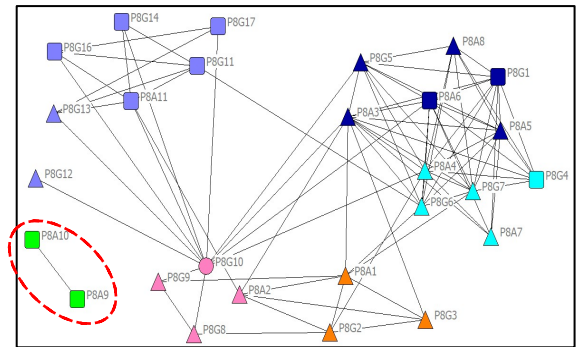


Figure 75: P8 component analysis

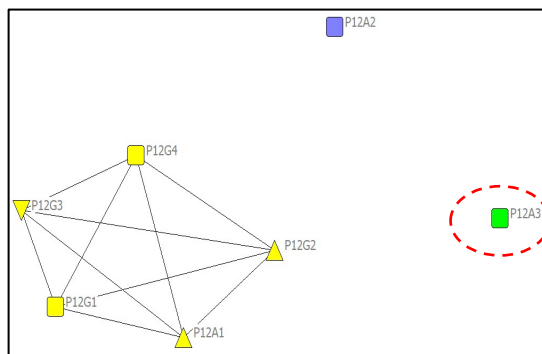


Figure 77: P1 component analysis

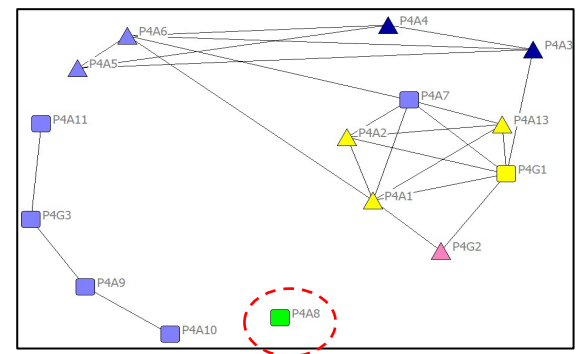


Figure 76: P12 component analysis

■	Non clinician
▲	Clinician
▼	Learner
●	Group of clinicians and non-clinicians
◆	Participant

Figure 78: key to professional backgrounds

■	Same site, same clinical employer	■	Other university	■	Personal
■	Same clinical employer, different site	■	Health Education England North	■	Overseas
■	Different clinical employer	■	Geographically distributed nationally	■	Participant
■	Edge Hill University				

Figure 79: key to relationship contexts

In contrast to the small, general changes observed in the whole network figures presented in the previous section, the component analysis provides a much clearer picture. For P1, P4, P8 and P12, the addition of the EHU component represents clear access to heterogeneous resources for the participants. The participants are placed in the position of 'broker' between the EHU component and other components in the network, potentially providing them with bargaining power. The practical implications of these findings are examined later in this chapter in the qualitative analysis of resources mobilised from the EHU contacts.

9.6.5 NODE LEVEL MEASURES

The results obtained to this point have suggested that EHU contacts may facilitate access to heterogeneous resources and brokerage opportunities. A further way of examining the contribution of the MA is to adopt the network perspective of the EHU contacts themselves. This is achieved by examining the mean degree (number of ties) formed by each EHU contact and the mean dyadic redundancy (MDR) of ties made by EHU contacts (the mean measure of redundancy for each of the EHU contacts' ties). The tables within this section therefore compare the ties of EHU contacts with non-EHU contacts. Of note, P2 is not included in tables of MA contacts; since they did not make new contacts from the MA, there would be no value against which to compare the non-EHU contacts. For the same reason, P11 and P12 are not included in tables representing mobilised capital only, as they had not mobilised support from their EHU contacts at the time of interview.

9.6.5.1 MEAN DEGREE OF EHU CONTACTS

Referring to the ranges in table 34, below, it is noticeable that there is a marked difference between participants' networks, with the mean degree of MA contacts varying from 1 – 9. On average, non-EHU contacts have 2.2 times more ties than MA contacts (7.025 vs 3.188). A 2-tailed t-test found this difference to be statistically significant ($p=0.023$). The discrepancy in medians between the groups is slightly higher, with non-EHU contacts possessing a median of 2.5 times more ties than MA contacts (6.250 vs 2.500). The

difference in means reduces slightly when adding in the PGCert contacts, due to the inclusion of P2 (see table 34), who had an additional EHU contact made prior to the MA and PGCert, who was connected with others in their network. Nevertheless, the mean degree of non-EHU contacts remained substantially higher than that of EHU contacts, showing an almost 2-fold difference (0.7467 vs 0.3750). This difference was statistically significant with a 2-tailed t-test ($p=0.025$). Considering mobilised capital only, the mean degree of MA contacts, and MA and PGCert contacts combined, remains lower than those of non-EHU alters. The difference in means is statistically significant with 2-tailed t-tests ($p=0.047$ and $p=0.038$ respectively; see table 35). These findings suggest that EHU contacts could provide access to more heterogeneous resources than non-EHU contacts. This concept can be further examined via the analysis of mean dyadic redundancies.

Table 34: mean degree of MA and PGCert contacts, mobilised and potential capital

	Mean degree MA contacts (mobilised and potential capital)	Mean degree non EHU contacts	Mean degree MA & PGCert contacts (mobilised and potential capital)	Mean degree non EHU contacts
P1	2.000	3.400	2.000	3.400
P2	NA	NA	7.000	10.700
P3	3.500	11.001*	4.750	11.300
P4	1.000	4.400	1.000	4.400
P5	9.000	12.800	9.000	12.800
P6	3.000	7.300	3.000	7.300
P8	2.000	7.700	2.000	7.700
P11	4.000	4.400	4.000	4.400
P12	1.000	5.200	1.000	5.200
Mean	3.188 †	7.025 †	3.750 ‡	7.467 ‡
Median	2.500	6.250	3.000	7.300
Range	1.000 - 9.000	3.400 - 12.800	1.000 - 9.000	3.400 - 12.800

*Includes P3's PGCert contacts

†Difference in means statistically significant ($p = 0.023$)

‡Difference in means statistically significant ($p = 0.025$)

Table 35: mean degree of MA and PGCert contacts, mobilised capital only

	Mean degree MA contacts (mobilised capital only)	Mean degree non EHU contacts	Mean degree MA & PGCert contacts (mobilised capital only)	Mean degree non EHU contacts
P1	2.000	3.400	2.000	3.400
P2	NA	NA	7.000	10.700
P3	3.500	11.001*	4.750	11.300
P4	1.000	4.400	1.000	4.400
P5	9.000	12.800	9.000	12.800
P6	3.000	7.300	3.000	7.300
P8	2.000	7.700	2.000	7.700
Mean	3.417 †	7.767 †	4.107 ‡	8.229 ‡
Median	2.500	7.500	3.000	7.700
Range	1.000 - 9.000	3.400 - 12.800	1.000 - 9.000	3.400 - 12.800

*Includes P3's PGCert contacts

†Difference in means statistically significant (p = 0.047)

‡Difference in means statistically significant (p = 0.038)

9.6.5.2 MEAN DYADIC REDUNDANCY

Whilst the average degree of EHU contacts provides a simple analysis of their connectivity, MDR is a more complex measure which takes into consideration the connectivity of the nodes to which the EHU contacts are tied. Referring to tables 36 and 37, there is a substantial difference between the mean dyadic redundancy (MDR) of EHU and non-EHU ties. At 0.184, the MDR of contacts made through the MA is just under half of the MDR of non-EHU ties (0.382). There is even more of a discrepancy between the medians of these two groups, with the median value for MA contacts at 0.103 being just over one third of the median value for non-EHU contacts (0.297). Once PGCert contacts are included, the difference between Mean EHU and non-EHU contacts lessens slightly, again due to the inclusion of P2. Nevertheless, the MDR for EHU contacts is just over half of that for non-EHU contacts (0.198 and 0.388 respectively), whilst the median dyadic redundancy of non-EHU contacts is 2.5 times that of the EHU contacts (0.344 and 0.140 respectively). However, these differences were not statistically significant. As observed with the mean degree of EHU

contacts, above, the ranges demonstrate substantial variability in measures between participants, with MDR ranging from 0 – 0.750 for P12’s and P6’s MA contacts respectively.

Table 36: mean dyadic redundancy of MA and PGCert contacts, mobilised and potential capital

	Mean dyadic redundancy MA contacts (mobilised and potential capital)	Mean dyadic redundancy non EHU contacts	Mean dyadic redundancy MA & PGCert contacts (mobilised and potential capital)	Mean dyadic redundancy non EHU contacts
P1	0.140	0.344	0.140	0.344
P2	NA	NA	0.270	0.426
P3	0.065	0.250 *	0.100	0.257
P4	0.000	0.229	0.000	0.229
P5	0.330	0.489	0.330	0.489
P6	0.750	0.851	0.750	0.851
P8	0.040	0.249	0.040	0.249
P11	0.150	0.170	0.150	0.170
P12	0.000	0.475	0.000	0.475
Mean	0.184	0.382	0.198	0.388
Median	0.103	0.297	0.140	0.344
Range	0.000 - 0.750	0.170 - 0.851	0.000 - 0.750	0.170 - 0.851

*Includes P3’s PGCert contacts

Table 37: mean dyadic redundancy of MA and PGCert contacts, mobilised capital only

	Mean dyadic redundancy MA contacts (mobilised capital only)	Mean dyadic redundancy non EHU contacts	Mean dyadic redundancy MA & PGCert contacts (mobilised capital only)	Mean dyadic redundancy non EHU contacts
P1	0.140	0.344	0.140	0.344
P2	NA	NA	0.270	0.426
P3	0.065	0.250 *	0.100	0.257
P4	0.000	0.229	0.000	0.229
P5	0.330	0.489	0.330	0.489
P6	0.750	0.851	0.750	0.851
P8	0.040	0.249	0.040	0.249
Mean	0.221	0.402	0.233	0.406
Median	0.103	0.297	0.140	0.344
Range	0.000 - 0.750	0.170 - 0.851	0.000 - 0.750	0.170 - 0.851

*Includes P3’s PGCert contacts

9.6.6 MEASURES OF HETEROGENEITY SPECIFIC TO THIS STUDY

Whereas the analyses above are all pre-existing, widely used measures, three measures of network heterogeneity were developed specifically for this study, as discussed in chapter 6. The first two measures, professional background of alters and relationship context will be analysed in the present section. The third measure, embedded resources, will be examined as part of the qualitative analysis later in this chapter.

9.6.6.1 PROFESSIONAL BACKGROUND OF ALTERS

For simplicity, professional background is considered in this section as clinician or non-clinician, since only 1 participant, P3, added learners to their network and these learners were also clinicians. As illustrated in table 38, below, participants' networks were predominantly clinical even when EHU ties were included (mean proportion of clinicians 0.610, range 0.429 – 0.750 for mobilised and potential capital). Indeed, P12 was the only participant whose network was composed of less than 50% clinicians; notably 80% of their job plan was university-based. Of the 17 MA ties formed by participants, 14 were non-clinicians. Looking at table 38, removal of MA contacts from the networks increases the mean proportion of clinicians in the networks from 0.610 to 0.651, with a slightly more pronounced increase in median proportion of clinicians from 0.588 to 0.649. In the PGCert, P2 and P3 both formed ties with non-clinicians. Removal of the PGCert and MA ties results in a similar incremental change in proportion of clinicians in the networks, with the mean increasing from 0.605 to 0.658 and median from 0.588 to 0.670 (see table 39). Conversely, considering contacts made through the MA only, removal of ties providing only potential capital results in a marginal increase in the mean proportion of clinicians in networks from 0.610 to 0.633. These trends suggest that studying for the MA may contribute non-clinicians to the network and further contribute to network heterogeneity by altering the make-up of the professional background of the network. Whilst the observed differences were not statistically significant, the practical implications of having network connections with non-clinicians are discussed in the qualitative data analysis in section 9.7.

Table 38: proportion of networks comprised of clinical contacts, MA contacts vs non-EHU contacts

	Proportion of network clinical with MA contacts (mobilised and potential capital)	Proportion of network clinical without MA contacts*	Proportion of network clinical with MA contacts (mobilised capital only)	Proportion of network clinical without MA contacts *
P1	0.571	0.600	0.667	0.600
P2	0.571	0.571	0.571	0.571
P3	0.711	0.658	0.711	0.658
P4	0.533	0.571	0.533	0.571
P5	0.708	0.773	0.708	0.773
P6	0.583	0.700	0.583	0.700
P8	0.593	0.640	0.615	0.640
P9	0.649	0.706	0.649	0.706
P11	0.750	0.789	0.789	0.789
P12	0.429	0.500	0.500	0.500
Mean	0.610	0.651	0.633	0.651
Median	0.588	0.649	0.632	0.649
Range	0.429 - 0.750	0.500 - 0.789	0.500 – 0.789	0.500 – 0.789

*Figures for P2 and P3 include PGCert contacts

Table 39: proportion of networks comprised of clinical contacts, PGCert & MA contacts vs non-EHU contacts

	Proportion of network clinical with MA & PGCert contacts	Proportion of network clinical without MA & PGCert contacts
P2	0.571	0.600
P3	0.694	0.735
Group mean (MA & PGCert)	0.605	0.658
Group median (MA & PGCert)	0.588	0.670
Group range (MA & PGCert)	0.429 - 0.714	0.500 - 0.773

9.6.6.2 RELATIONSHIP CONTEXTS

In chapter 6, nine different relationship contexts were established within the participants' support networks, EHU being one of the nine contexts. New relationships made through the MA therefore had the potential to contribute to the range of relationship contexts available to participants. As illustrated in table 40, P2 and P3 did not add to their

relationship contexts as a result of the MA, due to them already forming relationships via the PGCert. Therefore, alteration in relationship contexts ranged from 0% for P2 and P3 to 50% for P1, P6 and P12, the latter three having just two other relationship contexts within their networks. Hence, for P1, P6 and P12, the addition of EHU represents a 50% increase in this aspect of network heterogeneity. Consequently, as observed with the whole network measures presented in section 9.6.3, the quantitative impact of the MA contacts can be more pronounced within the smaller networks.

Table 40: relationship contexts - the impact of EHU contacts (both mobilised and potential capital)

	Different relationship contexts without EHU	Different relationship contexts with EHU	Percentage increase in relationship contexts (%)
P1	2	3	50.000
P6	2	3	50.000
P12	2	3	50.000
P4	4	5	25.000
P5	5	6	20.000
P8	5	6	20.000
P9	6	7	16.667
P11	6	7	16.667
P3	5*	5	0.000
P2	6*	6	0.000
Mean	4.000	5.000	24.833
Median	4.500	5.500	20.000
Range	2 - 6	3 - 7	0.000 - 50.000

*Networks of P3 and P2 included EHU contacts prior to the MA.

In summary, the quantitative analysis has provided evidence that relationships made through the MA can introduce changes to participants' educational support networks. Such alterations include a trend towards increased heterogeneity and the creation of brokerage positions for the participants. The following qualitative analysis builds on these quantitative results to gain an understanding of how these networks changes impacted upon the participants' lives.

9.7 QUALITATIVE ANALYSIS OF NEW RELATIONSHIPS FORMED VIA THE MA PROGRAMME

Interview data concerning the new EHU relationships were analysed via template analysis (King and Brooks, 2017). Templates were based on mobilised resources identified in chapter 2 and influential factors established both in chapter 3 and section 9.3. No new themes or subthemes of mobilised resources or influential factors were identified. This section begins with an overview of the resources supplied by the EHU contacts. The remainder of the section is structured according to the resources supplied, with representative quotes to illustrate the resources and any relevant influential factors.

Although P2 initially met their EHU contact via the PGCert, the resources they gained from this contact are included within this section's analysis. P2 believed that, over time, their relationship with their faculty contact had strengthened:

[P2A14] *was my tutor on both [the PGCert and the MA]. By the time I was doing the MA I got to know [them] better... The more I got to know [them] the easier it was to have conversations about common ground in education. (P2)*

Hence, their ability to mobilise SC was enhanced by the influential factor 'knowing someone well', an outcome of the MA. As stated at the beginning of the chapter, P7 and P10 were working at EHU prior to the MA. There were certain situations where P7 and P10 described their interactions with EHU faculty as being influenced by the MA; these topics are therefore of relevance to the study and will be further examined throughout the text. Where it has been apparent that support from P7's and P10's EHU contacts are not in any way influenced by the MA, the linked resources were considered to be part of their non-EHU network and were included in the analyses of chapters 7 and 8.

9.7.1 OVERVIEW OF THEMES AND SUBTHEMES

The themes and subthemes of resources supplied by EHU contacts are illustrated in figure 80, which provides a comparison with resources supplied by the non-EHU networks.

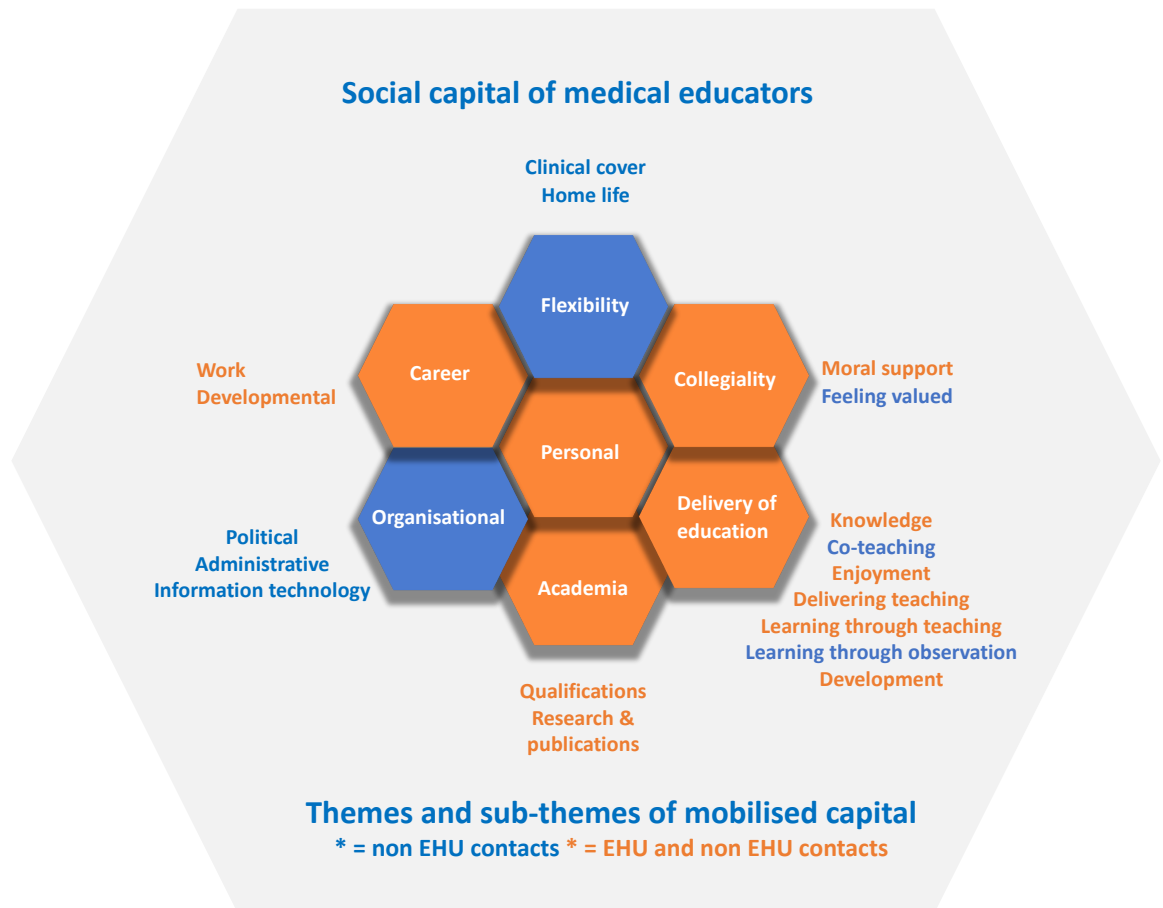


Figure 80: Resources provided by EHU and non-EHU contacts

Themes and subthemes of resources in blue were provided by non-EHU contacts only, whilst themes and subthemes in orange were supplied by both EHU and non-EHU contacts. Referring to figure 80, EHU contacts were able to provide support in 5 out of the 7 overarching themes: 'delivery of education'; 'career'; 'academia'; 'personal' and 'collegiality', definitions of which are provided in chapter 7. Considering the subthemes, EHU contacts were able to provide support in 56% of these areas, as detailed in figure 80. 'Organisational' and 'flexibility' were the only two over-arching themes of support not provided by EHU

contacts. Reflecting on the definitions of these themes in chapter 2, these resources could only be supplied by alters who were either working alongside the participants, or, in the case of ‘flexibility, home life’, had involvement in participants’ personal lives. Hence, these would be difficult resources for EHU contacts to deliver. Of note, figures 80, 81 and 82 exclude P7 and P10, unless otherwise stated in the relevant resource section below.

Whilst figure 80 shows which resources were mobilised, figure 82 illustrates the distribution of ties delivering these resources in the combined EHU networks of the participants. Comparing figure 82 with figure 81, the latter demonstrating the distribution of resources in the non-EHU networks, it is possible to observe some similarities and differences.

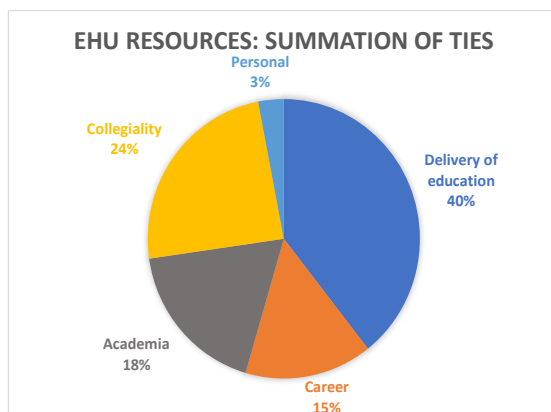


Figure 82: distribution of resources in summed EHU ties

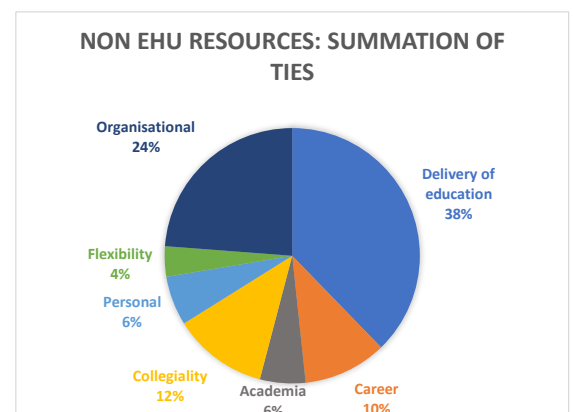


Figure 81: distribution of resources in summed non-EHU ties

For both EHU and non-EHU networks, the proportion of ties providing support with the ‘delivery of education’ is very similar (40% and 38% respectively). In contrast, and perhaps unsurprisingly, the proportion of EHU ties offering ‘academia’ support is triple that of the non-EHU ties. Putting this into the context of the whole networks, EHU contacts supplied 20% of ‘academia’ support, whilst only comprising, on average, 13.4% of network ties, as illustrated in figure 83.

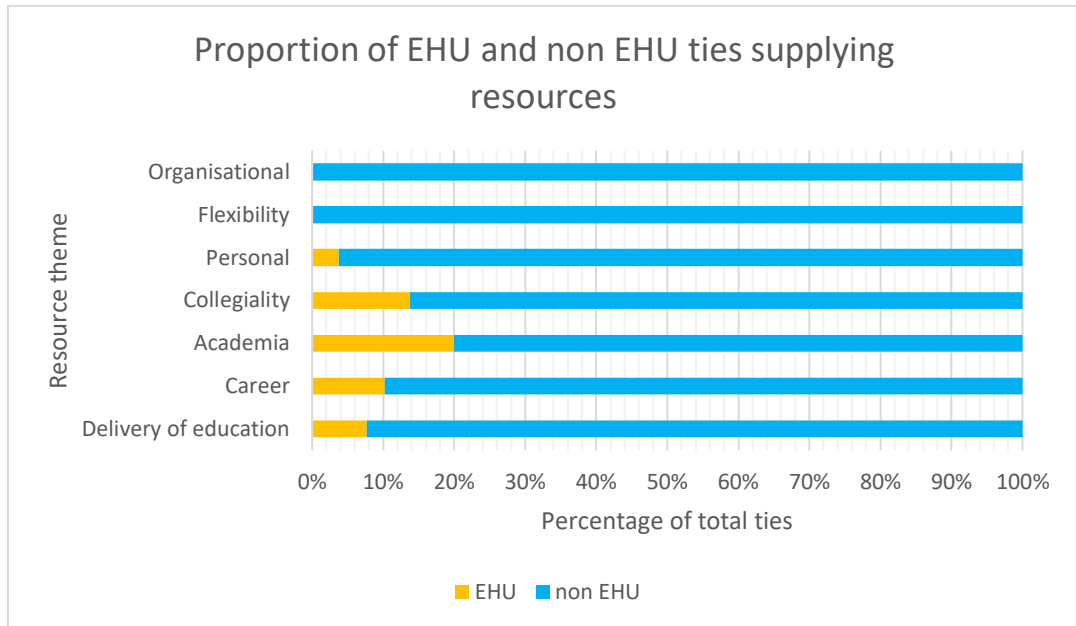


Figure 83: comparison of proportion of EHU and non-EHU ties supplying resources

Notably, the participants described their EHU ties as ad hoc contacts only; in other words, they were not the people to whom the participants turned for support on a daily basis. Yet, EHU ties provided 13.8% of ties supplying ‘collegiality’, a resource for which ‘homophily’ and ‘knowing someone well’ were found to be very important in chapter 8. Hence, it is perhaps surprising that EHU contacts could provide such a high proportion of ‘collegiality’ as a resource, an issue which will be explored further in section 9.7.4 (‘collegiality’).

To orientate the reader to the remainder of this section, the heatmap in figure 84 illustrates the influential factors and resources which featured in the analysis of the new EHU relationships. It is notable that ‘homophily’ and ‘heterophily’ are important influential factors, in addition to ‘mode of contact’ and ‘reciprocity’. These factors will be discussed further in the relevant sections, below.

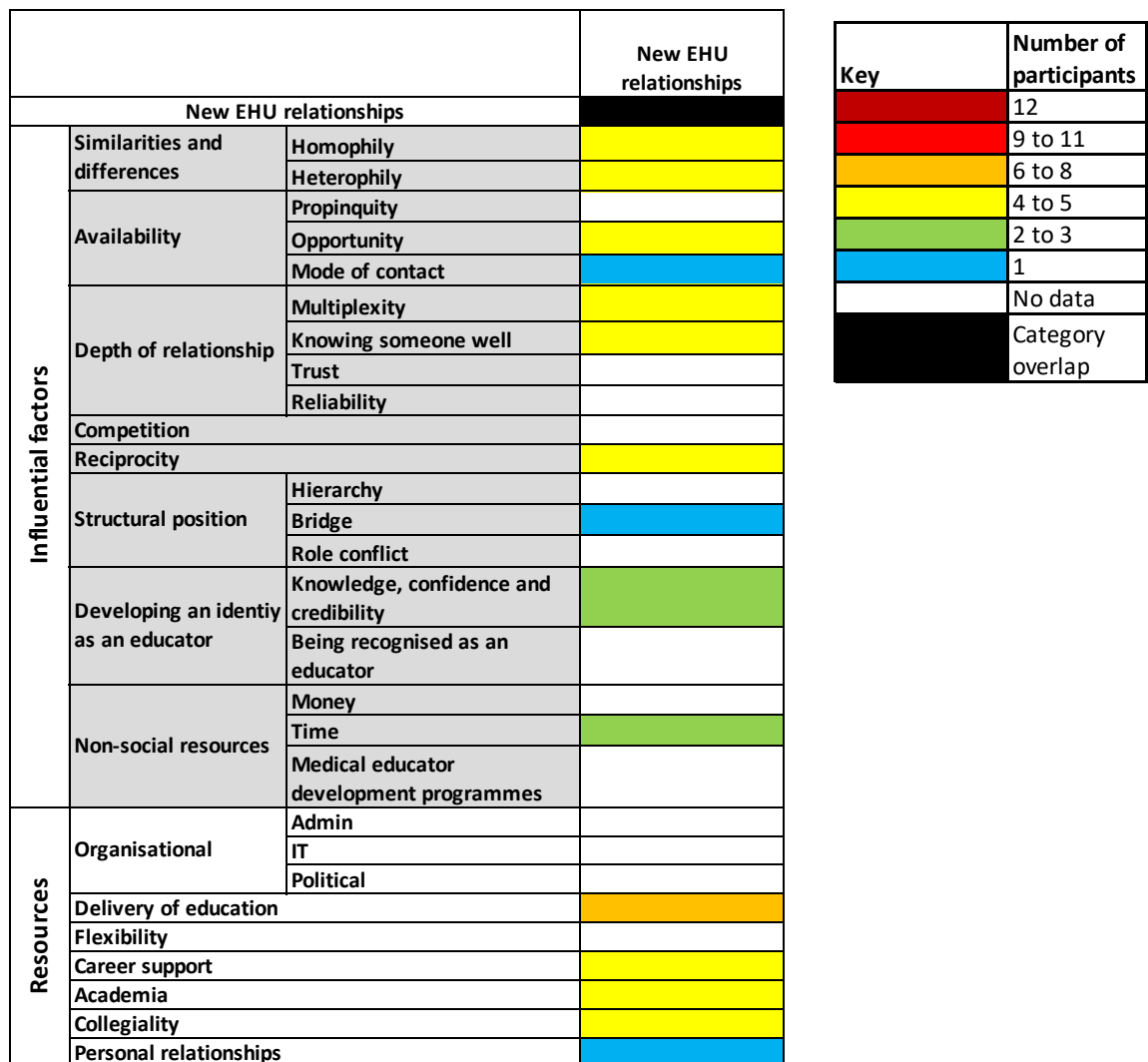


Figure 84: heatmap of influential factors and resources linked to new EHU relationships

The heatmap in figure 85, provides a further breakdown of influential factors in relation to the resource that was mobilised. Again, the purpose of this heatmap is to alert the reader to the relevant influential factors, which will now be examined in detail in the following analysis of the resources mobilised from EHU ties.

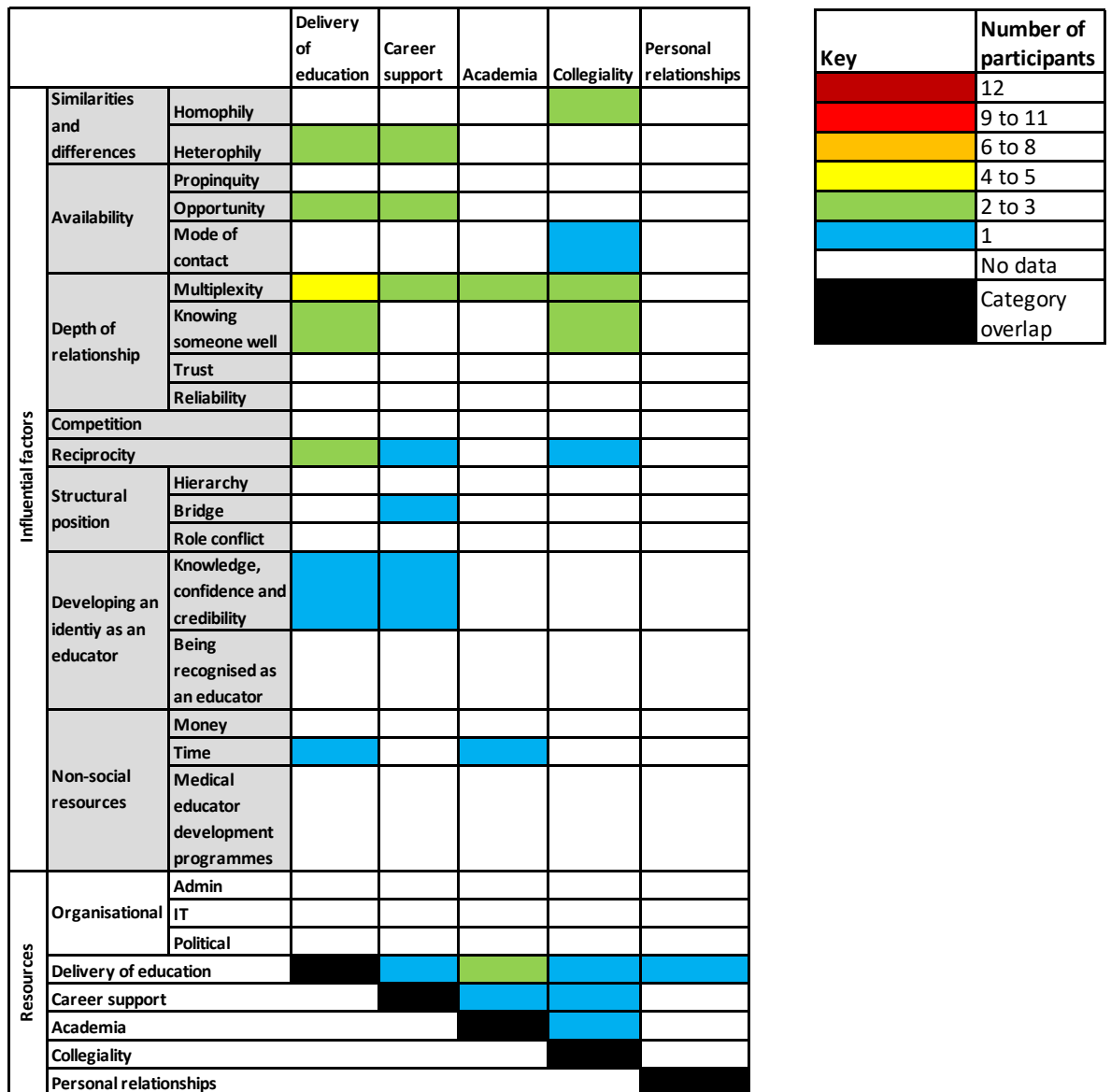


Figure 85: heatmap of resources supplied by EHU contacts illustrating influential factor by resource

9.7.2 CAREER SUPPORT

'Career support' and the associated subthemes of 'work' and 'development' are defined in section 7.2.4. Figure 86 illustrates which participants mobilised these resources from their EHU contacts.

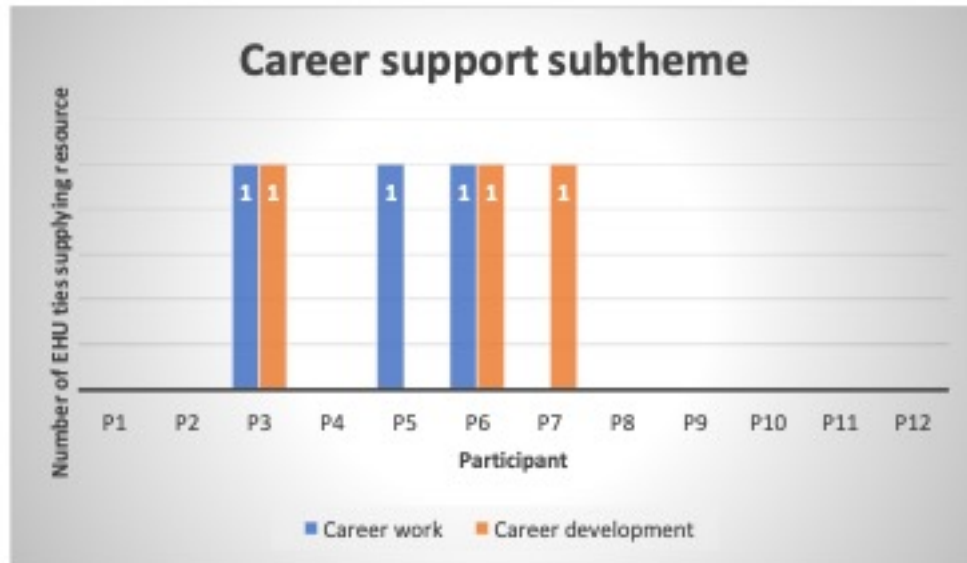


Figure 86: EHU ties supplying career support

9.7.2.1 OBTAINING EDUCATIONAL WORK (WORK)

P3 explained how faculty teaching on the PGDip and MA had provided support in obtaining educational work:

[W]hilst I was still doing my diploma and master's bit, [P3A15] asked if I wanted to come and facilitate some of the workshops. So I did that as a trainee. (P3)

Although P3 had first met this faculty member when studying for the PGCert, P3 was of the opinion that this job offer would not have been made had they not been studying for the MA/PGDip. Hence, the influential factor 'opportunity' was important in the mobilisation of support. This educational role provided ongoing credibility for P3:

I sat in a meeting with some supervisors and they were talking about [an educational topic]. The course, the module I'm a tutor on, is the module for [this educational topic], so I'm like, 'That's not the way!', and they're like, 'Yes, it is!', and I'm like 'It's not!...I teach this, it's not! I can give you the definitions, I can take you on the AME website now'. And...it's the credibility, it's the other side of stuff. (P3)

'Opportunity' was also an important feature for P5. They had emailed their EHU faculty contact to request support with teaching for a trainee (the nature of which is further detailed on p.288). In their response, faculty included information about jobs.

So I emailed [them] and said, 'I've got this trainee who's from [another region], how do I get [them] on the module 1?' And [they] got back to me and...said, 'By the way, in case you are interested, there are some positions coming up at such and such'. (P5)

Although the perspective of EHU faculty is not known in this situation, it is possible to see how this contact is mutually beneficial for both parties. The participants are able to access support when they require it and EHU faculty have a pool of potential tutors. Indeed, P1 observed that they received emails from faculty which were unprompted:

[They do] send emails through to people, for example, [if they are] recruiting tutors, [they] will email once in a while. (P1).

Consequently, there is an element of reciprocity in the on-going links between faculty and the participants; either party may initiate contact and mobilise support from the relationship.

9.7.2.2 CAREER DEVELOPMENT

Following graduation from the MA, P7 described receiving an 'educational appraisal' for the first time in two decades as a consultant.

When I finished the master's, I sat down with [P7A14 and P7A15] and discussed various possibilities for where to go further...That was the nearest thing I'd had at that point to an educational appraisal. In terms of 'This is where you are now. You've got your master's; what are you going to do?...And that was good, because...hospital consultants don't get a formal educational appraisal until they have a formal role above ES...so your ES competencies will be assessed at a regular appraisal and the collection of evidence against the GMC domains would be discussed at your regular appraisal, by somebody who didn't understand them, quite often. And if you've got any educational CPD on there at all, they tick all the boxes and off you go. But in terms with somebody sitting down with you and saying 'Right, what are doing, what are your strengths, what are your weaknesses, what do you want to be?', you don't get that until you're up at that level [P7's senior Trust educational role]...And I would have loved that, an educational appraisal at an earlier stage. And [P7A14 and P7A15] gave me that. (P7)

Whilst P7 was also part time faculty at EHU at the time of the MA, it is quite clear from their above comments that they believed this 'educational appraisal' only occurred because of their role as a student. P7 articulated how EHU faculty were able to provide a much-needed resource unavailable elsewhere in their support network, since they possessed a different level of knowledge to P7 and the rest of their network. Consequently, 'heterophily' is an important influential factor in the mobilisation of support with career development.

Similarly, P6 also met with EHU faculty after graduation to discuss career plans within education:

[S]o [P6A11] said, 'Right, let's touch base and talk about what you'd like to do educationally.' And I thought, 'Yeah, might as well'...I had a meeting with

[P6A11] *where [they] said, 'So where are you gonna go from here?' And I said, 'Well, I'm gonna carry on [in my current educational role], but one of the things I was thinking about was maybe becoming a tutor or something with Edge Hill.'* So [they] *said well, email [P6A10], but when I emailed, [P6A11] had already spoken to [them].* (P6)

Hence, P6 was able to mobilise two related resources from this meeting; 'career development', and 'career work'. Notably, P6A11 offered to act as a 'bridge' by liaising between P6 and P6A10 to make enquiries about job availability at the university. Additionally, P6's comments illustrate that the mobilisation of these resources was instigated by EHU faculty, not P6; from P6's comments it is apparent that faculty initiated the meeting and subsequently acted as a 'bridge' without being asked to do so.

In contrast to P7 and P6, P3 did not describe having a specific meeting with faculty to discuss career plans. Instead, they described more general support in this regard, which they mobilised during their interactions with P3A15, one of their faculty contacts.

I think [P3A15's] a bit like a mentor. I just thrive off being around [them]. (P3)

As discussed above, P3 worked as part time faculty at EHU at the time of interview, so had intermittent contact with P3A15 as part of their teaching role. Hence, 'opportunity' is again important for the mobilisation of this resource.

9.7.3 DELIVERY OF EDUCATION

This over-arching theme and associated subthemes are defined in section 7.2.1. Figure 87 provides a breakdown of the ties supplying the 'delivery of education' subthemes within each participant's EHU network. As is evident from this figure, the most frequently delivered resource in this subtheme was 'knowledge'. Indeed, with 6 ties providing this resource, it was the most common resource supplied by EHU contacts within the subthemes of all the over-arching themes.

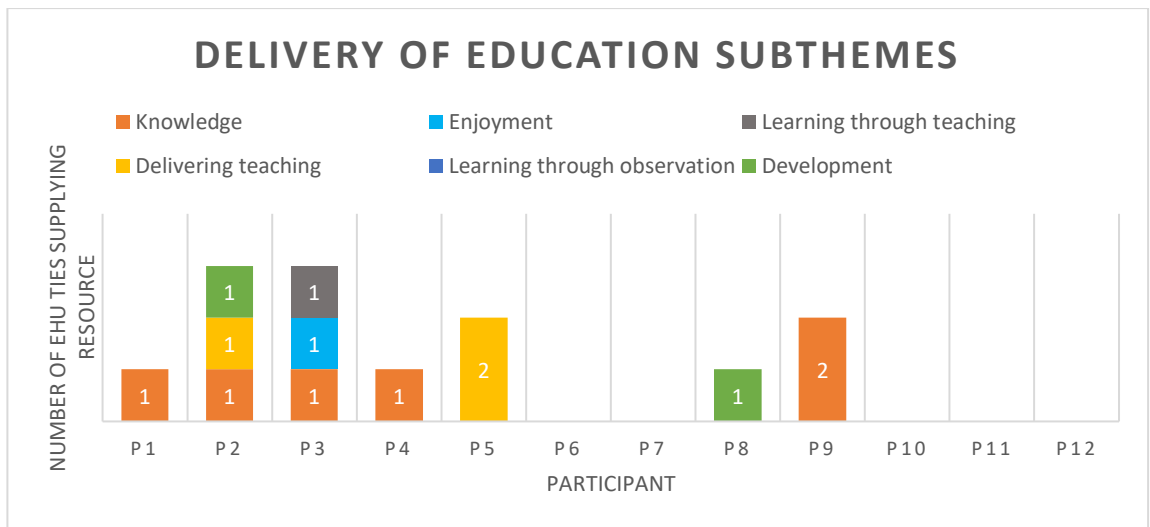


Figure 87: EHU ties supplying 'delivery of education' subthemes

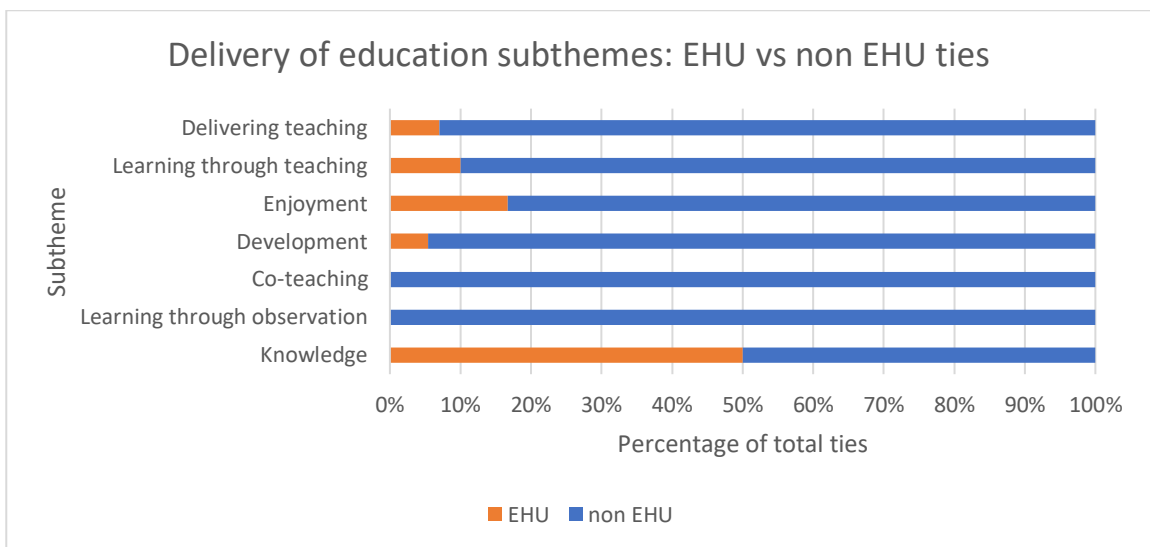


Figure 88: Comparison of EHU and non-EHU ties supplying 'delivery of education' subthemes

Figure 88 provides a comparison between the 'delivery of education' resources supplied by EHU and non-EHU contacts. In general, the relative contribution of resources reflects that EHU contacts form, on average, just 13.4% of the participants' networks. However, participants turned disproportionately to EHU contacts for 'knowledge', with EHU ties contributing 50% of this resource.

9.7.3.1 KNOWLEDGE

P1 maintained contact with a peer for 12 months post-graduation. P1 had identified that this person had experience and knowledge in the field of e-learning and wanted their advice in setting up an e-learning programme.

[They were] in the same group as mine and...did quite a lot in trying to set up the discussion forum for foundation trainees so that was when we were doing e-learning. So, I kept in touch with [them] to learn what [they were] doing and whether [they were] successful or not. (P1)

P2 also required support in setting up an e-learning programme:

I wanted to put stuff on [the VLE] and I've never used [the VLE] before. And I was faced with this thing and I wanted to set it up. And I wanted to create a [clinical scenario] and it was really difficult...I had the concept in my head, and I couldn't do it. (P2)

Here, P2 was not looking for the support of a technician but seeking the knowledge of an academic with specialist expertise in e-learning, a level of support that could not be provided by Trust-based IT staff. Likewise, P1 could not access support for their e-learning project within their existing support network. Hence, heterophily is an important influential factor for both P1 and P2.

P4 contacted EHU faculty for teaching resources when they were planning an educational business:

I tried to start up a teaching business at one stage [and] I seem to recall having a conversation with [them] at that point. (P4)

The scenarios described above by P4, P2 and P1 involved the participants actively seeking out support when they required it. However, chance encounters with faculty could act as a prompt for participants to request support from their EHU contacts:

I just happen-chanced on a train, but [they're] the sim lead, so we just had a wee chat about that. (P9)

On the back of [them] saying would you like to help my PhD student with [their] research project, I've emailed [them] and said could you tell me the up to date [topic] teaching resources. (P4)

In these scenarios, the influential factor 'opportunity' was key in precipitating the mobilisation of SC from the participants' ties with EHU faculty. Were it not for an unplanned contact, it is possible that P4 and P9 may not have thought to approach their EHU contacts for support.

9.7.3.2 DEVELOPMENT OF EDUCATIONAL MATERIAL (DEVELOPMENT)

P2 described ongoing educational collaboration with their EHU faculty contact:

We have met several times since doing the MA to discuss possibilities for joint education in the future. (P2)

Similarly, P8 conducted a series of projects with their former dissertation supervisor, P8A9. In addition to jointly developing an educational programme, they presented at a conference. Thus, P8 mobilised academic and delivery of education support from this tie.

We adapted the [educational] programme in the [local] region [and] presented at the educator's conference the work I did with [them]. (P8)

With ongoing collaboration post-graduation, P8 developed a more collegial relationship, which helped support their joint working:

[Y]ou get to know people and there's friendly interactions... you get that kind of a bond, that bit of contact; for me that's important. (P8)

P8's experiences echo those of P2's detailed in section 9.7, whereby the more they 'got to know' faculty, 'the easier it was to have conversations'. Ultimately, P8 was able to mobilise three resources from this multiplex EHU tie; collegiality, delivery of education and academia support, with collegiality enhancing the delivery of the other resources. P2's and P8's comments highlight the benefit of repeated interactions with faculty following graduation. Indeed, the more frequently P8 interacted with their EHU contact, the more resources they were able to mobilise.

9.7.3.3 LEARNING THROUGH TEACHING

P3 was invited to teach at EHU whilst studying for the PGDip. They explained how this helped support them in their Trust and HEE North educational roles.

I think it keeps me up to date with a feel for the trainees, cos I only get a feel for the trainees in my trust and these are trainees from all the [region]. So it's a way of hearing what's going on elsewhere, the challenges elsewhere, which is a bit selfish really, but it is keeping you outward facing really, as opposed to becoming too inward facing. (P3)

For P3, the learners at EHU represent heterophilous contacts. They were able to provide P3 with information about experiences on the regional training programmes that was not available from other network contacts. P3's statement that this support was keeping them 'outward facing' suggests that these contacts were helping P3 to continue to evolve in their educational roles.

9.7.3.4 SUPPORT WITH THE DELIVERY OF TEACHING (DELIVERING TEACHING)

P2 utilised the specialist knowledge of their EHU faculty contact to deliver teaching on an educational programme:

[They] came to lecture for me on a course I ran. (P2)

P5 utilised their EHU contacts to help their trainees gain access to a PGCert at EHU:

[T]hey'll come and see me and I'll go through the training matrix with them and I'll say 'Have you done this?' And they'll say 'No', and I'll say, 'Right let's do an email now' and they'll help me get them onto the next cohort. And it's like using little contacts, really, isn't it? (P5)

Without their EHU contacts, P5 would have been required to contact HEE North to make enquiries on behalf of the trainee. Such an approach would have been much less efficient for both P5 and their trainee. Therefore, in addition to delivering education, EHU contacts were also saving P5 time, which, as discussed in chapter 2, is a precious commodity for medical educators.

9.7.4 COLLEGIALITY

This theme consists of two subthemes: moral support and feeling valued by colleagues, as defined in section 7.2.3. Participants reported that EHU contacts provided the subtheme collegiality, moral support, as illustrated in figure 89.

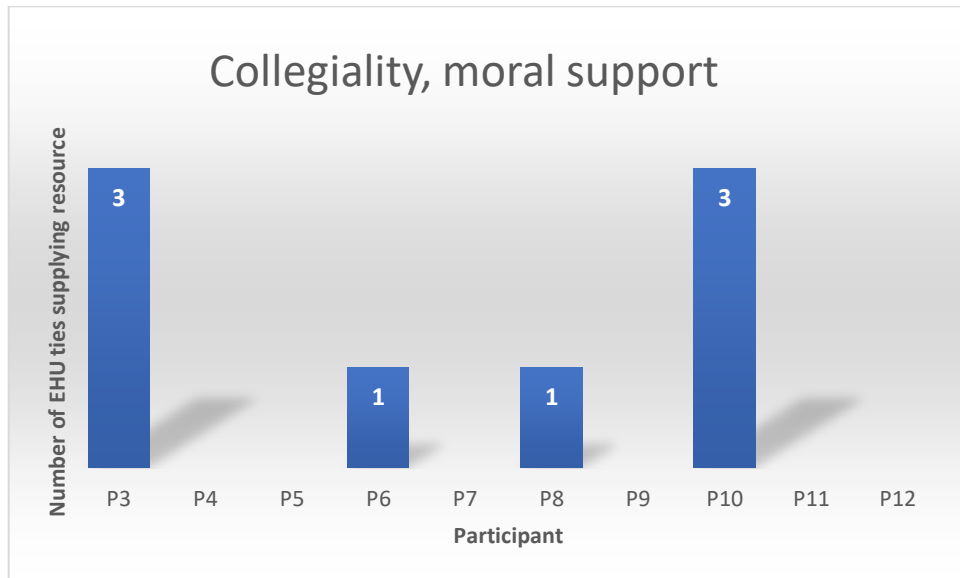


Figure 89: EHU ties supplying 'collegiality, moral support'

P3 reported that ongoing collegial relationships with EHU faculty helped them to cope with challenges in their Trust educational roles:

I think it's more of a resilience thing. That you can sometimes feel you're going nuts, because education can be quite a challenge...[C]hatting to these people [EHU faculty contacts], they're like-minded people...I sit in directorate meetings and Trust meetings and people just, you think, really, how can you say that and it's that kind of 'What?' Whereas these people are on the same wavelength...You'll just talk about stuff that's going on and they'll give you their perspective, which is nice because it's educationally based as opposed to service based...[I]t's world views, isn't it? [My Trust colleagues]...have different world views. And that's why it helps with my resilience, with, I suppose, just

selfishly, just feeling good about yourself, because, sometimes you can get a bit of intruder syndrome when you're going into these other areas and actually, this just gives you a bit of sense of self again. (P3)

P3 has provided a very powerful account of the role of homophily in the development of collegial relationships. The homophilous nature of the interactions with EHU boosted P3's self-confidence and provided them with a sense of belonging; something they could not obtain in their Trust relationships. Indeed, P3's comments that their EHU contacts gave them a 'sense of self' suggests that ongoing links help to re-affirm and shape P3's self-identification as a medical educator, something which they felt gave them 'resilience' in their Trust-related educational work.

P10 also experienced difficulties in communicating about educational matters with Trust colleagues. Like P3, their on-going teaching at EHU had a positive impact on their well-being:

Every time I would come in here [EHU] I could feel my mood coming up and feeling better and getting a lot more energy. (P10)

Similar to P3, P10's homophilous, collegial relationships with EHU faculty helped sustain them in their Trust educational roles. Notably, whilst P3's and P10's ties with EHU faculty were homophilous, the resources delivered by EHU faculty were different to those available in the rest of the networks, hence providing heterogeneity. Importantly, although P10 had worked at EHU on an ad hoc basis when studying for the MA, they described that the MA helped them to develop collegial relationships with faculty; hence these resources being classed as coming from EHU contacts:

You have very little time as an AT [Associate Tutor]...As a student you talk in more detail about things. I engage more with someone when I've engaged with them at that level. That was possibly one of the reasons the [clinical] work

relationships were so dissatisfying cos there was never that level of discussion.

(P10)

Like P10, P8 found that engaging with faculty members during the MA helped to develop a collegial relationship after graduation:

I'm close to [P8A9], cos [they were] my [dissertation] supervisor... When I got that award the other week, [they] sent me a nice email and stuff, [they] picked up on Twitter... [They] sent me a message, which was really, really nice. (P8)

Whilst P8's relationship with P8A9 was strengthened by the time that they worked together on P8's dissertation, P8's statement also highlights the importance of mode of contact in maintaining social relationships and mobilising SC. Were P8 not a Twitter user, P8A9 may not have discovered P8's success, and the resource of collegiality may therefore not have been supplied.

P3 also formed an ongoing collegial relationship with a peer on the MA who worked in the same specialty in a different Trust. Subsequent to the MA, P3 and their peer contact were required to work together on a project for their Trust. They had not known one another prior to the MA; P3 described how the experience of the MA created a shared bond:

[S]o now at a meeting, when I see [them], it's, when well we were going through it, we were saying, 'Oh, I finally got mine in' and now it's like 'Oh, at least that pain's over', so I suppose it's kind of just feeling each other's pain.

(P3)

P3 perceived that this shared bond would continue to help them work with their peer contact in the future:

[W]e're in the same [inter-trust working partnership] and like there was a [clinical training] expansion scheme that we were meant to work together as [a group], so obviously when I need to reach out, I can go directly to [them], I know [their] name and [they know] me...[I]t certainly is good that's it's there.
(P3)

Hence, as observed in the non-EHU networks, and in P8's and P10's comments in this section, knowing someone well is an important factor in the development of collegiality, with the MA providing the foundation from which a collegial relationship could flourish.

9.7.5 PERSONAL SUPPORT BEYOND THE WORKPLACE (PERSONAL SUPPORT)

'Personal support' contains no subthemes and is defined in section 7.2.6. One participant, P4, explained how keeping in touch with a particular faculty member would be as much for personal reasons as anything else:

I think it's because [they're] such a lovely genuine person and...so supportive...You take certain people with you through life, don't you and even if you don't see them regularly, you remember them and you remember what they've done for you and how they've helped you and where they've been on your journey and [they are] one of those people...In 10 years' time I might just email and say 'How are you and how are you getting on?' (P4)

Hence, P4 would keep in touch for the simple reason of wanting to maintain contact, akin to a form of friendship, rather than for a need for any other form of support. P4 does not describe a close friendship, but there is an aspect of a personal relationship that is not related in any way to work.

9.7.6 SUPPORT WITH ACADEMIC ACTIVITIES (ACADEMIA)

'Support with academic activities' contains two subthemes: 'research and publications', and 'qualifications'. The over-arching theme of academia and the subtheme research and publications are defined in 7.2.7. Academia, qualifications is defined in section 9.3. The distribution of ties supplying these resources is illustrated below in figure 90.

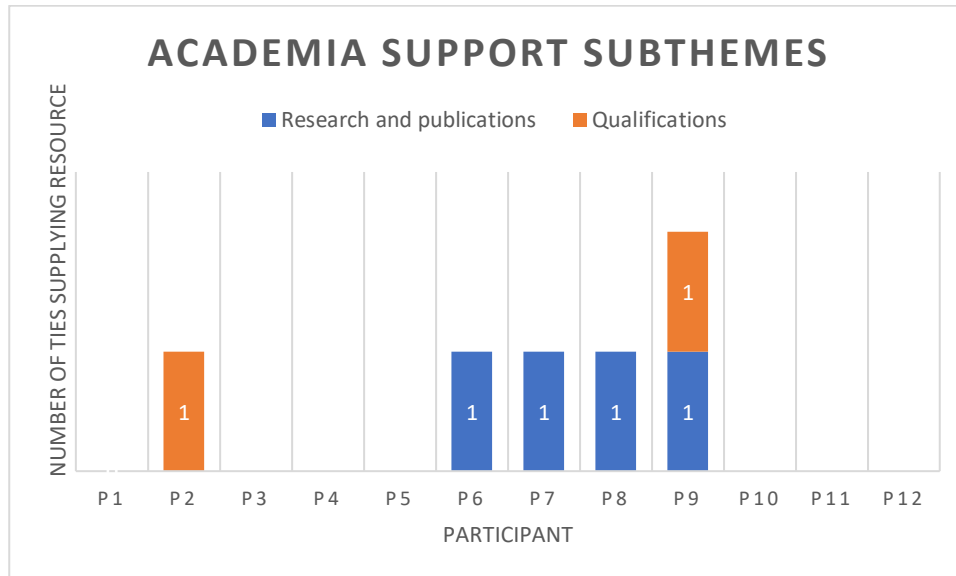


Figure 90: EHU ties supplying 'academia' support

9.7.6.1 RESEARCH AND PUBLICATIONS

Four of the participants reported ongoing contact with faculty relating to writing up their MA dissertation. As the support for P7 is clearly related to the MA, this support is included in their EHU network.

So I meet with [them] from time to time to try and thrash some sense into this dissertation. It's not going anywhere very fast. (P7)

[P9A26] and I have met up a couple of times on the back of trying to write up a paper. (P9)

Once the [MA] had finished, we wrote a publication together. (P8)

The last time I saw [them], I came away with a plan that I was gonna write this up... [Y]ou think you should do something with this master's and then life gets in the way. (P6)

Whilst P8 was successful in achieving a publication based on their MA research, P7, P9 and P6 were continuing to meet with EHU faculty for support with writing for publication. P7's statement suggests that they were struggling to make their dissertation into a publishable format, whilst P6's comments that 'life gets in the way' would suggest that the multiple demands they face in the workplace and in their personal life have limited the amount of time available. P6 explained why they enjoyed continuing to work with EHU faculty after graduation:

I like [them]. I like the fact that [they're] very approachable, very enthusiastic, and...gives feedback in a good way...And I think [they look] at the whole person. (P6)

Therefore, as noted with P8 and the support they received with the ‘delivery of education’ (section 9.7.3.2), ‘collegiality’ was an important factor in sustaining the relationship between P6 and their EHU contact. P6’s description of their EHU contact also resonates with P4’s comments in section 9.7.5 that they wished to maintain contact with EHU faculty simply because they liked them.

9.7.6.2 SUPPORT WITH QUALIFICATIONS

To address the study objectives (section 5.3.2), this section only examines support provided by EHU *after* graduation from the MA. Two participants, P9 and P2, stated that they had approached their EHU contacts for support in undertaking further qualifications or academic study. At the time of interview, P9 was due to commence another learning module with EHU. Prior to applying for the module, they spoke with one of their EHU faculty contacts, P9A24:

[A]ctually, [they’re] the one I spoke to about doing this new module. (P9)

P2 had met with their faculty contact, P2A14, to discuss embarking on a level 8 qualification:

I’ve been to [them] to talk about whether I could do...an EdD...[T]here was some suggestion that they’d start one and I was interested in that. (P2)

That P2 was aware of P2A14’s involvement in a developing educational programme demonstrates the advantage of ongoing contact and information sharing between faculty and graduates.

9.7.7 MULTIPLEXITY

From the accounts above, it is clear that some participants mobilised resources from more than one over-arching theme from their EHU contacts. As discussed in 8.2.3.1, this situation is described as multiplexity. Tables 41 and 42 give the respective multiplexity figures for the MA and the MA and PGCert combined. Although the data are quantitative, it is more relevant to present these findings following the discussion of resources mobilised from the ties.

Table 41: multiplexity of MA ties and non-EHU ties.

	Number MA ties multiplex	Proportion MA ties multiplex	Number non EHU ties multiplex	Proportion non EHU ties multiplex
P1	0	0.000	1	0.200
P3	0	0.000	11	0.306*
P4	1	1.000	8	0.571
P5	1	0.500	4	0.182
P6	1	0.500	2	0.200
P8	1	0.500	15	0.600
P9	1	0.333	17	0.459
P11	0	0.000	10	0.500
P12	0	0.000	1	0.167
Mean	0.556	0.315	7.667	0.354
Median	1.000	0.333	8.000	0.306

*Includes P3's PGCert contacts

Table 42: Multiplexity of combined PGCert and MA ties compared with non-EHU ties

	Number MA & PGCERT ties multiplex	Proportion MA & PGCERT ties multiplex	Number non EHU ties multiplex	Proportion non EHU ties multiplex
P1	0	0.000	1	0.200
P2	1	1.000	5	0.238
P3	1	0.333	11	0.324
P4	1	1.000	8	0.571
P5	1	0.500	4	0.182
P6	1	0.500	2	0.200
P8	1	0.500	15	0.600
P9	1	0.333	17	0.459
P11	0	0.000	10	0.500
P12	0	0.000	1	0.167
Mean	0.700	0.417	7.400	0.344
Median	1.000	0.417	6.500	0.281

As can be seen from tables 41 and 42, the mean proportions of MA and non-EHU ties exhibiting multiplexity are very similar. On average, 0.315 MA ties were multiplex, compared with 0.354 non-EHU ties, the latter figure including P3's MA contacts. Considering the PGCert and MA combined, however, a greater difference was observed between the groups. An average of 0.417 of the MA/PGCert ties were multiplex compared with 0.344 non-EHU ties, with the median values showing a greater discrepancy, at 0.417 and 0.281 respectively. 2-tailed t-tests found no statistical difference in multiplexity between EHU ties (both MA alone and MA and PGCert combined) and non-EHU ties. Hence, EHU ties, which were contacted on an ad hoc basis only, offer comparable levels of multiplexity to more frequently encountered non-EHU ties. In comparison with the non-EHU networks, where collegiality and delivery of education were the most commonly co-coded themes, in the EHU networks, delivery of education and academia were most

frequently coded together, reflecting the different overall proportions of mobilised SC in the EHU and non-EHU networks.

9.7.8 POTENTIAL CAPITAL

As illustrated in table 29 (section 9.6.2) not all participants had mobilised resources from their EHU contacts. Consequently, some relationships represented potential capital, as defined in section 3.2.3. Whilst P1 had received support from their EHU peer contact, they had not yet requested assistance from their EHU faculty contact. However, P1 viewed their faculty contact as a potential source of future support:

I know if there's an [education related] issue I can contact [them], but so far, I don't think I've needed to. (P1)

P11 and P12 graduated from the MA within 12 months of the interview and had yet to mobilise any resources from their ongoing ties with faculty. However, P11 stated that their faculty contact, P11A14, had been in touch since graduation:

'Cos [they're] now nagging me a) to write the paper up and b) to do my PhD. (P11)

Had P11A14 not been in contact, P11 observed that they would have acted to maintain the relationship post-graduation, explaining how they had appreciated faculty's input during the MA:

When I've been using clinical examples, [they've] got me to think a little bit more. And it's good cos it's somebody that's not clinical. It's always good to have different viewpoints...[They're] on my phone-a-friend list of people I could quite easily phone up if I needed something. (P11)

Hence, P11 valued the relationship in terms of the difference in professional backgrounds. Not only was this difference helpful during the MA, but P11 envisaged that it would likely be of benefit at some point in the future.

P12 also valued the heterogeneity that their faculty contact could bring to their network:

I think that having somebody objective and outside your own institution to do your postgraduate qualification has been useful because [they're] objective. I mean [they're] brilliant, that goes without saying, but [they] also [have] an objective view of things, which I think is useful. (P12)

For P12, the heterophilous aspect of the relationship with EHU faculty lay in the relationship context. Whilst P11 appreciated a non-clinical perspective, the majority of P12's working life was spent in a university. Hence, it is likely that they already benefitted from the non-clinical input which P11A14 provided for P11. Instead, P12 valued the objectivity provided by a different institution. Notably, P11's and P12's views contrast with P3's and P10's experiences (section 9.7.4) of enjoying the homophilous aspects of their faculty relationships, which provided collegiality.

P2 and P5 had already received support from their EHU contacts and stated their intentions to keep in touch for future support:

I would still go to [them] if there was something, but it would be something specific. (P2)

I feel like with both [of them], I could feel, periodically I could email them out of the blue. (P5)

Here, P2 has identified that any contact with EHU faculty would be specifically targeted to addressing particular issues as they arise, rather than keeping in touch because of the personal nature of the relationship, as described by P4 (section 9.7.5). P5 demonstrates

that their relationship with faculty is a comfortable one. This is not a relationship which requires work to maintain; P5 is free to keep in contact as and when they wish to, in the knowledge that a request for support will be met positively.

9.7.9 REASONS FOR NOT MAINTAINING CONTACT WITH PEERS

It is notable that only two of the participants maintained contact with peers beyond graduation. Indeed, participants found it difficult to recall their peer relationships from the time of their studies. With the exception of P1 and P3, whose ongoing relationships with peers are discussed above (pp.284 and 291), only three participants were able to remember interactions they had with peers whilst on the course. For the purpose of contextualisation, these recollections are presented along with participants' reasons for not maintaining peer relationships after graduation. The following themes and subthemes of influential factors, as defined in chapter 3, were found to be important: 'mode of contact'; 'similarities and differences'; 'reciprocity' and 'non-social resources, time'.

9.7.9.1 MODE OF CONTACT

As described in section 2.4.4, the MA is a blend of face-to-face and online learning, with just four group face-to-face sessions. Whilst the flexibility of this blend allowed learning to be dovetailed with busy clinical jobs, many participants felt that it discouraged the formation of relationships between peers:

When you're doing your dissertation, you felt a bit more isolated, cos it's just for you isn't it? Cos with the other modules, you're meeting up and you're in your group and everyone has to get there to that session, so in some ways you're a bit more isolated. So, I suppose you look a bit more to your supervisor for support then, don't you? (P6)

I think you only see people on the face-to-face days and you have conversations on the discussion forums, but you don't see them enough to build up a bond, a relationship. (P8)

These quotes build a picture of loneliness and isolation, with discussion boards alone being insufficient for these participants to build up a meaningful connection with their peers, beyond that which was required for their studies. Minimal face-to-face contact impacted upon participants' ability to get to know their peers, mode of contact therefore linking with the influential factor knowing someone well. As P6 pointed out, it was during the dissertation stage where more support was needed from the supervisor, thus forging closer relationships. A further example of such a connection is the relationship P4 describes with faculty in section 9.7.5, their comments being made in the context of P4 appreciating the support they were given by their supervisor.

9.7.9.2 SIMILARITIES AND DIFFERENCES

P8 welcomed heterogeneity amongst peers as an aid to learning:

I felt the stuff at Edge Hill was much more broad and inclusive and I liked that...[A] lot of the face-to-face days in particular, probably one or two medics would be there, but there was a range from nurses, to paramedics, all sorts of people and that was really enriching, cos you would think about things in a different way. (P8)

These comments are reflective of P8's views of the importance of heterogeneity in delivering education, as discussed in section 8.2.1.2. Nevertheless, this benefit was insufficient reason for P8 to continue the relationships once they had graduated, for the reasons described above in the previous section (9.7.9.1).

For some participants, being in some way different from their peers discouraged close or ongoing relationships. For example, P6 felt uncomfortable mixing with other specialties and didn't really feel they had anything in common with their peers.

[F]or the diploma, it was all specialties, which was out of your comfort zone, I think. But there was no-one I felt particularly an affinity or a gel with. (P6)

In contrast, P2 got on so well with other members of their online discussion group that they wrote a paper together which they presented at a conference. They described receiving support with e-learning from a peer during the MA programme:

[They] developed [an e-learning programme] and it was fascinating and it was right up my street and I suppose, in a sense, that gave me the idea for [my virtual ward]. I talked to [them] quite a lot about that. (P2)

Despite the considerable influence this peer had on P2's practice, P2 did not remain in contact with them, or any other peers after the MA. In explanation, P2 cited a lack of similarity between themselves and their former peers:

[W]e were a group of people who only had in common the fact that we were doing the master's...It was a point in time during which we shared during that period, then that was it, that was finished. (P2)

Consequently, P2's relationships with their co-learners were founded purely on their shared status as students. P2's perspective may be better understood when interpreted in conjunction with their comment in section 9.7.8 that they would only contact faculty for a particular reason. For P2, relationships needed to serve a purpose. Similarly, P6 reported that whilst studying on the MA they did not perceive that their peers would be able to provide support:

I needed the support from my tutor, but not so much from my peers...[A]part from other people saying, 'Oh my god it's really hard isn't it?' I don't think there was much anyone else could've done peer-wise to support me. (P6)

Simply put, P2 and P6 both required their relationships to supply a resource which had value for them. Reflecting on chapter 8's findings that medical educators struggled to find

time to conduct all their roles, the attitudes of P2 and P6 may merely be a pragmatic approach to time management. This issue is alluded to by P11, below and discussed in further depth with P10 in section 9.7.6.3.

P11 reported a lack of time to maintain relationships after the MA and felt disconnected from peers due to the variation in timings of the modules

I think time and I think also with the master's, it felt very much that I was doing it on my own. [W]ith the PGCert, it felt a little bit more of a community, cos you were all in at the same time. I think with the master's, cos everybody's doing it at a different time, there isn't quite as much as that kind of community. (P11)

Hence P11 felt different from their peers because they were not studying simultaneously. This difference in timings discouraged the formation of collegial relationships, linking with P3's statement in section 9.7.9.1 that they 'didn't do the master's with anyone'. P11's comment about lack of time is picked up on by P10 below (section 9.8.6.3).

9.7.9.3 TIME AND LACK OF RECIPROCITY

P10 explained why it was difficult to find the time and motivation to maintain contact with fellow learners after graduation:

I think most of it was exhaustion. I just didn't have enough energy to do any more than send a few emails and maybe occasionally call people up. And had we both been working on it, it might have gone somewhere but I just didn't have the energy. I mean, the energy was just about surviving. And there wasn't enough left over for much else. (P10)

P10's comments summarise a recurring issue throughout the analysis of both the EHU and non-EHU support networks of the participants. As established in chapters 6 and 8, medical

educators have multiple roles, often undertaking their educational activities in their own time. For some participants, lack of time was also a major issue during the MA programme:

I had no life... It was hard. I'd think twice about putting myself through it again.

(P3)

It was quite difficult. Winter Sunday afternoons, I would say. But it's quite hard isn't it? I look back now and I wonder how I had the time. (P5)

The statements of P10, P3 and P5 highlight the immense time pressures faced by medical educators. Combined with insufficient opportunities to get to know their peers, lack of homophily and a sense that there was little to be gained, it becomes clear why so few peer-peer relationships endured beyond graduation.

9.8 PARTICIPANTS' COMPARISON OF THE BENEFITS OF THE MA QUALIFICATION AND SUPPORT RECEIVED FROM NON-EHU NETWORKS

To fully understand the impact of the MA within the context of the support network, participants were asked which had been more useful to them in their medical educator role; the MA or their support network. The responses fell into three categories: 'MA more important'; 'network more important' and MA and network 'equally important'. Figure 91 illustrates how these responses were distributed amongst the participants.

MA more important	P10									
Network more important	P6	P9								
Equally important	P1	P2	P3	P4	P5	P7	P8	P11	P12	

Figure 91: Participants' comparison of the MA and their non-EHU networks

P10 was the only participant for whom the MA was more important than the network.

I think in terms of actually doing the job, it's the content [of the MA]...It's given me a lot of tools and a lot of language to do those jobs. (P10)

It is notable that P10 reported having difficulties in obtaining some of the support they required from their Trust-based colleagues, describing more negative experiences than the other participants. Hence, without detracting from the positive benefits of the MA, P10's comments may simply reflect the perceived inadequacies of their network.

P6 and P9 both felt that, whilst their MA had provided them with knowledge, confidence and credibility, their networks were of more importance in their day-to-day work. P6 explained why:

My social contacts are definitely more useful. Because my master's gave me technical knowledge and it gave me self-confidence, but I think you always need the support of your network. You can't function in the job that you do without supportive people around you. (P6)

Hence, the MA and the support network had disparate functions. For some participants, this distinction made it impossible to prioritise either the MA or the network:

I think it's different. Because what you get from [the network] is just the day-to-day logistics, but the master's and the PGCE is more understanding of what education is all about, so it's different. So, equal I guess, but in a different way. (P1)

I think they're different. I think that the master's has given me the knowledge and confidence and competence to know what I'm doing...whereas...the support of my colleagues and my [spouse] for my educational role is a different thing and I see that as more of a sounding board...to help me make my own decisions. (P12)

P2 and P3 explained how their networks were essential in implementing the knowledge they had gained from the MA:

You need both, because...you can't use [the MA knowledge] without having the people around you who help to make it work. (P2)

I could do the master's theoretically, but you need the network...to make it relevant. (P3)

Consequently, for these participants, the MA alone would be futile without a network to help implement their knowledge. However, it is important to note that both P2 and P3 rated the MA as being of equal import to their networks. As P3 commented, the network and MA 'go hand in hand'.

P4 adopted a different perspective to P2 and P3. Whilst they viewed the MA and their network as equally important, P4 felt that the MA had impacted upon their network in more ways than they could articulate. As discussed in section 9.5, P4 felt that without the MA they would not be in their current university-based role or have considered starting up an educational business. Accordingly, they believed that their network would be very different.

Well I think they're so interconnected, because I honestly don't think if I hadn't done [the MA] that I would have these supports...[M]y life is completely different in many, many ways which you've just highlighted and I've never thought about before because of the master's. (P4)

P4's statement summarises many of the findings presented in this chapter. The academic outcomes of the MA are interwoven so tightly with the social impact of the qualification that even the graduates themselves may not be overtly aware of the full consequences of the MA, until, perhaps, someone engages them in an interview.

9.9 SUMMARY

The data presented in this chapter have revealed a plethora of ways in which the MA has impacted upon the SC of graduates. The participants achieved their aims with the MA; namely gains in knowledge and credibility, with which came confidence. These outcomes impacted positively upon the participants' social relations. They reported that they felt more assured in their interactions with other educators, feeling confident to stand firm in their opinions when faced with disagreement, yet able to enjoy informed discussions with like-minded colleagues. Participants also reported that the MA had helped them to gain employment in both educational and clinical roles, forming additional social connections in their new positions. The impact of the MA also extended into the personal lives of the participants, with one participant reporting that the MA had transformed a life-long issue with low self-esteem, to the extent that they were able to join sports clubs, something they had never before felt able to do.

Whilst the above effects were difficult to measure, it was possible to examine in detail the relationships that participants had formed via the MA programme. On average, participants each made 1.6 new connections, the vast majority being faculty from the programme, with only 2 participants maintaining contact with peers. Quantitative analysis at a nodal level found that EHU contacts were, on average, less well connected than participants' other contacts, a finding which was statistically significant. This finding was accompanied by a trend for the EHU contacts to contribute towards increased network efficiency and number of structural holes, with a small downward trend in constraint and density. However, these trends were not statistically significant. For four participants, the EHU contacts formed a separate component, placing the participants in brokerage positions. EHU contacts were found to offer equivalent levels of multiplexity to non-EHU contacts. The heterogeneity measures developed for this study revealed non-statistically significant changes in the professional composition of the networks, in addition to an increase in relationship context of up to 50% for the smaller networks. Taken together these findings suggest that contacts made via the MA programme can add heterogeneity into the networks of participants in addition to creating positions of brokerage for

participants. Notably, the quantitative analyses at the network and nodal level demonstrated substantial variability between participants' networks, suggesting impact of the MA may vary markedly between individuals.

Qualitatively, the heterogeneity provided by EHU contacts was appreciated by the participants. They were able to access specialised knowledge and skills unavailable elsewhere in their networks. Participants particularly valued being able to obtain the perspective of someone from another professional background and a different institution. Overall, EHU contacts supplied resources from 5 out of the 7 resource themes; EHU contacts forming 50% of the ties supplying the delivery of education, knowledge resource and 20% of the academia resource. This is an impressive contribution considering EHU contacts made up just 13.4% of ties and were only in very occasional communication with the participants. Indeed, the only 2 resource themes which were not supplied by EHU contacts would have required alters to be either working in the same institution as the participants, or to have a connection to the participants' personal lives.

The process of studying for the MA helped form deep relationships with faculty, with participants who knew faculty prior to the MA describing how their relationships became stronger through their studies. After graduation, relationships continued to evolve, as faculty and graduate became better acquainted over years of episodic interactions. Participants described a comfortable relationship with their EHU contacts, knowing they could get in touch as and when they required support. In addition to such planned interactions, some resources were mobilised following a chance encounter; for example, P9 bumping into EHU faculty on a train.

Continued relationships with EHU faculty contributed towards the participants' ongoing professional development after graduation. Participants described receiving 'educational appraisals' from faculty, with others experiencing mentorship-style interactions. Homophilous relationships with EHU faculty reinforced participants' professional identity

as an educator, which helped with resilience in both educational and clinical roles. EHU faculty were also able to facilitate job opportunities at EHU. This provided additional credibility and further access to heterogeneous resources, in terms of exposure to learners and other EHU faculty.

Whilst participants valued access to heterogeneous resources, they did not fully utilise the positions of brokerage formed by the EHU contacts. Competition did feature in the study, both in terms of providing motivation to study and helping people feel more competitive in the job market. However, although participants' relationships with EHU contacts placed them in brokerage positions, participants did not utilise the associated 'bargaining power'.

It is remarkable that so few participants maintained peer relationships from the MA. Although two participants kept in contact with peers, in general, a somewhat negative picture is painted of peer-peer relationships. During the MA, participants felt connected to their tutors and looked to them for support. In contrast, they felt disconnected from their peers, due to limited face-to-face contact, difference in the timings of modules and lack of anything in common other than their studies. Placing this in the context of a medical educator with multiple job roles and little time in which to conduct them, it becomes clear why so few people kept in touch with their fellow learners. This picture stands in stark contrast to the collegial, productive and enduring relationships which participants have described having with faculty.

The chapter concluded with the participants' perspectives on how the MA related to their non-EHU networks. For the majority of participants, the network and the academic components of the MA served different, but complimentary functions. Participants perceived that the MA provided them with the knowledge required to perform their educational roles, whereas the network helped with the mechanics of implementing this knowledge. As can be seen from the preceding analysis, new contacts made via the programme performed both these functions. They helped to maintain the currency of

participants' knowledge, whilst fulfilling many of the network roles identified by participants as necessary for them to function as a medical educator.

In summary, the benefits participants experienced from the MA did not end when they completed the programme. Instead, their graduation marked a new phase in their development as medical educators.

CHAPTER 10: DISCUSSION

10.1 INTRODUCTION

This chapter synthesises the key study findings, considering them alongside the existing literature to develop a new theoretical model and consider practical implications for future policy and practice. The chapter opens with a comparison with the existing MCE literature in terms of the participants' demographics and programme benefits not directly related to networks. Such juxtaposition enables the reader to understand if and how the results from the present study may be transferred into other, similar settings. I then explore how the study has addressed the objectives and questions, constantly comparing with the existing literature and the theoretical framework underpinning the design of the study. A new theoretical model is developed, followed by a critical discussion of the strengths and limitations of the study. The chapter closes with consideration of the practical implications of the study findings and suggestions for further research.

10.2 COMPARISON WITH PREVIOUS MCE STUDIES

In this section, I compare the study data with the existing literature on MCE programmes to demonstrate comparability of the study sample and thus potential for transferring the findings to other contexts. This process has been challenging, as many of the previous studies provide insufficient participant information. The only detail to be reported for all studies was sample size, which ranged from 8 – 157. This range reduces to 8 – 18 when only considering studies utilising interviews, hence the sample size of 12 for my study is comparable. Response rates were rarely reported; where stated, they varied from 33% - 78%. Only 1 study utilising interviews provided a response rate, which at 33% was slightly lower than my response rate of 37.5%. Interviews are very time-consuming and my study participants all held busy senior clinical roles in addition to their medical education work.

Lack of time was a feature common to my study and the existing MCE literature, hence it is unsurprising that the response rate was at the lower end of the overall range.

Where gender was declared, the proportion of males in existing MCE studies ranged from 29% to 65%. My study is just outside this range, with 25% of the sample being male. Males were in the minority for the overall pool of potential participants for this study, comprising just 34% of the population being sampled. Reasons for this gender imbalance are unclear. Notably, only 8 out of 18 studies provided information on gender, hence it is possible such gender imbalance may not be unusual. Within my study, gender did not arise as a particular issue, this only being mentioned once by one female participant discussing the importance of being able to relate to other working mothers. Consequently, the issues raised did not appear to be particularly female-centric. It is possible that some male-specific issues may have been missed; however, gender was not a focus for the study.

Participants had graduated up to 5 years prior to their involvement in my study. This timing is comparable to previous MCE studies, where participants ranged from current students to 10 years post-graduation. In terms of experience and educational workload, my study's participants showed a broad distribution from early career educators to those nearing retirement, with educational roles accounting for between 10% and 80% of participants' workloads. Hence, the sample encompassed the full range of educators present within the existing MCE literature. Only half the MCE studies reported the country in which their participants worked as educators: 5 studies included international students and 4 only involved students studying in the same country as their place of work. This may be an important variable, as those who are motivated to travel overseas for their studies may have a different attitude towards networking than those who are in their home countries. My participants all worked in the UK; consequently, the findings may not be transferrable to programmes attracting international students.

Only one previous MCE study (Sethi, 2016) explored participants' reasons for studying for an MCE. Rationales in mine and Sethi's (2016) studies were similar, participants in both groups reporting a desire to gain factual and procedural knowledge and to obtain credibility, the latter being considered to facilitate career opportunities. None of Sethi's (2016) group mentioned factors in their personal life contributing to their decision to embark on the programme, the present study thereby adding an extra dimension in this regard. In terms of programme benefits not directly linked to support networks, my study participants reported gaining in confidence, knowledge and credibility and being recognised by others as an educator, factors that were perceived to enhance career prospects and competitiveness in applying for jobs. As discussed in the literature review (chapter 4), these findings were a common theme within the existing MCE literature. Indeed, self-reports of increased confidence and knowledge are frequent findings in studies of faculty development programmes (FDPs) in medical education, as highlighted in a systematic review by Steinert et al. (2016).

In summary, most of the quantitative variables explored in this section are similar to existing studies. Qualitatively, the findings were similar to the existing literature in terms of reasons for studying for an MCE and subsequent non-network related benefits of the qualification. Hence, it is reasonable to conclude that the results could be transferrable to other MCE settings.

10.3 ADDRESSING THE RESEARCH OBJECTIVES AND LINKED QUESTIONS

This section explores how the research objectives and questions were addressed. Findings are related to the theoretical framework and the wider literature. As SNA research in postgraduate medical education is minimal, references are also made to the healthcare and general education literature, where appropriate.

Revisiting the theory underpinning this study, SC has been defined as ‘*the ability of actors to secure benefits by virtue of membership in social networks or other social structures*’. (Portes 1998: 6). According to Lin’s (2001) theory, SC formation consists of two stages: an investment in resources (creation or maintenance of a relationship) to form potential capital, and the mobilisation of resources to generate a return, which may be instrumental or expressive. The formation and mobilisation of SC is impacted upon by principles of homophily, heterophily, the structural position within the network (Lin, 2001) and propinquity (Spillane, Shirrell and Sweet, 2017). An individual’s SC is considered to be the collective assets of their network (Lin, 2001). Table 43 provides a reminder of the research objectives and associated questions and table 44 presents the linked theoretical framework as first presented in chapter 5.

Table 43: research objectives and linked sub-questions

Research Objective	Linked sub-question
<i>1. To identify the social capital of a medical educator after completing a higher qualification in clinical education</i>	How is social capital conceptualised in the context of the medical educator?
	What social capital is available to the medical educator?
<i>2. To identify the factors that help and hinder the development of social capital after completing a higher qualification in clinical education.</i>	What factors impact upon the formation of ties?
	What factors impact upon the mobilisation of social capital?
<i>3. To identify the perceived benefit of a higher qualification in clinical education in terms of the social capital of a medical educator.</i>	How does the MA contribute to the social capital of the medical educator?

Table 44: Linkage of theoretical framework, sub-questions and methods. SC = social capital

Research Objective	Relationship to theoretical framework	Linked sub-questions	Methods
1. To identify the SC of a medical educator after completing a higher qualification in clinical education	Mobilised capital (Lin (2001) vs potential capital (Coleman, 2000)	How is SC conceptualised in the context of the medical educator?	Template analysis of interview data
	Returns on SC are instrumental or expressive (Lin, 2001)		
	SC depends on the collective assets of the network (Lin, 2001)	What SC is available to the medical educator?	Analysis of quantitative network data via UCINET and Excel
	SC varies according to context (Lin, 2001)		Template analysis of interview data
2. To identify the factors that help and hinder the development of SC after completing a higher qualification in clinical education.	Homophily, heterophily (Lin, 2001) and propinquity (Spillane, et al, 2017) are important in the formation and mobilisation of social capital.	What factors impact upon formation of SC?	Template analysis of interview data
		What factors impact upon mobilisation of SC?	
3. To identify the perceived benefit of a higher qualification in clinical education in terms of the social capital of a medical educator.	SC depends on accessibility of resources, which is related to the position of the individual in the network structure (Lin, 2001)	How does the MA contribute to the SC of the medical educator?	Analysis of quantitative network data via UCINET and Excel

10.3.1 CONCEPTUALISATION AND AVAILABILITY OF SOCIAL CAPITAL

On initial study design, I had envisaged that there may be a disparity between participants' perceptions of the support they wanted and the support they actually received. However, participants identified very few areas where they felt social support was lacking. Therefore, the questions of how SC is conceptualised and what SC is available are considered together, thus facilitating a more critical and unified discussion of the relevant literature. The present section systematically examines the different aspects of the theoretical framework presented in table 44, above. There is separate consideration of missing support at the end of the section.

10.3.1.1 POTENTIAL AND MOBILISED CAPITAL

Whilst the majority of the networks comprised mobilised capital, participants clearly valued relationships which contained potential capital. They admitted to maintaining relationships should they prove useful in the future, the most striking example being P2, who had regularly been attending meetings for 8 years in the hope that at some point this contact may enable them to get a trainee. Such behaviour demonstrates some consistency with Lin's (2001) model of investment in resources with the expectation of returns. However, for all of the participants who reported relationships from which a resource had not been mobilised, there was not an *expectation* of returns, merely a hope that the relationship *may* prove to be advantageous at an undefined future point. Hence, an adaptation of Lin's model could be 'an investment in resources with the anticipation of possible returns.' However, Portes' (1998: 6) definition of SC as '*the ability of actors to secure benefits by virtue of membership in social networks or other social structures*' is wholly compatible with participants' reported experiences of potential capital and therefore an appropriate definition to have adopted for this study.

A distinction between mobilised and potential capital is also identified within the broader faculty development (FD) literature. US family physicians attending an FDP were able to differentiate between relationships from which they had received support and those which

may be of benefit in the future (Morzinski and Fisher, 2002). There was no detailed exploration of the motives underlying the maintenance of a relationship offering potential capital, thus limiting the ability to compare their findings with mine.

10.3.1.2 SOCIAL CAPITAL DEPENDS ON THE COLLECTIVE ASSETS OF THE NETWORK

This section considers the size of participants' networks and the resources supplied, comparing with the existing literature where appropriate. Network structure is considered in section 10.3.2.1.

10.3.1.2.1 NETWORK SIZE

Network size varied substantially, from 7 nodes and 7 individuals (P1) to 46 nodes (P10) and 1964 individuals (P8). There is minimal literature on the size of medical educators' support networks with which to compare these findings. Medical educators who had attended a US Teaching Scholars Programme reported an average degree of 7.7 in their 'network of educators' (Moses et al., 2009: 179), a figure much smaller than the present study's mean degree of 24.1. Warm et al. (2018) assessed the network connectedness of programme directors in internal medicine in the US, measuring in-degree (those knowing ego) and out-degree (number of alters known by ego). Overall, the largest median out-degree for 'knowing' someone was 26 individuals, smaller than my study's median of 61.5 individuals. Van Waes et al. (2015) asked non-medical university teachers to nominate those they communicated with about their teaching practice following participation in an FDP. The average number of alters was just 7.31, again, much smaller than my study. Notably, the studies by Moses et al. (2009), Van Waes et al. (2018) and Warm et al. (2018) were narrowly focussed, either on contacts with other educators or specific discussions of teaching practice. However, my study was more inclusive. The participants were asked more generally about support, the definition of which was left to the participants themselves, potentially producing overall larger and more comprehensive networks.

10.3.1.2.2 SUPPORT THEMES

In the context of the question ‘Who supports you in your role(s) as a medical educator?’, seven over-arching themes of support were identified: ‘delivery of education’; ‘organisational support’; ‘collegiality’; ‘career support’; ‘flexibility’; ‘personal support beyond the workplace’ and ‘support with academic activities’. Subthemes are detailed in table 45. Distribution of resources varied between networks, suggesting participants may have had different requirements. For example, neither P1 nor P12 reported ‘collegiality’ within their networks, these participants also possessing the smallest networks of the study group in terms of network degree. Even where job roles and level of experience were similar (P5 and P6), support networks could be markedly different. This variability highlights the importance of conducting in-depth qualitative interviews to illustrate how the requirements of medical educators may differ, thus presenting a more nuanced method of programme evaluation.

Table 45: Themes and subthemes of resources

Theme	Subtheme
Delivery of education	Co-teaching
	Support with the delivery of teaching
	Development of educational material
	Learning through observation
	Learning through teaching
	Enjoyment of teaching
	Knowledge
Organisational support	Political support
	Administrative support
	Information technology support
Collegiality	Moral support
	Feeling valued by colleagues
Career support	Obtaining educational work
	Career development
Flexibility	Covering clinical duties
	Supporting managing home life
Personal support beyond the workplace	
Support with academic activities	Qualifications
	Research and publications

Within the wider literature, similar categories of resources have been identified as being required by medical educators. Informal support from colleagues akin to many of the subthemes of the 'delivery of education' theme has been found in studies of medical educators in the UK, US and the Netherlands (see, for example, Morzinski and Fisher (2002); Lieff and Albert, (2012); van den Berg et al. (2017); Browne, Webb and Bullock (2018)). Medical educators enjoy teaching and learn through the process of teaching (Norman and Dogra, 2014, Steinert and Macdonald, 2015). The provision of education-related knowledge has been found to be essential for the transition into medical education (Browne, Webb and Bullock, 2018), similar to the 'delivery of education: knowledge' subtheme in the present study. Experienced medical educators actively seek informal support with developing teaching (Lieff and Albert, 2012, van den Berg et al., 2017), although none of the studies reviewed reported educators utilising network contacts to deliver teaching on their behalf, something more experienced educators reported in the present study.

A further resource that was not apparent in the studies reviewed was 'organisational support: information technology.' By asking the participants themselves to define the meaning of support, it is possible that hitherto unidentified modes of support have been identified. The only subtheme present in all participants' networks was 'organisational support: political'. This could constitute official permission from a senior to adopt a particular approach, or advice about how to navigate the social infrastructure of an organisation. Notably, in van den Berg et al.'s (2017) study of the social support of medical educators, support from a line manager was the only social resource considered to be crucial. Administrative support was also important in the present study, with only 2 participants not reporting this subtheme. Lack of administrative support was observed to be an issue in Browne, Webb and Bullock's (2018) study of senior medical educators. This is an area not widely explored in the studies of medical educators reviewed for this thesis; that an area important to the majority of my study's participants is neglected is yet further evidence that this study's approach is able to identify support that may be missed with other methodologies.

Modelling the teaching behaviour of others has been found to be a critical learning experience for medical educators (MacDougall and Drummond, 2005, Steinert, 2012, Bartle and Thistlethwaite, 2014), including those studying for an MCE (Sethi et al., 2018). Indeed, such is the importance of this experience, senior medical educators purposely act as role models and try to make others feel valued (Lieff and Albert, 2012). Medical educators recognise the importance of role models and mentors in career development (Bartle and Thistlethwaite, 2014, Browne, Webb and Bullock, 2018), with senior medical educators acknowledging the importance of their networks in opening up career opportunities and enabling research collaborations (Morzinski and Fisher, 2002, Sabel and Archer, 2014, Thomas et al., 2020). However, research is not a priority for all medical educators (Bartle and Thistlethwaite, 2014), reflecting the low proportion of overall ties (3%) in the present study providing support in this area.

‘Collegiality’ was comprised of ‘moral support’ and ‘feeling valued by colleagues’. Several studies have observed the importance of collegiality to medical educators. Van den Berg et al. (2017) observed similar subthemes of collegiality, with medical educators in the Netherlands distinguishing between reassurance and receiving acknowledgement of their educational work. A UK-wide study of doctors found that a feeling of belonging in the workplace was associated with lower levels of stress and that doctors need to be valued and trusted (West and Coia, 2018). However, medical educators report feeling undervalued in their teaching roles (MacDougall and Drummond, 2005). Feeling valued in the workplace and working in a supportive, social environment has been significantly associated with increased job satisfaction in a large study of academic medical educators in the US (Simpkin et al., 2019). Friendly relations with students are also important. As with my study, medical educators report enjoying interacting with students (Sabel and Archer, 2014), a finding also observed in the non-healthcare professions faculty literature (van Lankveld et al., 2017).

A number of studies have observed that educational work comes secondary to clinical work (see, for example MacDougall and Drummond (2005) and Sabel and Archer, (2014)). Integral to allowing medical educators to work is therefore the flexibility offered by clinical

colleagues who cover clinical commitments, a finding also reported by Thomas et al. (2020) in their US study of experienced medical educators. The importance of personal support and home life is discussed in section 10.3.1.4.

10.3.1.3 RETURNS ON SOCIAL CAPITAL ARE INSTRUMENTAL OR EXPRESSIVE

Whilst Lin's (2001) concepts of instrumental and expressive returns provide a useful framework for data interpretation, they do not fully capture the picture observed in this study's group of medical educators. Lin's (2001) model predicts instrumental returns as providing new resources that enable progression by enhancing an individual's wealth, power or reputation. Consistent with this perspective are the themes of 'career support'; 'support with academic activities' and aspects of 'organisational support: political'. An example of the latter category is P3 copying seniors into emails to demonstrate managerial support, a strategy that could be seen to enhance P3's reputation. Conversely, expressive returns allow an individual to remain secure, maintaining their physical and mental health and life satisfaction, compatible with the themes of 'collegiality' and 'personal support' beyond the workplace. However, such dichotomous categorisation leaves a number of themes and subthemes unaccounted for. The themes 'delivery of education' and 'flexibility', the 'administrative' and 'information technology' subthemes of 'organisational support' and some aspects of 'organisational support: political' pertain to resources supplied to facilitate the day-to-day business of being a medical educator. For example, when P4 mobilised 'organisational support: political' by asking a long-standing member of staff to explain the ins and outs of their university's organisational structure, this resource helped them to understand the practical aspects of their role. Whereas mobilisation of the resources in this category did not appear to result in any increase in wealth, power or reputation for the participants, ongoing development and provision of educational services could equally not be viewed as an attempt to remain static. Instead, participants were merely attempting to perform their day-to-day job roles, something which is not fully accounted for by Lin (2001).

Whilst much of Lin’s research has been based within business communities, a different perspective of instrumental and expressive returns has been adopted in the general educational literature. In a study of the work-related support networks of school teachers in the Netherlands, Moolenaar, Slegers and Daly (2012) espouse Ibarra's (1993) view that instrumental returns are job-related, supplying, for example, task-related advice, with personal or social support being an expressive return. This broader perspective of instrumental returns fully encompasses the behaviour of educators in the present study. However, categorisation of instrumental returns in this manner conflates behaviour aimed at, for example, furthering a career, with actions relating to the mechanics of conducting an existing job role. For the latter group of actions, I have therefore developed a third category of return, termed ‘getting the job done’. A summary of the categorisation of returns is provided in table 46.

Table 46: Returns on social capital

Instrumental	Getting the job done	Expressive
Career support (full theme)	Delivery of education (full theme)	Personal support (full theme)
Organisational political (sub-theme)	Organisational support; political (sub-theme)	Collegiality (full theme)
Academia (full theme)	Organisational support; administrative (sub-theme)	
	Organisational support; information technology (sub-theme)	
	Flexibility (full theme)	

10.3.1.4 SOCIAL CAPITAL VARIES ACCORDING TO CONTEXT

Nine different relationship contexts were identified, including relationships made via the MA (see figure 92).

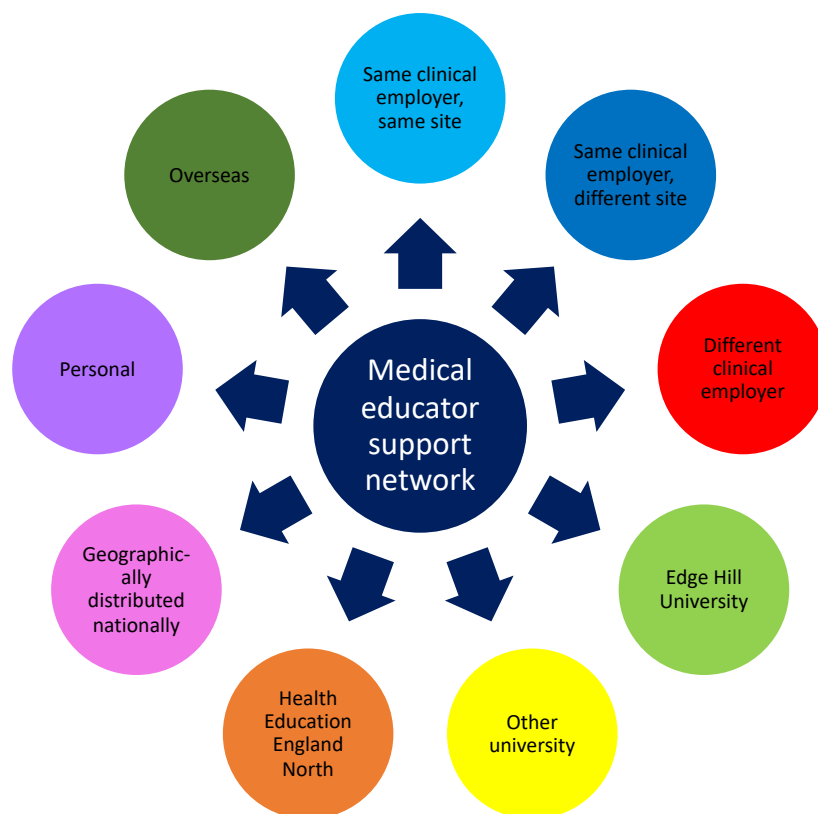


Figure 92: The relationship contexts of a medical educator with a master's degree in clinical education

Participants utilised their networks very differently. Some mobilised resources from nodes within a specific context as it related to their educational roles, whilst others tapped into resources from their entire network for all their work. However, for the mobilisation of some resources, context was key. 'Organisational support: political', for example, could only be provided by someone working within the same institution as ego. Relationships outside ego's employing institution could be useful in providing heterogeneous resources. For example, P1 maintained contact with a former colleague in their home country for information about jobs. Within the wider literature, there is evidence that contacts with people working for different institutions can help with job performance. For example, the number of ties external to the main employing organisation have been positively correlated with the performance evaluation of physicians (Marqués-Sánchez et al., 2018). Van den

Berg et al's. (2017) study of medical educators in the Netherlands also found context to be important in the delivery of social support, with contacts being classified as within or outside work. Support from within the institution was specifically job-oriented and could only have been provided by someone with institutional knowledge, similar to the 'organisational support; political' theme.

A further commonality with the broader medical educator literature was the importance of support from contacts within the personal sphere (van den Berg et al., 2017, Browne, Webb and Bullock, 2018). In the present study, five participants reported working in excess of their paid hours and four held university posts which they undertook in annual or study leave. Hence, crossover between work and homelife was very common, something also seen in the existing MCE literature (Skeith et al., 2018, Heide et al., 2019) and other studies of medical educators (see, for example, Norman and Dogra, 2014).

10.3.1.5 UNAVAILABLE SUPPORT

The context of relationships was also important for unavailable social resources. P6 reported insufficient support from seniors when undergoing an investigation, a very stressful time for any doctor. Lack of support for doctors in such situations has been recently highlighted by the case of an anaesthetist who committed suicide when undergoing an investigation for alleged misconduct (Dyer, 2020). P9 reported an absence of administrative support, something echoed in Browne, Webb and Bullock's (2018) study of UK medical educators. P10 reported lack of 'organisational support; political' from Trust management; the role of hierarchy linking with this resource is further explored in section 10.3.2.1. Both P3 and P10 experienced feelings of isolation in their Trust educational roles, with colleagues not sharing their interest in education, an experience common amongst medical educators (Goldszmidt, Zibrowski and Weston, 2008, Moses et al., 2009, Lieff and Albert, 2012, Sabel and Archer, 2014). The importance of homophily will be returned to in sections 10.3.2.2 and 10.3.3.2. As discussed above (sections 10.3.1.4 and 10.3.1.5) many of

the participants reported lacking time. This was a feature common to many of the MCE studies and will be further discussed below (section 10.3.4)

10.3.2 FACTORS IMPACTING UPON THE FORMATION OF TIES AND THE MOBILISATION OF SOCIAL CAPITAL

Similar factors were found to impact upon both formation and mobilisation of SC, hence these issues are examined together. This section considers the following aspects of the theoretical framework: i) SC depends on the accessibility of resources, which is related to the position of the individual in the network structure; and ii) homophily, heterophily, propinquity and reciprocity are important in the formation and mobilisation of SC. As is evident from table 47, the factors within the theoretical framework were indeed important, with the additional themes of 'depth of relationship', 'being recognised as an educator', 'non-social resources' and the subthemes of 'availability: mode of contact', 'availability: opportunity' and 'competition'. This section concludes with a critical discussion of intentionality and agency as related to the networks of the participants.

Table 47: factors impacting upon the formation and mobilisation of social capital

Similarities and differences	Homophily
	Heterophily
Availability	Propinquity
	Opportunity
	Mode of contact
Depth of relationship	Multiplexity
	Knowing someone well
	Trust
	Reliability
Competition	
Reciprocity	
Structural position	Hierarchy
	Bridge
	Role conflict
Developing an identity as an educator	Knowledge, confidence and credibility
	Being recognised as an educator
Non-social resources	Money
	Time
	Medical educator development programmes

10.3.2.1 NETWORK STRUCTURE

Just as the participants' networks differed in size and content, they also showed marked variation in network measures. For example, P11's high efficiency (0.83) and low density (0.179) network contrasts sharply with the small, high density (0.545) and low efficiency (0.5) network of P6. Hence, some educators may have greater access to more heterogeneous resources and potentially greater bargaining power (Crossley et al., 2015), whilst others have more cohesive networks potentially better suited to knowledge exchange and network resilience (Scott et al., 2005, Kim, Oh and Swaminathan, 2006, Benham-Hutchins and Effken, 2010). Combining the structural measures with the qualitative findings, the more diffuse network of P11 can indeed be seen to provide more heterogeneity, with 7 relationship contexts and a combination of learners, clinicians and non-clinicians, in comparison with P6's 3 relationship contexts and lack of learners. These observations provide yet further evidence that an evaluation tool for MCE programmes requires the ability to reflect the different circumstances and requirements of medical educators.

Visual analysis of participants' networks also provides useful insights. The sociograms for some of the participants illustrate how aspects of the networks could be aligned with different educational responsibilities. For example, P7 had 3 distinct groups supporting their 3 educational roles. These clusters were evident on a dendrogram, which demonstrated that the majority of P7's contacts helped support them in the non-Trust educational roles that they were largely undertaking in annual or study leave, an insight that may be helpful if considering time-management. Some participants had focal areas of their network that were more highly interconnected, for example P2 and P10, the latter's denser network connections being related to their Trust educational roles. The density of physicians' networks has been positively linked with team and organisational performance (Chung, Hossain and Davis, 2007, Lurie, Fogg and Dozier, 2009). However, P10 experienced the disadvantage of such a highly interconnected network with difficulties in clinical professional relationships spilling over into their educational work, a situation I have labelled 'role conflict'. Within the wider literature, medical educators have also reported conflict between educational and clinical roles, with the former being undervalued and seen as an easy option (van Lankveld et al., 2017). Such conflict between clinical and educational roles can lead to difficulties with developing an identity as a medical educator (van Lankveld et al., 2021), a point which will be returned to in section 10.3.3.2.1.

Whilst network measures are helpful in understanding networks, they can also be misleading. For example, it would appear P12 has limited options for accessing heterogeneous resources, their network exhibiting the highest constraint within the study. However, their sociogram illustrates that their network is split into 3 components, providing the potential for brokerage opportunities. The presence of structural holes, with or without separate network components, is indicative of brokerage potential, but the implications of this can only be understood via qualitative analysis. Participants were indeed aware of structural holes in their networks, either acting as a bridge between unconnected alters, or utilising others as a bridge. Interestingly, none of the participants reported utilising a brokerage position to gain a competitive advantage by playing off unconnected groups against one another. Burt's (1992) concept of structural holes was developed in conjunction with empirical work in the business world and was put forward

as explaining the 'social structure of competition' (ibid:8). It is of note, therefore, that the factor 'competition' only arose in two specific situations: keeping up with colleagues whilst studying for the MA, and possession of the qualification allowing participants to feel more competitive in the job market. Even in those circumstances, participants still did not describe pitting disconnected groups against one another. This observation links with the findings (section 10.3.1.3) that most support sought by educators is related to 'expressive returns' or 'getting the job done'. Simply put, competition has little place in the day-to-day work of the medical educator. Where structural holes *can* be of benefit within this context is by providing access to heterogeneous resources, something valued by the participants in this study and further discussed in section 10.3.2.2 below. Within the wider literature, there is evidence that doctors utilise brokerage positions to gain access to non-redundant knowledge (Barley, 1990, Currie and White, 2012). Such brokerage positions can enable healthcare staff to act as opinion leaders and drivers of change (Battilana and Casciaro, 2012).

The qualitative analysis provided insight into the importance of the relative hierarchical positions of ego and alter in the mobilisation of 'organisational support: political', a subtheme present in all participants' networks. Much of the support within this theme was intrinsic to the line manager – line managed relationship. For example, P3 described that when they were making difficult decisions, they did not always require active assistance from senior managers; merely copying them into an email was sufficient to demonstrate their support, their hierarchical position implicitly validating P3's actions. Medical educators were cognizant of their own position in the hierarchy and were aware of how to move within that structure. For example, P2 described having a 'second in command' and P3 observed that their educational role had facilitated relationships with Trust senior management. Hence, medical educators are able to strategically utilise and shape their networks according to their requirements, a point which will be returned to in section 10.3.2.4 ('network intentionality and agency').

10.3.2.2 HOMOPHILY, HETEROPHILY, PROPINQUITY AND RECIPROCITY

Similarities and differences were important influences in the formation and mobilisation of SC. Homophily can be important for co-working (Lieff and Albert, 2012) and the development of collegiality (Diehl, 2020) in educational relationships. Participants appreciated being able to form relationships with like-minded others who, for example, shared an interest in education. In their clinical workplaces, participants could feel isolated from others with similar educational interests, a difficulty also observed in the wider medical education literature (Goldszmidt, Zibrowski and Weston, 2008, Moses et al., 2009, Sherbino et al., 2010, Lieff and Albert, 2012). Lack of homophily in the educational relationships of university-based clinical educators has been posited as an explanation for low levels of collegiality present when undertaking educational projects (López Cabrera, Olivares Olivares and Heredia Escorza, 2020). Interestingly, neither P1 nor P12 reported collegiality within their networks, and both undertook the majority of their teaching in relation to university-linked roles. Notably, P1 had remarked that they did not interact much with other educators on university-based FDPs as they felt they had little in common. Hence, a lack of homophily within the networks of P1 and P12 may contribute towards the absence of collegiality. Participants in the present study also appreciated heterogeneity, valuing the variation in knowledge (factual or procedural) or perspective afforded by a different professional background or working environment. Whilst all networks included non-clinicians, only 5 out of 12 included learners. The latter finding may be explained by the substantial logistical difficulties medical educators encounter in trying to arrange meetings around trainees' shift patterns (Norman and Dogra, 2014).

Reciprocity was important in participants' relationships. Some would provide 'like for like' support, also a feature of the collegial relationships of non-medical faculty (Patarraia et al., 2015). Reciprocity may be towards a group; P1 taught as a means of paying back their own clinical teachers, a behaviour also reported in US medical educators (Steinert and Macdonald, 2015). The concept of an 'exchange rate' was explored; P10 described considering the appropriate value of resource to offer management contacts to facilitate mobilisation of support that they (P10) required in return. This suggests an economic

element to social interactions, an area in which Lin (2001) defers to Homans (1958), who postulated that individuals consider costs and benefits within social interactions. In this economic theory of social interactions, an individual receiving a resource should reciprocate with one of commensurate value. Such considerations have been observed in teachers' learning networks, where the cost of inputting into the network was felt by teachers to be outweighed by the value of returns (van den Beemt et al., 2018). This is an important point to remember when considering the value of relationships formed via the MA (section 10.3.3).

Propinquity was important in facilitating relationships, promoting the frequency of interactions, although physical proximity to colleagues could be actively sought to mobilise collegiality. Physical proximity is also important to physicians and non-medical academic faculty, who have been observed to seek advice more from those within their own department than those more physically distant (Mascia, Cicchetti and Damiani, 2013, Patariaia et al., 2014). Related to propinquity, but not part of the initial theoretical framework, were 'opportunity' and 'mode of contact', which, together with 'propinquity', formed the theme of 'availability'. On occasion, participants would mobilise a resource following a chance encounter, for example meeting at a conference. This phenomenon is not well documented in the medical education literature, but has been identified in the general education (Van Waes et al., 2015) and general SNA literature (Small, 2017) as an important factor in the mobilisation of support from a weak tie. The mode of contact was also important, with face-to-face interactions generally being preferred for being able to get to know someone or where a difficult conversation was required. In person contact is also preferred by non-medical educators (Patariaia et al., 2014), although can be difficult to access for medical educators who may be geographically isolated (Moses et al., 2009, Sherbino et al., 2010). Conversely, emails were helpful if a record was required, a preference also seen in the business literature (Nardi, Whittaker and Schwarz, 2002). Discussion boards could be a useful way of remotely accessing a wide pool of educational support, although inappropriate discussions by P10's colleagues resulted in the group being disbanded. Unfortunately, disruptive posts are not uncommon in asynchronous learning communities (Zhou, 2015), but may be prevented by initial setting out of boundaries and

expectations (Aloni and Harrington, 2018). Interestingly, only 1 participant, P8, mentioned that social media was an important aspect of their network. Twitter is used by educators both inside and outside of healthcare settings as a means of obtaining resources and sharing information (Hanson et al., 2011, Malik, Heyman-Schrum and Johri, 2019). It has been found to provide more 'bridging' capital than Facebook, Snapchat or Instagram (Phua, Jin and Kim, 2017) and is generally used for educational purposes by younger individuals (Hanson et al., 2011). Notably P8 was in the early career group of the study. One participant, P9, did not use Twitter due to concerns over blurring of the boundaries between their professional and personal life, a common issue observed in the general literature (Sánchez Abril, Levin and Del Riego, 2012).

An important part of gaining educational work was 'being recognised as an educator'. Lin (2001) describes public recognition as being a key stage towards gaining a reputation. However, whilst Lin (2001) describes recognition as occurring via certification, awards or ceremonies, study participants described a circular relationship between recognition as an educator and gaining educational work. The more educational work they undertook, the more of a reputation they gained for being an educator, and the more educational work they were offered. The impact of the MA upon recognition was discussed in section 10.2.

10.3.2.3 ADDITIONAL THEMES NOT INCLUDED IN THEORETICAL FRAMEWORK

The initial framework did not include the 'depth of relationship' or 'non-social resources' themes. Whilst many of the factors in these themes were apparent in the broader literature reviewed for the development of the theoretical framework, I wished to maintain simplicity by keeping the framework as close to Lin's (2001) theory as possible. Hence, factors were omitted whose importance became apparent following thorough data analysis.

Within the 'depth of relationship' theme were the subthemes 'multiplexity', knowing someone well', 'trust' and 'reliability'. Multiplexity was most frequently reported for the 'collegiality' and 'delivery of education' themes, participants describing how they cultivated

collegiality to facilitate the mobilisation of the 'delivery of education' resource. Multiplexity of 'collegiality' and support similar to the 'delivery of education' theme has also been observed in schoolteachers' support networks. These differing aspects of relationships were observed to co-evolve by Diehl (2020), although the lack of a qualitative analysis in limits the potential for Diehl's (2020) findings to illuminate any of the observations from the present study. Lin (2001) does not discuss multiplexity in his network theory of SC.

'Knowing someone well' referred to situations whereby the participant and their contact were familiar, from either a long-standing or close relationship. Familiar relationships reduced the transaction cost, as educators could immediately ask for the support they required, without the need to explain themselves or invoke social niceties. This, in turn, may have made the educators more effective in their roles. In the business literature, managers who had close, familiar relationships with their work colleagues were more likely to be effective innovators (Moran, 2005).

The subthemes of 'reliability' and 'trust' are similar, but distinct. 'Reliability' entailed knowing someone would undertake a task allocated to them or reply to an email in a timely fashion. This factor was important in the mobilisation of broad range of support, including 'organisational support', 'delivery of education' and 'flexibility'; in sum, support which produced 'instrumental' or 'getting the job done' returns. In contrast, 'trust' required a more in-depth relationship and was linked with 'collegiality' and the 'delivery of education', respectively 'expressive' and 'getting the job done' returns. Hence, relationships involving trust potentially had more of an emotional component than those where reliability was a factor, a distinction not clearly made in the wider educational literature reviewed for the purpose of this thesis. Reliability and trust are both key components of 'bonding capital' and central to Coleman's (1988) and Putnam's (2001) concepts of SC. Whilst referred to by Lin (2001), these aspects of relationships were not key to his network theory of SC and hence not included in the initial theoretical framework. Trust is considered to be important in knowledge transfer within educational (Bryk and Schneider, 2002) and business settings (Levin and Cross, 2004), the presence of trust being considered to reduce the transactional

cost of knowledge exchange (Levin and Cross, 2004). Trust has been positively associated with more dense teaching networks and, in schools, has been linked with innovation (Moolenaar and Slegers, 2010) and formation of professional communities (Bryk, Camburn and Louis, 1999).

The non-social resources that participants thought relevant to their educator roles were 'medical educator development programmes', 'time' and 'money'. 'Medical educator development programmes' helped participants gain contacts in education, in addition to helping them be recognised as an educator, which brought them more work. Hence, there is an overlap between the benefits of participating in a medical educator development programme and undertaking the MA, the latter being seen as either an intrinsic part of a development programme, or a natural progression. As already highlighted in the literature review chapter, studies of non-master's level medical FDPs have observed that participation in these courses can contribute to the network of a medical educator. This area will be further explored in the below section on the contribution of the MA (10.3.3). The medical education development programmes also created time for education, something that many of the participants struggled to obtain. 'Organisational, political support' was important in the creation of time; for example, P8 arranged time in their job plan. The literature on medical educators is studded with references to lack of time to undertake work (see, for example, MacDougall and Drummond (2005); Goldszmidt, Zibrowski and Weston (2008); Norman and Dogra (2014)) and may be linked to the lower status of medical education in comparison to clinical work (ibid).

Money did not feature prominently in the present study. Financial support for medical education is generally poor, both in terms of research funding (Goldszmidt, Zibrowski and Weston, 2008, Huwendiek et al., 2010, Sethi, 2016) and for teaching materials (Norman and Dogra, 2014). Additionally, lack of time to conduct teaching roles, as discussed above, may mean that medical educators are not being adequately remunerated for their roles. Being a medical educator can be costly; for example, P4 felt they were potentially worse off financially because their teaching roles incurred extra childcare costs. Only P9 mentioned

getting more money as a benefit of climbing the career ladder, although this appeared to be a side issue, gaining more time and support being the priority.

10.3.2.4 NETWORK INTENTIONALITY AND AGENCY

Thus far, I have discussed the broad array of support available to medical educators, the numerous factors that influence tie formation, and the mobilisation of support from those ties. A picture of an extremely complex and nuanced social world has emerged. Nevertheless, when considering how medical educators form relationships, a basic simplification is possible. What is apparent from the networks presented is that, in general, medical educators rely on support from ties linked with their work roles in addition to ties they have deliberately cultivated elsewhere. This latter active approach to networking has been termed ‘intensional networks’ (Nardi, Whittaker and Schwarz, 2002). Nardi and colleagues (2002) argue that people look outside of their organisations to obtain work-related support, something very much reflected in the present study (see section 10.3.1.4). In Nardi et al.’s (2002) detailed analysis of workers in a variety of non-healthcare related private sector organisations, support networks were observed to exhibit two characteristics, both of which may co-exist in a single network. Where relationships had a shared background or experience, the network was said to demonstrate ‘history’, something observed within the networks of all of my study participants, where it was particularly linked with the ‘depth of relationship’ theme. Furthermore, it can be seen that the propinquity of ego and alter and their respective positions within the hierarchy can contribute towards networks evolving in an unpremeditated manner. Contrastingly, networks created to fulfil a specific task were described by Nardi et al. (2002) as showing ‘emergence’. This concept particularly resonates with the experiences of a number of my participants. For example, P9 purposefully sought contacts to help them with a specific educational project, P8 used Twitter to make new contacts and P7 looked through conference programmes to find people who could deliver teaching on specific topics. Although they do not cite Lin, Nardi and colleagues (2002) adopt a similar perspective on the steps involved in network formation; relationships are formed, maintained and activated when necessary. Maintenance of relationships via sporadic contact is time

consuming, but, they argue, not accounted for in job planning or performance evaluations. There are many examples where my study participants did not initially form a relationship with the specific intention of accessing support, but subsequently maintained intermittent contact, purely for the purpose of mobilising a resource not available in the rest of their network. For example, P8 described a relationship with a mentor they would only contact at important career junctures. As mentioned above, lack of time was a feature for many participants, with even those who felt their workloads to be consistent with their job plan reporting working in their own time. As Nardi et al. (2002) suggest, the cultivation and maintenance of networks may have contributed towards the participants' hectic workloads, but this seems unlikely. Participants overwhelmingly described how their networks made them more efficient and more effective in their roles, with the conflict between clinical and educational workloads presenting more difficulties.

There is evidence within the wider literature that medical educators plan their networks. Lieff and Albert (2012) observed that medical education leaders in the UK deliberately connected with others outside of their own organisation to better understand their own position. To help build and maintain their careers, these educators also specifically targeted others for their advice, knowledge or experience. In Browne, Webb and Bullock's (2018) qualitative exploration of the transition to becoming a medical educator, senior educators were strategic in their formation of informal and formal networks. They described how their informal networks had evolved over time, feeling that this placed them at an advantage over more junior colleagues who had not had the same length of time to make contacts. Comparing these findings with my study, P10 was the most experienced educator and possessed the largest network, in terms of nodes. Nevertheless, there was not a clear relationship overall between duration of experience and size of network.

Within the general educational literature, Moolenaar et al. (2014) contend that academics exhibit varying levels of 'intentionality' in the formation of their networks. They go beyond Nardi's concept to argue, based on their own empirical work, that 'an individual has agency in forming, brokering, and dissolving social relationships given their own cognitions of what

makes for a “good” network’ (ibid: 103). Agency can be defined as the capacity to act independently and with freedom of choice (Scott and Marshall, 2015). As stated in chapter 3, it has been argued that, in SNA, the network is emphasised at the expense of agency. However, Moolenaar et al.’s (2014) work serves to highlight Crossley’s (2011) theoretical point that social worlds entail a balance between agency and structure. This tension is seen in the present study. For example, ‘organisational support: political’ was frequently mobilised from an alter who was in a senior hierarchical position to the educator. Hence, there was frequently limited, if any, choice as to whom such a resource could be mobilised from. However, support in the ‘delivery of education’ theme came from a much broader base, P8, for example, turning to their wider, non-medical network to gain inspiration for their educational work. Hence, for the same individual, agency will fluctuate according to the specific circumstances. This perspective is of great relevance when considering the contribution of the MA to the SC of a medical educator.

10.3.3 HOW DOES THE MA CONTRIBUTE TO THE SOCIAL CAPITAL OF THE MEDICAL EDUCATOR?

Within this chapter, I have highlighted the complex nature of medical educators’ networks. They are able to mobilise a broad range of resources from alters in a variety of settings. A host of factors have been outlined that contribute to the formation of relationships and the mobilisation of linked resources. It has been argued that participants’ networks may evolve from work-based relationships, where the educator may be given little choice over their connections. Conversely, educators have also been noted to deliberately form and maintain ties from which a particularly desirable resource may be mobilised. Building on this work, in the current section I contest that an MA in Clinical Education adds to the SC of a medical educator, contributing to network heterogeneity, thus adding to graduates’ opportunities for agentic action. Furthermore, I argue that the impact of the MA continues to evolve for years after graduation from the programme, providing ‘instrumental’, ‘getting the job done’ and ‘expressive’ returns. Findings are contextualised by comparisons with relevant literature and the underpinning theoretical framework.

10.3.3.1 QUANTITATIVE CONTRIBUTION TO SOCIAL CAPITAL

Participants gained a mean of 1.6 ties to their network. SC was mobilised from a mean of 1.2 ties, the remaining ties representing potential capital. Due to the variability in the size of the participants' networks, the percentage increase in size ranged from 0 – 40%, mean 12.029%, these ties representing both mobilised and potential capital. There are a limited number of studies within the FD literature (healthcare and non-healthcare related) with which one can compare these findings. Currently, much of the SNA literature within these fields analyses the impact of the network on the implementation of learning (see, for example, Jippes et al. (2013), or Penuel et al. (2012)), or how the interconnectedness of participants on an FDP changes throughout the duration of the programme (see, for example, Foo, Moody and Cook (2019), or Dow et al., (2020)). The increase in ties observed in the present study is very similar to that seen in Van Waes et al.'s, (2015b) mixed methods prospective egonet study of an FDP for non-clinical academics in a Belgian University. Considering people with whom they discussed teaching, participants reported gaining a mean of 1.31 ties from the programme, similar to the mean 1.2 ties of mobilised capital in my study. Mirroring the present study, van Waes and colleagues (2015b) also observed that the larger proportion of participants' networks were external to the programme. The proportion of face-to-face teaching was similar to that of the MA programme, although in the Belgian study participants all worked within the same institution, potentially providing more opportunities to reinforce relationships outside the programme. However, whilst van Waes and colleagues' (2015b) study was extremely well conducted, they did not follow their participants up for 5 years after the programme, hence were lacking a more longitudinal picture.

Moses et al. (2009) retrospectively analysed the support networks of medical educators (predominantly doctors) who had attended a US-based teaching scholars programme. The number of individuals or groups with whom the participants spoke about education increased from a mean of 2.2 pre-programme to a mean of 7.7 post-programme. It is notable that the participants reported such small networks pre-programme; considering the non-EHU networks, there were a mean of 11.75 nodes supplying at least 1 resource

from the 'delivery of education' theme, the closest comparison that can be made with the networks in Moses et al.'s (2009) study. Hence, it is possible that, with smaller networks, Moses et al.'s (2009) participants had more of an incentive to establish new connections than my participants. Additionally, the US teaching scholars programme comprised a much larger face-to-face component than the EHU MA, the latter being predominantly delivered via asynchronous online learning. Hence, Moses et al.'s. (2009) participants may have had more opportunities to establish a deeper connection with their peers, although they do not further explore this issue. Barriers to the formation and maintenance of relationships from the MA are considered in section 10.3.4.

None of the ego-network studies discussed within this section performed further ego-network quantitative analyses, hence there is little relevant literature with which to perform comparisons. EHU contacts formed a separate component for 4 of the participants; one third of the sample. This structural separation would suggest that EHU contacts were able to provide resources not available elsewhere in the network. EHU contacts were, on average, less well connected than non-EHU ties. This difference was statistically significant, suggesting that EHU contacts may provide access to more heterogeneous resources than non-EHU contacts. Also supportive of this concept were non-statistically significant trends for EHU contacts to contribute towards an increase in structural holes and network efficiency, and to have lower redundancy than EHU nodes. The heterogeneity measures developed for this study showed up to a 50% increase in relationship contexts and non-statistically significant changes in the professional composition of the networks. Given the small size of the study sample, it is possible that the study was underpowered and a larger sample size may have resulted in statistically significant findings (Lawrie, McIntosh and Rao, 2000).

10.3.3.2 RESOURCES SUPPLIED

Qualitatively, participants described how EHU contacts were able to provide a broad range of resources after graduation. EHU contacts gave support in 5 out of 7 themes and 10 out

of 18 (56%) subthemes, producing 'instrumental', 'getting the job done' and 'expressive' returns. This is a noteworthy finding, considering each participant only added an average of 1.6 ties to their network. The only two themes where EHU contacts did not provide support were 'organisational support' and 'flexibility', these areas requiring co-working in the same organisation or some involvement in personal life. In terms of network intentionality, it is notable that none of the participants reported a desire to make new network connections as a reason for undertaking the MA. Considering the formation of relationships on the MA, the structure of the MA programme was influential. Participants were allocated tutors and placed in groups with fellow students. Hence, there was little choice as to whom they regularly interacted with. However, post-graduation, participants could decide with whom they wished to remain in contact, thus being able to exert agency in this respect. Considering Homans' (1958) economic theory of social interactions (section 10.4.2.2), the fact that they chose to stay in touch demonstrates the value placed upon these relationships.

Within the available medical education literature, there is a paucity of information about the type of support offered by contacts made on FD programmes. Morzinski and Fisher (2002) and Rienties and Kinchin (2014) used pre-determined categories for their SNA studies of FDPs, thus lacking the perspective of what participants felt was important to them. Areas within the pre-set themes included career support, co-teaching, teaching-related advice, academic support and friendship, showing some parallels with the present study's findings. However, there was minimal discussion of the precise nature of support received, limiting scope for the practical application of results. Allen et al., (2020) adopted a community of practice model to appraise the impact of FDPs at institutions in the US and Australia. Participants reported keeping in touch for years after graduation to gain career support and to collaborate on research and teaching, although the duration of contact and the number of new contacts made from the programmes are not revealed. Participants also appreciated being able to meet with 'like-minded' individuals, a finding observed within the MCE studies by Goldszmidt, Zibrowski and Weston (2008); Al-Subait and Elzubeir, (2012) and Sethi et al. (2018) and widely within the FD literature (see, for example, Lown, Newman and Hatem (2009) and Moses et al. (2009)). Such relationships are

considered important for the development of professional identity, although the role of ongoing relationships after graduation is less well explored in the general FD literature and unknown within the MCE studies reviewed for this thesis.

10.3.3.2.1 EXPRESSIVE RETURNS AND PROFESSIONAL IDENTITY

Medical educators have multiple professional roles and identities, functioning, for example, as a clinician, teacher and manager (O’Sullivan et al., 2016). Identity as a teacher concerns the individual’s self-perception, behavioural choices and how they are viewed by others (Gee, 2001). Professional identity can be viewed as being on a continuum from an intrinsic quality to a social construct, with constant negotiation and tension between these differing perspectives (Cantillon, Dornan and De Grave, 2019, van Lankveld et al., 2021). From a social relational viewpoint, professional identity can be regarded as a fluid, dynamic phenomenon, changing according to the sociocultural context. For example, in an exploration of teacher identity development in clinicians, Cantillon et al. (2016) observed that clinician educators adapted their practice and identity as a teacher to fit the norms of their institution. Hence, in an environment where medical education is highly valued, such as an MCE programme, medical educators can develop a strong sense of professional identity (Sethi et al., 2018). However, medical education is frequently perceived to be less important than clinical work (MacDougall and Drummond, 2005, van Lankveld et al., 2017), which can lead to a conflict between roles when medical educators seek to implement their learning within a clinical environment (Cantillon et al., 2016). This issue arose for P3 and P10, who both experienced difficulties with clinical colleagues understanding the discourse and culture of medical education. Ongoing post-graduation contact with EHU faculty was deliberately sought by participants who appreciated immersing themselves in the institutional field of medical education. They could converse with like-minded others and receive moral support, giving them resilience for their clinical environment. Sessional faculty members may struggle with their identity as a medical educator; feeling valued and connected to other faculty members predicting a stronger sense of professional identity (Snook et al., 2019). Crucially, participants described how relationships with EHU faculty

deepened over the course of the MA and continued to develop post-graduation, with ongoing contact and intermittent mobilisation of resources over the years.

10.3.3.2.2 GETTING THE JOB DONE

Although collegiality was an important aspect of support from EHU contacts, the largest proportion of support was provided in the theme of 'delivery of education'. EHU ties constituted 50% of all ties providing the 'knowledge' subtheme. Participants specifically targeted EHU contacts (both faculty and peers), identifying that they possessed resources not available elsewhere in their networks, such as the latest information on a specific teaching topic. These actions could save participants time within their crammed schedules. EHU contacts also acted as a bridge, connecting graduates with useful contacts. Resources were also mobilised after chance encounters, such as meeting on a train or receiving an unexpected email. Stoddard and Brownfield (2016) have highlighted the importance of medical educators having contacts with experts in education, observing that clinical educators are 'dual professionals' who 'work at the interface of two professions' (ibid: 922). They identify the immense difficulties attached to trying to practise two professions and recommend that medical educators should liaise with professional educators, with even a master's degree in clinical education viewed as not providing sufficient expertise. The present study has highlighted the informal arrangements by which such liaison already occurs.

10.3.3.2.3 INSTRUMENTAL RETURNS

Support resulting in instrumental returns was largely initiated by EHU faculty. Following graduation from the MA, participants described that EHU faculty arranged and delivered 'educational appraisals', an area where participants felt their other contacts were lacking in expertise. Indeed, for two participants (P5 and P6), EHU contacts were the only ties providing any form of career support, an area UK-based medical educators struggle to navigate (UK Clinical Research Collaboration and Modernising Medical Careers, 2005, Browne, Webb and Bullock, 2018). Contacts about job opportunities were two-way.

Graduates would contact EHU faculty to enquire about potential job opportunities, whilst faculty also contacted graduates to notify them of the availability of work at the university. Such emails created prompts for graduates to contact EHU faculty for support in other areas. EHU faculty also gained through this arrangement, as they were able to access highly trained teaching staff to deliver their programmes. Ongoing teaching work at EHU provided a further source of SC, with P3 describing how contact with a more heterogeneous group of trainees informed their other teaching roles.

Support with academic activities formed a small part of graduates' EHU and non-EHU networks. Participants contacted EHU faculty to enquire about undertaking additional qualifications, such as an educational doctorate. Participants also worked with faculty to write for publication; these activities were largely initiated by EHU faculty and based around graduates writing up their dissertations. Although publications can arguably enhance the reputation of medical educators, many participants described how they struggled to find the time for these activities, suggesting that educational research and publications were a lower priority than the rest of their workloads.

As with the non-EHU networks, whilst participants took advantage of being able to access heterogeneous resources, they did not utilise the bargaining power that accompanied brokerage positions connected with their MA contacts. In their Bourdieusian secondary analysis of an MCE programme, Aitken et al. (2019) also observed the collaborative nature of medical educators' interactions. However, in the case of Aitken and colleagues' (2019) study sample, the reported co-operative interactions were largely within the context of the period of study and were peer-to-peer. I have therefore illustrated that collaborative working can also exist between faculty and graduates and persists and develops well beyond graduation.

10.3.4 BARRIERS TO THE FORMATION AND MAINTENANCE OF RELATIONSHIPS IN THE CONTEXT OF THE MA

Notably, the majority of new relationships maintained after graduation were with faculty, with only 2 participants keeping in touch with peers. Whilst the 'step on, step off' approach of the programme enabled participants to fit the different modules around their other commitments, the result was that participants did not develop a consistent group of peers on the programme. They reported feeling disconnected and somewhat isolated, their main point of contact being with their tutor. Zhou's (2015) thorough literature review of online discussion boards has highlighted this detachment from peers to be a common issue, with these fora impairing participants' ability to gauge emotion.

Lack of homophily with peers was another reason for not keeping in touch. In common with the findings of the MCE studies by Al-Subait and Elzubeir (2012); Sethi, (2016); Skeith et al., (2018); Aitken et al. (2019) and Jünger et al. (2020), participants in the present study generally appreciated heterogeneity amongst their peers whilst studying on the programme. However, for some participants, this heterogeneity meant they had insufficient reason to stay in touch after graduation. Time was also a major factor, participants not having the time to maintain relationships post-graduation, particularly where attempts at contact were not reciprocated. These findings highlight the advantage of examining the support networks of participants up to 5 years after graduation, to allow such issues to emerge.

10.4 DEVELOPMENT OF A NEW THEORETICAL MODEL

Within educational research, theories provide a schema for understanding a phenomenon. They are seldom developed from a single study, but are constructed over time, based on empirical research and hypotheses (McKenney and Reeves, 2019). Fundamentally, there are three levels of educational theory: local, middle-range and high-level. Local theories are based on small-scale studies that provide an understanding applicable only within specific contexts and not readily transferred to other, similar situations (ibid). Middle-range theories aim to link the findings of small-scale studies with unifying, higher level theories, and were argued by Merton (1968) as being essential building blocks for sociological research. In this study, I have drawn together the findings of multiple small-scale studies, carefully comparing and contrasting with my data via the higher-level theoretical lens of SC. This work forms the firm basis for the development of a new theoretical model, which aims to further the understanding of the value of undertaking a higher qualification in clinical education in terms of the SC of the medical educator. As discussed in the methods chapter, any theory produced from this research is not generalisable from a statistical perspective, but can shed light on other, similar situations, termed ‘fuzzy generalisation’ (Bassegy, 1999).

The following new theoretical model pertains to a medical educator with an MCE. Underpinning this model is Portes' (1998:6) definition of SC as *‘the ability of actors to secure benefits by virtue of membership in social networks or other social structures’*. The model presented in figure 93, below, comprises three components, representing the formation of potential capital, mobilisation of SC and returns to the individual. Reading the figure from the left, the first component of the model illustrates the formation of potential capital. Five themes of resources are embedded in ties between MCE graduates and contacts made on an MCE programme: ‘career support’; ‘delivery of education’; ‘academia’; ‘collegiality’ and ‘personal relationship’. A variety of factors contribute to the formation and maintenance of these ties. There is a heterophilous aspect to relationships, with educators appreciating the presence of resources not available elsewhere in their network. Relationships with MCE contacts also exhibit homophily, ego and alter sharing an interest in education. Such

similarities can promote collegiality and reinforce professional identity, especially where education is not valued in the clinical workplace. Conversely, lack of homophily, minimal face-to-face contact and insufficient time can lead to the discontinuation of MCE relationships, particularly in the case of peer-peer relationships. There is a tension between structure and agency within this process: during an MCE programme, medical educators may be allocated tutors and peer groups, thus having little control over who they meet. However, they are able to exert agency in choosing to maintain those relationships and mobilise available resources. Post-graduation, relationships develop and deepen, as the educator and their MCE contact have repeated contact, with further embedded resources being identified and mobilised. Relationships can be reciprocal, with both the medical educator and their EHU contact identifying and mobilising resources, an action which leads to perpetuation of the tie.

The central component of figure 93 represents the mobilisation of SC. For this process to occur, the educator must first perceive that their MCE contact has a resource they require. Mobilisation may then be triggered via one of two processes. The educator may intentionally target their contact to mobilise the resource. Alternatively, they may mobilise the resource following an unplanned encounter with their MCE contact. The final component of the model represents the returns for the medical educator, which may be instrumental, getting the job done or expressive. Instrumental returns enable the educator to progress in some way, by enhancing their wealth, power or reputation, and can result from the mobilisation of support in the areas of career support and academia. Getting the job done returns facilitate the day-to-day work of the medical educator, via mobilisation of the 'delivery of education' resource. Expressive returns help the educator to maintain their physical and mental health and life satisfaction; they are achieved via the mobilisation of 'collegiality' and 'personal support'. Doctors require all three types of returns to function and progress in their roles as medical educators.

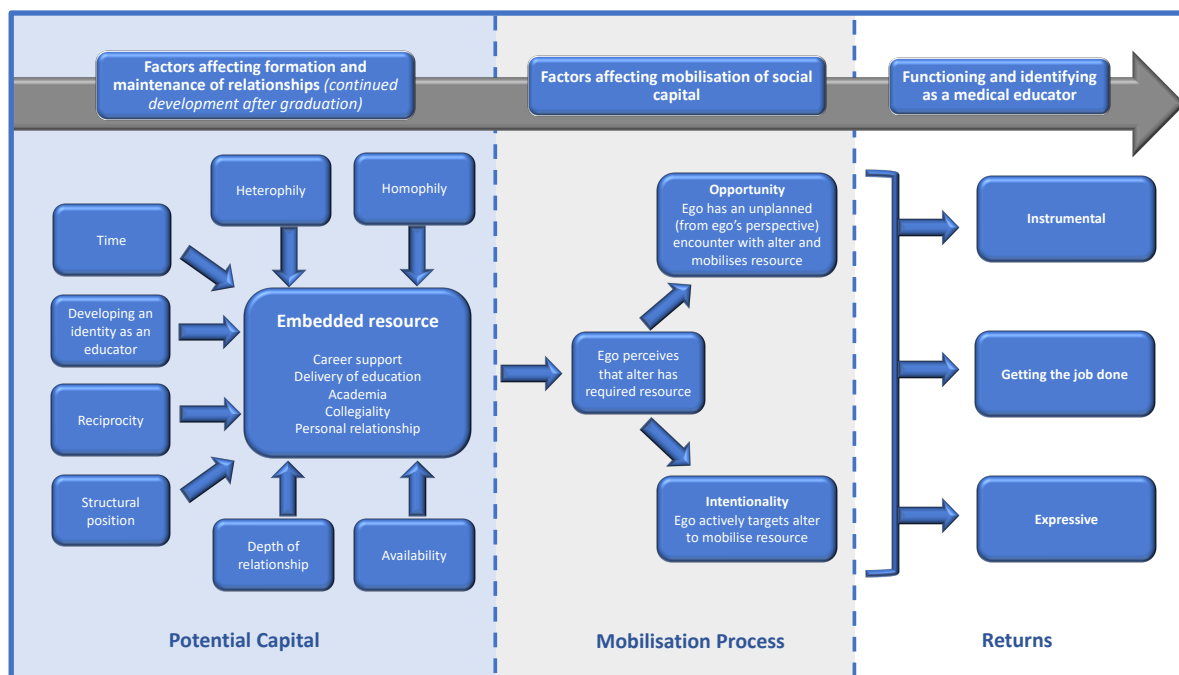


Figure 93: Development of a new theoretical model representing social capital formation, mobilisation and returns in a master's degree in clinical education

In addition to providing a substantial contribution to the body of knowledge regarding MCE programmes, the new model presented in figure 93 has extended existing theories on SC. Lin's (2001) SC theory does not consider the depth of relationships, highlighted as an important factor in the formation and maintenance of MCE ties. Lin (2001) also adopts Burt's (1992) view of the role of competition in the mobilisation of SC in the presence of structural holes. Contrastingly, competition is not included in the new model, as competition is not featured in medical educators' MCE relationships. Lin (2001) did not tease out the important distinction between instrumental, getting the job done and expressive returns, something also missing from Moolenaar, Slegers and Daly's (2012) well-conducted school teacher network study. Viewing returns as only instrumental or expressive has been demonstrated to be overly simplistic and to obscure a large proportion of the consequences of SC for medical educators. The inclusion of getting the job done returns provides clarity and illustrates the broad impact of relationships made through MCE programmes. The model highlights that Granovetter's (1973) theory of strong and weak ties does not translate well to MCE relationships. MCE ties contain aspects of heterophily

and homophily, both of which are valued by graduates, contrasting with Granovetter's (1973) dichotomous categorisation of relationships as either heterophilous or homophilous.

A key part of the new theoretical model is Nardi, Whittaker and Schwarz's (2002) concept of 'intensional networks'. Unlike the new model, Nardi and colleagues (2002) do not utilise the theory of SC, clarify the factors underpinning networking behaviour or make explicit the resources available. I have therefore also been able to further their work by making clear the processes and resources involved within 'intensional networks', linking with SC theory to facilitate the translation of the findings into other contexts.

10.5 STRENGTHS

This study has been carefully planned and implemented, following the quality framework in table 48, below, first presented in the 'Methods chapter'. I have conducted a thorough and comprehensive literature review, which has demonstrated a gap in the literature and established the case for investigating the value of an MCE from a SC and social network perspective. To maximise transparency and facilitate reproducibility, care has been taken at each stage of the study to thoroughly document each action taken. I have been clear to identify where a prior relationship existed with EHU faculty and fellow students, excluding the related data from the analysis as appropriate. The mixed methods design has produced a triangulation of the data, enabling a rich picture to emerge of the SC of medical educators. The quantitative data have clearly depicted the networks and the contribution made by the MA, via the production of network measures and visual evidence of the formation of separate components by EHU contacts. The qualitative data built upon this picture to add meaning. Qualitative data themes were cross-checked and challenged by supervisors. A strict record has been maintained linking themes with participants (sections 12.3 and 12.4) The flexible nature of the interview schedule allowed my research to respond to emerging findings and permitted collection of the participants' full network. Including participants who were up to 5 years post-graduation has revealed the longer-term impact of the MA.

Aware of my status as an insider, I have taken care to present negative as well as positive aspects of the EHU MA.

Analysis of the participants' full educational support network has provided important context for the impact of relationships made via the MA. This approach has demonstrated the marked variability in the social worlds of medical educators, thus underlining the importance of developing a new evaluation method capable of both eliciting, and allowing for, widely differing circumstances.

The study design has a strong theoretical framework underpinning both design and analysis. The core of this framework was formed by Lin's (2001) theory of SC, which other researchers have found to be well suited to SNA (see, for example, Carolan (2014)). Where this theory was found to be lacking, work from other theorists was drawn upon. Analysis and integration of qualitative and quantitative data from the study, in addition to constant comparisons with existing empirical work, enabled me to both confirm and question these theories to develop a new theoretical model. This new theoretical model, along with very detailed reporting of the methods and findings, facilitates transferability to other, similar populations both in the UK and internationally.

Table 48: Quality framework for mixed methods research, adapted from O’Cathain (2010)

Quality domain	Domain items
Planning	Comprehensive and critical literature review
	Justification of MM approach provided
	Details of paradigm, design plan, data collection and analysis and reporting
	All aspects of the study are feasible
Design quality	Key aspects of design are from known typology, if available typologies insufficient to describe design utilised
	The design: <ul style="list-style-type: none"> • Addresses the research question • Complements the reason for mixing methods • Is appropriate for the paradigm
	Strengths and weaknesses of methods: <ul style="list-style-type: none"> • Are considered in a way to minimise bias • Maximise the depth and breadth of the study
	Methods are implemented consistent with initial design
Data quality	Transparency of method description
	Methods are implemented with rigor
	Appropriate sampling technique and sample size
	Appropriate and adequately performed data analysis techniques
	Robust data integration – e.g. defensible data transformations
Interpretive rigour	Clarity regarding which methods have resulted in which findings
	Inferences are consistent with findings
	Inferences consistent with theory or current knowledge
	Others would reach the same conclusions of the findings
	Conclusions drawn are more credible than alternative conclusions
	Meta-inferences (covering the whole study) incorporate findings from quantitative and qualitative aspects of study
	Inconsistencies between findings and inferences are explained
	Inferences relate to the study question
Inference transferability	<ul style="list-style-type: none"> • Ecological transferability: transferability to other contexts and settings • Population transferability: transferability to other individuals/groups • Temporal transferability: transferability to the future • Theoretical transferability: transferability to other methods of behaviour measurement
Reporting quality	Study completed within allocated resources
	Key aspects of study reported according to GRAMMS (Good Reporting of a Mixed Methods Study) criteria (O’Cathain <i>et al.</i> 2008)
	The whole of the study is more than the sum of its parts
Application in the real world	
Utility	Research findings are implemented

10.6 LIMITATIONS

Due to data protection legislation, I could only contact graduates who were in contact with the programme leader. This may have led to a bias in the sample, although, as 32 out of 34 eligible graduates remained in touch, this was probably not a substantial issue. Additionally, as the programme leader is my supervisor and I am a member of staff at the university, this may have led to bias in the participants' responses and in my interpretation of the results. To guard against this issue, I kept a reflective diary and inquired about and documented negative aspects of the MA. I do not, and have not at any point, taught on the MA programme.

The study was a small sample from a single UK university. Hence, the findings may not be applicable to other settings, particularly outside of the UK where working practices may be different. Additionally, the perspective adopted for this study was that knowledge is socially constructed. Therefore, the data collected is purely from the viewpoint of the participant, as they saw their particular situation on the day that I interviewed them. Furthermore, the study took place up to 5 years post-graduation, which may have led to recall bias. However, the study data are broadly consistent with a wide range of empirical and theoretical literature from the UK and internationally, thus suggesting that the findings could be applicable to different MCE programmes.

10.7 PRACTICAL IMPLICATIONS

The practical implications of this research may be considered in terms of policy and practice.

10.7.1 IMPLICATIONS FOR POLICY

This study has highlighted the importance of SC for medical educators and the critical role of an MCE in contributing to that SC. The contexts in which medical educators work are shaped by policies, which may be established by international, national or local institutions (Bell and Stevenson, 2006). Currently, the World Federation for Medical Education standards for master's degrees in medical education do not include advice on supporting students to develop networks on MCE programmes (WFME, 2016). The present study should therefore inform future revisions of these standards, which, in turn, can influence policy and practice in universities offering these qualifications. As part of their requirements for supporting educators, the GMC has identified the importance of networking, recommending that:

'Organisations must support educators to liaise with each other to make sure they have a consistent approach to education and training, both locally and across specialties and professions'. (GMC, 2015: 30).

Such organisations would include HEE, universities and clinical care providers, for instance hospital Trusts, but there is no guidance regarding implementation or monitoring of this recommendation. At an HEE level, I have been unable to find any policies relating to supporting closer links between educators. Furthermore, there is no current policy at EHU to promote networking either during or after a period of study at the university. There is an active alumnus network, which graduates must opt into, but this is university-wide and not faculty or programme specific. The study findings can therefore inform HEE, educational institutions and students as to the importance of support networks, in addition to providing guidance in how to develop and maintain this support. Essential to policy development is the involvement of relevant stakeholders (Bell and Stevenson, 2006), which should include medical educators.

10.7.2 IMPLICATIONS FOR PRACTICE

Within this thesis, I have demonstrated the importance of SC for understanding the value of MCEs to medical educators. I have shown the practical importance of SC to medical educators, who rely on support from their networks for multiple aspects of their educational roles. I have carefully detailed the contribution that an MCE can make to that SC, as accessed via the social network. New contacts made through the MCE programme can help medical educators to work more efficiently; for example, by providing up to date teaching resources, or contributing to teaching on behalf of the medical educator. Such a contribution is of vital importance to medical educators who struggle to find the time to fulfil all their roles. This issue will only become more pressing with the recent increase in UK medical student places (see section 2.2) and intensification of workload with the ongoing COVID-19 pandemic in combination with an ageing and multimorbid population. In such an environment, burnout can be a risk, yet here, also, MCE contacts can help by providing collegial relationships, where a shared interest and understanding of medical education can function as ‘anti-burnout medication’ (P10, p.257). Career pathways in medical education are extremely diverse and can be difficult to navigate (Browne, Webb and Bullock, 2018). MCE contacts provide crucial support in this area, providing an ‘educational appraisal’ (P7, p.282) and access to new educational working opportunities. New social connections made via an MCE programme therefore have the potential to make a vital contribution to the working lives of medical educators. Nevertheless, as is often the case with non formal learning (see section 2.5.2), the medical educators themselves were not overtly aware of these outcomes until they were discussed as part of the study. Hence, there may be some benefit to increasing the network awareness of medical educators and providing support in developing and sustaining networks (van Lankveld et al. 2021)

Three main types of social network intervention have been employed in education programmes (Baker-Doyle and Yoon, 2020). Techniques can involve ‘top down’ structural changes, such as placing people in teams to encourage interaction, or ‘bottom up’, for example encouraging educators to build on their existing networks. An approach termed ‘network inquiry’ can work alongside these interventions to support teachers to develop

an awareness of their existing networks (ibid:2). Van Waes et al. (2018) conducted a randomised controlled trial (RCT) of a network inquiry intervention with 38 non-medical university teachers attending an FDP in Belgium. The intervention entailed drawing out the participants' own networks, combined with training to raise network awareness. Ego networks for the control group showed a mean increase in ties of 50%, with the intervention group showing, on average, almost 100% increase in ties. Overall network size increase persisted 6 months post-programme, with new ties including peers and faculty. The intervention group doubled the teaching expertise within their networks, resulting in larger and more diverse networks than the control group.

Data from the present study could inform the development of a similar intervention targeted towards medical educators. The Clinical Educator Support Assessment Tool (CESAT, see figure 94), would form the core of this intervention. This tool has been derived from the resource themes and could be used to help assess and monitor the networks of students as they progress through an MCE programme. It is envisaged that the tool would be interactive and web-based, thus requiring further research and development, which will be discussed in section 10.8. Completion of the CESAT would be supported by a presentation or infographic pertaining to i) the importance of networking and ii) factors known to influence formation and mobilisation of SC. Anonymised case examples from the study would provide context and relevance for the students. The CESAT would help educators understand where they currently have support and identify areas where they may benefit from further input. If completed at regular intervals throughout an MCE programme, the CESAT could also act as an evaluation tool to ascertain the number and quality of new relationships made throughout the programme. This new method of evaluation progresses the evaluation of postgraduate medical education programmes, as there are currently no similar tools in use. Use of the CESAT for these purposes would require further development, piloting and evaluation, as further discussed in section 10.8.

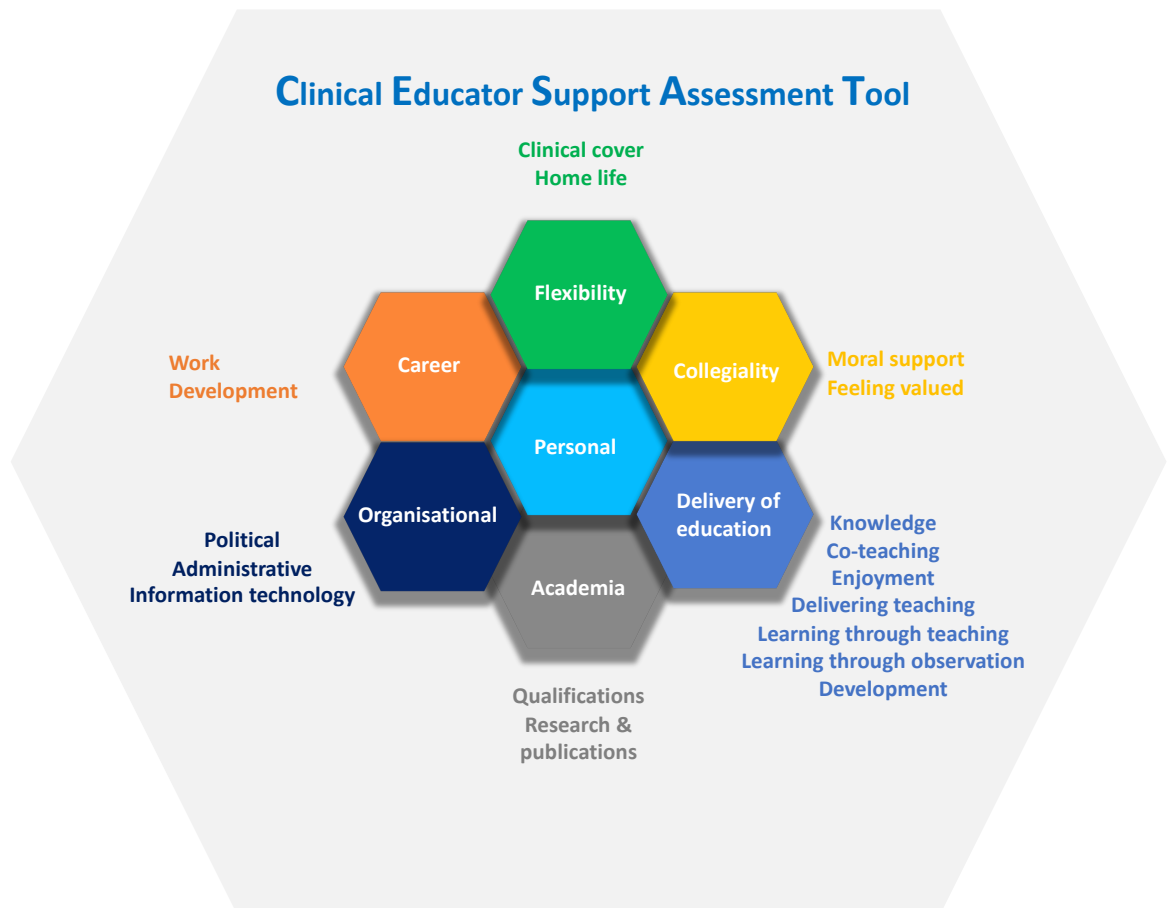


Figure 94: The Clinical Educator Support Assessment Tool

MCE programme faculty could potentially function as ‘network managers’ (Margolis and Parboosingh, 2015) to help learners make desired connections. The majority of graduates in my study maintained contact with the programme leader. With appropriate changes to consent around data usage, this could become a more formalised process, with graduates’ details being held in a central database for the purpose of acting as a contact and potential mentor for future students. The present study has identified low levels of face-to-face contact between students to being a barrier to forming relationships. However, FDPs should be accessible (Proctor, Leeder and Mattick, 2020), hence it is not recommended that MCE programmes shift to deliver more in person teaching, as this may not adequately address learners’ requirements.

10.8 SUGGESTIONS FOR FUTURE RESEARCH

There are four main strands to future research in this area, each strand building upon the work of the last: i) broadening the potential for transferability of findings; ii) development of the CESAT; iii) piloting of the CESAT; iv) RCT of a network intervention.

The study data support, and are supported by, the wider literature. Nevertheless, repetition of the study with non-medical clinical educators and at different institutions, including those attracting international students, could extend the transferability of the findings and inform further development of the CESAT (figure 94). Within the quantitative data, a number of trends emerged which suggested that MCE contacts could offer more heterogeneous resources. However, some of these trends were found not be statistically significant, potentially due to the small sample size. Use of larger sample sizes in subsequent studies may therefore produce additional statistically significant findings to further support the conclusions that MCE contacts can provide access to more heterogeneous resources.

Secondly, future research in conjunction with a web development team could produce the CESAT in an interactive and web-based format. Students would click or tap on the resource categories in the tool to input number of ties and the context of relationships according to pre-set categories based on existing study findings. In conjunction with development of the CESAT would be production of a presentation or infographic to illustrate the importance of networking in medical education and the processes involved. Such work can enhance the agency of medical educators by enabling them to expand their networks. Thirdly, with the students' permission, CESAT could be developed into an evaluation tool, to allow the institution to prospectively monitor the progress in students' networks throughout the programme. Hence, CESAT would ultimately be dual-purpose, simultaneously delivering tailored support to the learner and conducting a programme evaluation. When developed, CESAT and the linked presentation or infographic would require piloting and evaluation for usefulness and practicability, from the perspectives of students and faculty.

A fourth strand for future research would be an RCT of students studying for an MCE in clinical education, similar to that conducted by Van Waes et al. ((2018), see section 10.7.2). The CESAT and linked presentation or infographic would constitute the basis of a network intervention for one arm of the RCT, the control arm being comparable students on the same programme. Mirroring Van Waes et al. (2018), the aim of the intervention would be to alter the networks of medical educators by increasing size and heterogeneity. The current study has already illustrated the value of support networks for medical educators and the contribution of MCEs to these networks. An RCT in the manner described would provide a novel understanding of the benefits of incorporating network development more formally into the MCE curriculum, something which would have international relevance for policy and practice.

CHAPTER 11: CONCLUSION

The introductory chapters to this thesis focussed on the importance of demonstrating and measuring the value of professional development to educators, programme providers and funders in the context of a global need for well-trained clinical educators. In the course of writing, that demand has become more urgent. COVID-19 has highlighted the importance of being able to rapidly upskill the healthcare workforce, although intense clinical pressures have left very little time for teaching. Now, more than ever, clinical educators require high quality professional development so that they may make efficient use of the little teaching time available. The work of clinical educators is essential to ensure a safe and effective healthcare workforce and, ultimately, better patient outcomes. Hence, it is vital we obtain their perspective on the value of their professional development.

Ensuring that clinical educators receive high quality professional development requires sophisticated evaluation tools. This study has highlighted the calls for research into alternative methods of programme evaluation, specifically holistic methods that consider the socio-cultural context of the learner and which are underpinned by theory (O’Sullivan and Irby, 2011, Steinert et al., 2016). This study has answered that call. A predominant proportion of the current MCE literature is not theory-based, addresses only the first and second levels of the Kirkpatrick model (Kirkpatrick Partners, 2018), and does not consider the learner’s socio-cultural environment (Steinert et al., 2016). The development of networks has been mentioned within some MCE studies, but almost as an aside. Using medical educators as a focus, this study is the first to systematically investigate the value of an MCE from the perspective of the social capital gained from new connections made through the programme.

This study has painted a rich picture of the socio-cultural milieu of medical educators. Contacts made from an MCE programme are an important part of that world. Medical

educators value the multifaceted resources they are able to mobilise from their MCE connections, which provide 'instrumental', 'expressive' and 'getting the job done returns'. In other words, new MCE contacts can, and do, provide support in most areas that do not require a close personal or line management relationship. MCEs continue to have an impact upon the work of a medical educator for years after graduation, as relationships between graduates and new contacts from the programme continue to evolve and flourish.

The use of an underpinning theoretical framework throughout all stages of the study, in conjunction with rigorous comparisons of findings with the existing literature, has supported the development of a new theoretical model. This new model illustrates the processes via which an MCE contributes to a medical educator's SC, in addition to clarifying the returns on SC within this context. This work not only makes a substantial contribution to the MCE literature, but also extends Lin's (2001) theory of SC and Nardi, Whittaker and Schwarz's (2002) concept of 'intensional' networks. Construction of a new theoretical model facilitates the transfer of the study findings to other, similar settings. There is scope for additional development to produce a flexible, dual-purpose tool, CESAT, based on the study's findings. This highly practical tool would facilitate both assessment of clinical educator support networks and programme evaluation, therefore being of value to students and institutions. Used as the core of a network awareness intervention, the CESAT also has the potential to increase the agency of medical educators by facilitating network-building. The findings from this study therefore have the potential to impact upon policy and practice in achieving and measuring value to educators and funders, both nationally and internationally.

CHAPTER 12: APPENDICES

12.1 GLOSSARIES

For clarity, there are two glossaries within this section covering: i) medicine and medical education; and ii) social network analysis terminologies.

12.1.1 MEDICINE AND MEDICAL EDUCATION GLOSSARY

Annual Review of Competency Progression (ARCP)

'The ARCP provides a formal process that reviews the evidence presented by the trainee and their educational supervisor relating to the trainee's progress in the training programme. It enables the trainee, the Postgraduate Dean and employers to document that the competences required are being gained at an appropriate rate and through appropriate experience' (COPMed, 2020: 61)

Allied Health Professions (AHP)

Professionally autonomous healthcare practitioners regulated by the Health and Care Professions Council (HCPC), Osteopaths being regulated by the General Osteopathic Council (GOC) (NHS England, 2021a).

Associate Medical Director

An experienced doctor who provides senior, strategic medical leadership for a specified area of a hospital Trust's work (Monitor, 2014).

Associate specialist

Non-training grade medical doctors whose roles have a primary focus on direct clinical care. They have a minimum of 4 years' postgraduate training. Associate specialist posts have not been open to new entrants since 2008, with doctors now applying to 'specialty doctor' positions (not to be confused with 'specialty trainees' who are doctors on a specialty training programme; please see below).

Clinical Lecturer

These posts can be awarded for up to four years to doctors who are in their third year, or above, of their specialty training. Doctors would usually hold an MD or PhD to be eligible to apply for these posts and clinical training would continue alongside academic work (NHS England, 2021b)

Clinical Professor

A clinical academic who has a substantive academic employment contract with a Higher Education Institution, has GMC registration and may also undertake clinical work in association with an NHS employer (University of Oxford, 2021).

Clinical Sub-Dean

Works with the Director of Medical Education to quality assure medical student placements (NHS Dumfries and Galloway, 2017).

Clinical Supervisor (CS)

‘A trainer who is selected and appropriately trained to be responsible for overseeing a specified trainee’s clinical work and providing constructive feedback during a training placement’ (COPMed, 2020: 20).

Clinical Teaching Fellow

These posts show substantial variability, but usually involve a doctor taking time out of postgraduate training. Roles frequently involve delivery of teaching on the undergraduate medical curriculum. Some posts will incorporate clinical duties into the job plan, whilst others consist entirely of education delivery (Ker, Guckian and Bowey, 2018).

College regional advisor

Local representative of the Royal College for the relevant specialty. A practising clinician, they liaise between the HEE Specialty School and the relevant Royal College in all issues relating to postgraduate specialty training. (Royal College of Physicians and Surgeons of Glasgow, 2020)

College Tutor

A College Tutor is responsible for the co-ordination of postgraduate training in a specific specialty within an individual NHS Trust. In the Trust, they liaise with Educational Supervisors and are line managed by Trust Directors of Medical Education and the local HEE Training Programme Director for the relevant specialty. (HEE East Midlands, 2020, Royal College of Obstetricians and Gynaecologists, 2020)

Continuing professional development (CPD)

CPD is any learning outside of undergraduate education or postgraduate training that helps...maintain and improve...performance. It covers the development of...knowledge, skills, attitudes and behaviours across all areas of...professional practice. It includes both formal and informal learning activities (GMC, 2012: 7).

Core training

A form of postgraduate specialty training (see below) that is 'uncoupled'. Doctors will complete 2 or 3 years of core training, then must re-apply in open competition for higher specialty posts and completion of training (COPMed, 2020).

Director of Medical Education (DME)

A practising medical doctor, usually a senior consultant, responsible for the maintenance and development of postgraduate medical education and training within a specified hospital trust. They work in close collaboration with the Training Programme Directors (NHS Education for Scotland, 2016).

Divisional Director

NHS Hospital Trusts may be split into divisions, which are managerial structures that incorporate more than one clinical department. Within these divisions are various director roles, such as Divisional Medical Director and Divisional Director of Operations (see, for example Liverpool University Hospitals NHS Foundation Trust (2021)).

Educational Supervisor (ES)

'A named trainer who is selected and appropriately trained to be responsible for the overall supervision and management of a specified trainee's educational progress during a clinical training placement or series of placements... The educational supervisor is jointly responsible with the trainee for the trainee's educational agreement' (COPMed, 2020: 20)

Foundation programme

The first postgraduate training programme for doctors after graduating from medical school. It is a 2-year training programme, comprising of a rotation of posts through different specialties. On entry to the programme, doctors are provisionally registered with the General Medical Council, and gain full registration after successful completion of the first year of the programme (COPMed, 2020).

Foundation programme director

A senior clinician with experience in medical education who has responsibility for managing the Foundation Programme in a Specific Region (COPMed, 2020).

General Medical Council (GMC)

An independent organisation responsible for the regulation of doctors in the UK. It oversees medical education and training. For the first year after graduating from medical school, a doctor is provisionally registered with the GMC. At the end of that year, providing competency criteria are met, the doctor then obtains **full registration** on the medical register (COPMed, 2020).

Head of school

The regional offices of Health Education England (see below) are divided into specialty schools. These schools oversee postgraduate medical training within a specific medical specialty (for example, psychiatry). The head of school is usually an experienced consultant and medical educator, who leads the regional training for their specialty (Health Education Yorkshire and Humber, 2021).

Health Education England (HEE)

‘Health Education England supports the delivery of excellent healthcare and health improvement to the patients and public of England, by ensuring that the workforce has the right numbers, skills, values and behaviours, at the right time and in the right place.’ (COPMed, 2020: 7) Local HEE offices exist in different regions of England, for example, HEE North West, and oversee postgraduate medical training (ibid).

Intercalated BSc

Intercalation is an extra year of study in addition to the medical degree programme. It is usually optional, although in some medical schools is mandatory. It provides medical students with the

opportunity for in-depth study of a specific subject area, for example, anatomy (Hull York Medical School, 2021).

Medical Director

A senior doctor who provides medical leadership at board level for a healthcare organisation (NHS Improvement, 2017).

Postgraduate Dean

Based at HEE local offices for their educational role, postgraduate deans have a clinical background and are accountable for the day to day management and quality assurance of postgraduate specialty training programmes (COPMed, 2020).

Postgraduate medical training programmes

‘A [training] programme is a formal alignment or rotation of posts that together comprise a programme of training in a given specialty or sub-specialty. Approval of specialty training programmes and locations rests with the GMC’ (COPMed, 2020: 17).

Royal Colleges and Faculties

These national bodies set the standards within their particular field, relating to specialty training of doctors, setting of postgraduate specialty examinations and ongoing standards of practice for doctors who have completed their training. These standards are established within the context of general standards required of doctors by the GMC. (COPMed, 2020)

Specialty training

Postgraduate medical training following successful completion of the Foundation Programme (COPMed, 2020).

Training Programme Director (TPD)

A senior clinician with experience in medical education who has responsibility for managing a specified speciality training programme (COPMed, 2020)

12.1.2 SOCIAL NETWORK ANALYSIS GLOSSARY

Alter

A node with a tie to a focal node, or 'ego'. The node may represent an individual or a group (Borgatti, Everett and Johnson, 2018).

Clique

A subset of nodes where all members are linked to one another. This gives the maximum density of 1 (Crossley et al., 2015).

Component

A subset of nodes where all members are linked to one another, but not linked to the rest of the network (with the exception of ego) (Crossley et al., 2015).

Constraint

A complex calculation which is a measure of 'the extent to which ego invests time and energy in alters who invest in each other' (Borgatti, 2018: 320). The measure assumes ego divides their time evenly between alters. It is an inverse measure of structural holes; a smaller value for constraint would indicate more structural holes. Conversely, the nearer the measure is to 1, the fewer the number of structural holes and associated brokerage opportunities. In very small networks, constraint may be greater than 1 (Hanneman and Riddle, 2005, Borgatti, Everett and Johnson, 2018).

Density

The number of ties between alters divided by the total number of possible ties between alters. The maximal value for density is 1, where all nodes are interconnected (Borgatti, Everett and Johnson, 2018).

Efficiency

A whole network measure of the extent to which people are connected to one another in a given network - i.e., the extent to which ego's ties are 'non-redundant'. The higher the efficiency, the nearer the measure is to 1 (Borgatti, Everett and Johnson, 2018).

Ego

In a personal network study, 'ego' refers to the individual whose network is being studied; the 'focal node'. The network of one individual is termed an 'ego-network' or 'ego-net' (Borgatti, Everett and Johnson, 2018: 337).

Node

'An actor or entity that makes up the system or network' (Borgatti, Everett and Johnson, 2018: 341). A *node* may be an individual or a group. In ego-networks, a *node* may be referred to as an 'alter' (ibid).

Sociogram

A visual representation of a network in terms of nodes and the ties connecting them (Carrington and Scott, 2011).

Structural hole

The absence of a tie between two alters in an ego network (Borgatti, Everett and Johnson, 2018).

Tie

A connection between two nodes in a network (for example, between two alters or between ego and an alter) (Borgatti, Everett and Johnson, 2018).

Redundancy

A measure of the proportion of nodes connected to a given node in the network. This is calculated for each node - the nearer the measure is to 1, the more 'redundant' the tie is for ego - for example, information from the node in question may also be obtained from other nodes (Hanneman and Riddle, 2005).

12.2 PARTICIPANT CHARACTERISTICS AND INTERVIEW DETAILS

Identifier	Clinical Job role	Educational roles	Proportion of job role medical education	Interview mode	Interview duration (to the nearest minute)
P1	Consultant	Trust educational roles; University affiliation;	20%	Phone	64
P2	Consultant	Trust educational roles; University affiliation	33%	In person	89
P3	Consultant	Trust educational roles; University affiliation	50%	In person	91
P4	Consultant	University affiliation	20%	Phone	80
P5	Consultant	Trust educational roles; HEE* North role	20%	Phone	92
P6	Consultant	Trust educational roles; HEE North role	20%	In person	102
P7	Consultant	Trust educational roles; University affiliation; National educational role	10% (NHS contract) 240 – 300 hours per year for non-NHS roles	In person	130
P8	Consultant	Trust educational roles; HEE North role; Royal College affiliation	33%	In person	85
P9	Consultant	Trust educational roles	30%	In person	86
P10	Consultant	Trust educational roles; University affiliation	30% (NHS contract) Approximately 100 hours per year for non-NHS roles	In person	105
P11	Consultant	Trust educational roles; HEE North role; Royal College affiliation	25%	Phone	48
P12	General Practitioner	University affiliation	80%	Phone	32

*HEE = Health Education England

12.4 CODING OF RESOURCES AND INFLUENTIAL FACTORS RELATED TO THE IMPACT OF THE MA ON THE INDIVIDUAL AND THEIR INTERPERSONAL INTERACTIONS

		MA impact on the Individual and on interpersonal interactions	
Influential factors	Similarities and differences	Homophily	P11; P2; P10; P3
		Heterophily	
	Availability	Propinquity	
		Opportunity	
		Mode of contact	
	Depth of relationship	Multiplexity	
		Knowing someone well	
		Trust	
		Reliability	
	Competition		P9; P12
	Reciprocity		
	Structural position	Hierarchy	P11; P2; P10; P3
		Bridge	
		Role conflict	
	Developing an identity as an educator	Knowledge, confidence and credibility	P1; P10; P11; P12; P2; P3; P4; P5; P6; P7; P8; P9
		Being recognised as an educator	P12; P3; P4; P5; P6; P7; P8; P9
Non-social resources	Money		
	Time		
	Medical educator development programmes		
Resources	Organisational	Admin	
		IT	
		Political	P10
	Delivery of education		P2
	Flexibility		
	Career support		
	Academia		P3; P4
	Collegiality		P10
Personal relationships			

Charlotte O'Callaghan

2nd July 2018

Dear Charlotte,

Thank you for submitting your research ethics application '*An investigation into the value of undertaking a higher qualification in clinical education: a social capital*' (FOHS 209) to the Faculty of Health & Social Care Research Ethics Committee.

I have pleasure in informing you that the Committee recommended that your study is granted Faculty of Health & Social Care research ethics approval, subject to the following conditions:

1. Ethical approval covers only the original study for which it is sought. If the study is extended, changed, and / or further use of samples or data is needed the Committee Administrator, Daniel Brown, must be contacted for advice as to whether additional ethical approval is required.
2. (NHS studies only) NHS Research governance processes must be adhered to. If required, an application must be made to the HRA for approval for the research to be conducted in the NHS. NHS R&D departments (in Trusts where data is being collected) may also need to be approached for Trust permission to proceed.
3. If the project requires HRA approval and/or NHS ethical approval, please forward evidence of the approval(s) to Daniel Brown (browdan@edgehill.ac.uk) before commencing the study. FREC approval is subject to the receipt of evidence of appropriate external approvals.
4. The Principal Investigator is responsible for ensuring that all data are stored and ultimately disposed of securely in accordance with the Data Protection Act (1998) / General Data Protection Regulation (GDPR) (2018) and as detailed within the approved proposal.
5. The Principal Investigator is responsible for ensuring that an annual monitoring form and an end of study form, where appropriate, is sent to the Committee Administrator (browdan@edgehill.ac.uk). The form will be sent to you at the appropriate time by the Committee Administrator.
6. Ethical approval for this research will expire on 01-09-2020. Any extensions to this date will require additional approval from the committee.

The study documentation that has been reviewed and approved is detailed below:

<doc title>	<version no & date>
Ethics proposal doc	V8, June 2018

Appendix 1: Participant Information Sheet	V3, 26-06-2018
Appendix 2: Summary of Method Options	V2, 01-06-2018
Appendix 3: Graduate Consent Form	V3, 26-06-2018
Appendix 4: Study Consent Form	V3, 26-06-2018
Appendix 5: Blackboard announcement for student recruitment	V2, May 2018
Appendix 7: Consent Withdrawal Form	V2.2, Dec 2017
Appendix 8: Self-report template	V2, 26-06-2018
Appendix 9: Semi-structured Interview	V2, May 2018
Appendix 10: Invitation email to graduates	V2, 01-06-2018
How to protect your document	V1, June 2018
Email to participants re consent form and self-report template	n/a
Cathy email re study recruitment	n/a
Cathy graduate email recruitment revised	n/a

Yours sincerely



Professor Mary O'Brien

Chair of Faculty of Health & Social Care Research Ethics Committee
Edge Hill University
St Helens Road
Ormskirk
Lancashire
L39 4QP
obrienm@edgehill.ac.uk

12.6 ETHICAL APPROVAL UPDATE OCTOBER 2018

This update reflects the addition of a spreadsheet to the data collection.

Edge Hill
University

Charlotte O'Callaghan

15th October 2018

Dear Charlotte,

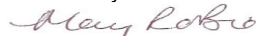
Thank you for resubmitting your research ethics application '*An investigation into the value of undertaking a higher qualification in clinical education: a social capital perspective*' (FOHS 218) to the Faculty of Health & Social Care Research Ethics Committee.

I have pleasure in informing you that the Committee recommended that the amendments to your study are granted Faculty of Health & Social Care research ethics approval.

The study documentation that has been reviewed and approved is detailed below:

<doc title>	<version no & date>
Ethics proposal doc	V9, May 2018
Appendix 1: Participant Information Sheet	V4, 11-10-2018
Appendix 2: Summary of Method Options	V3, 11-10-2018
Appendix 3: Graduate Consent Form	V4, 11-10-2018
Appendix 4: Study Consent Form	V4, 11-10-2018
Appendix 5: Blackboard announcement for student recruitment	V2, May 2018
Appendix 7: Consent Withdrawal Form	V2.2, Dec 2017
Appendix 8: Self-report template	V2, 26-06-2018
Appendix 9: Semi-structured Interview	V2, May 2018
Appendix 10: Invitation email to graduates	V3, 11-10-2018
How to protect your document	V1, June 2018
Email to participants re consent form and self-report template	n/a
Cathy email re study recruitment	n/a
Cathy graduate email recruitment revised	n/a

Yours sincerely



Professor Mary O'Brien

Chair of Faculty of Health & Social Care Research Ethics Committee
Edge Hill University
St Helens Road
Ormskirk
Lancashire
L39 4QP
obrienm@edgehill.ac.uk

12.7 ETHICAL APPROVAL UPDATE APRIL 2019

This update reflects a minor amendment to the consent form

Edge Hill
University

Charlotte O'Callaghan

13th January 2020

Dear Charlotte,

Thank you for resubmitting your research ethics application '*An investigation into the value of undertaking a higher qualification in clinical education: a social capital perspective*' (FOHS 218) to the Faculty of Health, Social Care and Medicine Research Ethics Committee.

Following interim verbal approval by the Chair (Professor Mary O'Brien) in April 2019 prior to your data collection, I have pleasure in informing you in writing that the Committee recommended that the amendments to your study are granted Faculty of Health, Social Care and Medicine research ethics approval.

The study documentation that has been reviewed and approved is detailed below:

<doc title>	<version no & date>
Student consent form	v.5 April 2019
Graduate consent form	v.5 April 2019

Yours sincerely



Dr. Katherine Knighting

Acting Chair of Faculty of Health, Social Care and Medicine Research Ethics
Committee
Edge Hill University
St Helens Road
Ormskirk
Lancashire
L39 4QP
Knightk@edgehill.ac.uk

PARTICIPANT INFORMATION SHEET

An investigation into the value of undertaking a higher qualification in clinical education: a social capital perspective.

You are invited to take part in a research study. It is important that you take some time to read the following information so that you understand why this research is being conducted and what it will involve. Before coming to a decision, you may wish to discuss this with others, such as friends, colleagues or the researcher. If you would like further information or any clarifications, please do not hesitate to contact the researcher, Charlotte O'Callaghan, at ocallagc@edgehill.ac.uk. Further contact details for the researcher and her supervisors (Prof John Sandars, Dr Cathy Sherratt, Prof Jeremy Brown) may be found at the end of this information sheet.

What is the purpose of the study?

The study aims to understand the value of undertaking a higher postgraduate qualification in clinical education (i.e. either a Postgraduate Diploma or Master's). The focus of the study is on the following:

- how social and professional networks may help individuals fulfil the role of a medical educator;
- if and how the course has helped you to fulfil the role of medical educator;
- if and how the course has affected your professional and social connections as they relate to your educational work role.

The study forms part of the researcher's PhD.

Why have I been invited?

The study is seeking to recruit medical doctors who are students or graduates of the Postgraduate Diploma (PGDip) or Master's (MA) in Clinical Education course at Edge Hill University. There will be approximately 12 – 15 participants in the study.

Do I have to take part?

No, you do not have to take part. This is something you can decide once you have read the information contained in this sheet.

If you are currently a student at Edge Hill University, you may be reassured that there is no obligation for you to participate in this study. Non-participation will have no effect whatsoever on your studies.

If you agree to participate, you will be required to complete a consent form, which the researcher will discuss with you. If you decide to participate, but then change your mind, you

may withdraw at any time prior to data collection. Once the data has been collected, you will have 7 days to notify the researcher of your intention to withdraw. After that time period, your data will have been processed and it will no longer be possible to extract it from the data of other participants. You can, however, withdraw your consent to any personally identifiable information, such as contact details, at any time. Should you decide you wish to withdraw, a 'Data Subject Consent Withdrawal Form' may be requested from the researcher. Upon receipt of this form, within the above timeframe, the researcher will securely destroy any personal identifiable data which has been held as part of the study.

What will happen to me if I take part?

The study consists of 2 stages: a short Word-based document (self-report template) and an interview. The Word document will take up to 15 minutes to complete and can be done at your own convenience. Once it is complete, you will password-protect it and email it to the researcher. You will send the researcher a separate email containing the password so that they can open the documents. This document will inform the interview, which will last up to 1.5 hours, although, if it is more convenient for you, this may be broken into 2 shorter sessions. It may occur face-to-face or via video conferencing (e.g. Skype or Facetime): this will vary between individuals depending on the practicalities of organising a face-to-face interview, which would occur at a public place that is mutually convenient for you and the researcher. There will be an audio recording of the interview. Should any of the questions in the Word document make you feel uncomfortable, you may skip them. Likewise, you may stop the interview at any time. Once the Word document and interview are complete, your involvement in the study is ended.

The topics covered include the following:

- Details of your professional qualifications and job role(s)
- Demographic information, such as gender
- Discussion of your professional and social networks as they relate to your role as a medical educator
- Your experiences and opinions of the PGDip/MA in Clinical Education at Edge Hill University

What are the possible disadvantages and risk of taking part?

It is not anticipated that there are any significant risks to you should you take part in the study. The main disadvantage to you will be that of the time commitment involved.

What are the possible benefits of taking part?

It is unlikely that you will benefit personally from this study. There is only a very small body of literature relating to postgraduate diplomas and master's in clinical education. Your contribution will therefore inform theory and practice in this field, which will have relevance far beyond the course at Edge Hill University.

Will my taking part in this study be kept confidential?

Your data will be anonymous, which means that your name will not be linked to your data. When the study is written for publication, your data will be reported for you as an individual (a case study) and also amalgamated with that of other participants. It is the nature of case studies that it may be possible to deduce your identity; however, there will be no attempt to do so and your data will be reported in a way that will not identify you. For example, pseudonyms will be used throughout and potentially identifiable details, such as your clinical role, may be altered if it is considered that could lead to you being identified.

Directly identifiable data, such as your contact details, consent form, interview transcript and audio recording, will be stored in encrypted files on password protected computers. Any paperwork relating to the study (such as notes taken during the interview) will be kept in a locked cabinet in the researcher's office. Depending on the location of the interview, paperwork may be kept overnight in a locked cabinet in the researcher's home, before being transferred to a locked cabinet in the researcher's office at Edge Hill University.

The only person who will have access to directly identifiable information relating to you (e.g. your contact details) is the researcher. The researcher's supervisors, Prof John Sandars, Dr Cathy Sherratt and Prof Jeremy Brown, will have access to anonymised transcripts of the interviews and the anonymised data from the Word document which you completed prior to the interview. It is the practice at Edge Hill University that anonymised data is made available for the use of other researchers for up to 10 years after the study is completed. Anonymised data collected during the study may also be reviewed by individuals from Edge Hill University or from regulatory authorities for audit purposes. All other data will be destroyed following completion of the researcher's PhD.

In the unlikely event that criminal behaviour or professional malpractice is disclosed, the researcher will have a duty to inform the relevant authorities, such as the police, your employer or the General Medical Council.

At Edge Hill, we are committed to respecting and protecting your personal information. To find more information on ways in which we use your data, please see edgehill.ac.uk/about/legal/privacy.

What is the legal basis on which my data is processed?

Your consent is required for this research project to meet ethical standards. However, the legal basis under which your data will be processed is called 'public task'. This means that the collection of personal data is 'necessary for the performance of a task (in this case, research) carried out for reasons of public interest'.

What will happen to the results of the research study?

The results will be written up as part of the researcher's doctoral thesis. They will also be published in academic journals and possibly as part of a book chapter. They will be presented

at meetings and conferences. Your anonymity will be preserved, as described under the section 'Will my taking part in this study be kept confidential?' The researcher will provide you with a summary of the study findings if you wish to receive this. In order to provide you with this, the researcher will need to keep a secure record of your contact details.

Who has reviewed the study?

The study has been reviewed by the Faculty of Health & Social Care Research Ethics Committee at Edge Hill University.

What if there is a problem?

If you have any concerns about any aspects of this study, or would like further information, please contact the researcher:

Dr Charlotte O'Callaghan, Graduate Teaching Assistant, Faculty of Health & Social Care, Edge Hill University, St Helens Road, Ormskirk, L39 4QP
Email: ocallagc@edgehill.ac.uk

The contact details for the researcher's supervisors are:

Professor John Sandars, Professor of Medical Education, Postgraduate Medical Institute (PGMI), Faculty of Health & Social Care, Edge Hill University, St Helens Road, Ormskirk, L39 4QP
Tel: 01695 584515
Email: john.sandars@edgehill.ac.uk

Dr Cathy Sherratt, Programme Leader, MA Clinical Education, Postgraduate Medical Institute (PGMI), Faculty of Health & Social Care, Edge Hill University, St Helens Road, Ormskirk, L39 4QP
Tel: 01695 584154
Email: Cathy.Sherratt@edgehill.ac.uk

Professor Jeremy Brown, Professor of Clinical Education, Postgraduate Medical Institute (PGMI), Faculty of Health & Social Care, Edge Hill University, St Helens Road, Ormskirk, L39 4QP
Tel: 01695 650919
Email: brownjm@edgehill.ac.uk

Is there someone independent I can talk to about the research?

If you would like to discuss this research with an independent person, please contact:

Professor Clare Austin, Associate Dean for Research and Innovation, Faculty of Health and Social Care, Edge Hill University, St Helens Rd, Ormskirk, L39 4QP

Tel: 01695 650772

Email: Austincl@edgehill.ac.uk

This version reflects the addition of the spreadsheet for data collection.

PARTICIPANT INFORMATION SHEET

An investigation into the value of undertaking a higher qualification in clinical education: a social capital perspective.

You are invited to take part in a research study. It is important that you take some time to read the following information so that you understand why this research is being conducted and what it will involve. Before coming to a decision, you may wish to discuss this with others, such as friends, colleagues or the researcher. If you would like further information or any clarifications, please do not hesitate to contact the researcher, Charlotte O'Callaghan, at ocallagc@edgehill.ac.uk. Further contact details for the researcher and her supervisors (Prof John Sandars, Dr Cathy Sherratt, Prof Jeremy Brown) may be found at the end of this information sheet.

What is the purpose of the study?

The study aims to understand the value of undertaking a higher postgraduate qualification in clinical education (i.e. either a Postgraduate Diploma or Master's). The focus of the study is on the following:

- how social and professional networks may help individuals fulfil the role of a medical educator;
- if and how the course has helped you to fulfil the role of medical educator;
- if and how the course has affected your professional and social connections as they relate to your educational work role.

The study forms part of the researcher's PhD.

Why have I been invited?

The study is seeking to recruit medical doctors who are students or graduates of the Postgraduate Diploma (PGDip) or Master's (MA) in Clinical Education course at Edge Hill University. There will be approximately 12 – 15 participants in the study.

Do I have to take part?

No, you do not have to take part. This is something you can decide once you have read the information contained in this sheet.

If you are currently a student at Edge Hill University, you may be reassured that there is no obligation for you to participate in this study. Non-participation will have no effect whatsoever on your studies.

If you agree to participate, you will be required to complete a consent form, which the researcher will discuss with you. If you decide to participate, but then change your mind, you

may withdraw at any time prior to data collection. Once the data has been collected, you will have 7 days to notify the researcher of your intention to withdraw. After that time period, your data will have been processed and it will no longer be possible to extract it from the data of other participants. You can, however, withdraw your consent to any personally identifiable information, such as contact details, at any time. Should you decide you wish to withdraw, a 'Data Subject Consent Withdrawal Form' may be requested from the researcher. Upon receipt of this form, within the above timeframe, the researcher will securely destroy any personal identifiable data which has been held as part of the study.

What will happen to me if I take part?

The study consists of the following stages: a short Word-based document (self-report template) and an interview. The Word document will take up to 15 minutes to complete and can be done at your own convenience. Once it is complete, you will password-protect it and email it to the researcher. You will send the researcher a separate email containing the password so that they can open the documents. This document will inform the interview, which will last up to 1.5 hours, although, if it is more convenient for you, this may be broken into 2 shorter sessions. It may occur face-to-face or via video conferencing (e.g. Skype or Facetime) or via the telephone: this will vary between individuals depending on the practicalities of organising a face-to-face interview, which would occur at a public place that is mutually convenient for you and the researcher. There will be an audio recording of the interview. Should any of the questions in the Word document make you feel uncomfortable, you may skip them. Likewise, you may stop the interview at any time. Once the Word document and interview are complete, you may be asked to complete a spreadsheet or table of further details regarding your contact network. This will be used where networks are large or complex and therefore it is not possible to say in advance if this will be necessary. The spreadsheet or table will be part-filled by the researcher, based on information obtained in your interview. Completion on your part should take up to 20 minutes, depending on the size of your network. Following completion of this, your participation in the study is over.

The topics covered include the following:

- Details of your professional qualifications and job role(s)
- Demographic information, such as gender
- Discussion of your professional and social networks as they relate to your role as a medical educator
- Your experiences and opinions of the PGDip/MA in Clinical Education at Edge Hill University

What are the possible disadvantages and risk of taking part?

It is not anticipated that there are any significant risks to you should you take part in the study. The main disadvantage to you will be that of the time commitment involved.

What are the possible benefits of taking part?

It is unlikely that you will benefit personally from this study. There is only a very small body of literature relating to postgraduate diplomas and master's in clinical education. Your contribution will therefore inform theory and practice in this field, which will have relevance far beyond the course at Edge Hill University.

Will my taking part in this study be kept confidential?

Your data will be anonymous, which means that your name will not be linked to your data. When the study is written for publication, your data will be reported for you as an individual (a case study) and also amalgamated with that of other participants. It is the nature of case studies that it may be possible to deduce your identity; however, there will be no attempt to do so and your data will be reported in a way that will not identify you. For example, pseudonyms will be used throughout and potentially identifiable details, such as your clinical role, may be altered if it is considered that could lead to you being identified.

Directly identifiable data, such as your contact details, consent form, interview transcript and audio recording, will be stored in encrypted files on password protected computers. Any paperwork relating to the study (such as notes taken during the interview) will be kept in a locked cabinet in the researcher's office. Depending on the location of the interview, paperwork may be kept overnight in a locked cabinet in the researcher's home, before being transferred to a locked cabinet in the researcher's office at Edge Hill University.

The only person who will have access to directly identifiable information relating to you (e.g. your contact details) is the researcher. The researcher's supervisors, Prof John Sandars, Dr Cathy Sherratt and Prof Jeremy Brown, will have access to anonymised transcripts of the interviews and the anonymised data from the Word document which you completed prior to the interview. It is the practice at Edge Hill University that anonymised data is made available for the use of other researchers for up to 10 years after the study is completed. Anonymised data collected during the study may also be reviewed by individuals from Edge Hill University or from regulatory authorities for audit purposes. All other data will be destroyed following completion of the researcher's PhD.

In the unlikely event that criminal behaviour or professional malpractice is disclosed, the researcher will have a duty to inform the relevant authorities, such as the police, your employer or the General Medical Council.

At Edge Hill, we are committed to respecting and protecting your personal information. To find more information on ways in which we use your data, please see edgehill.ac.uk/about/legal/privacy.

What is the legal basis on which my data is processed?

Your consent is required for this research project to meet ethical standards. However, the legal basis under which your data will be processed is called 'public task'. This means that the collection of personal data is 'necessary for the performance of a task (in this case, research) carried out for reasons of public interest'.

What will happen to the results of the research study?

The results will be written up as part of the researcher's doctoral thesis. They will also be published in academic journals and possibly as part of a book chapter. They will be presented at meetings and conferences. Your anonymity will be preserved, as described under the section 'Will my taking part in this study be kept confidential?' The researcher will provide you with a summary of the study findings if you wish to receive this. In order to provide you with this, the researcher will need to keep a secure record of your contact details.

Who has reviewed the study?

The study has been reviewed by the Faculty of Health & Social Care Research Ethics Committee at Edge Hill University.

What if there is a problem?

If you have any concerns about any aspects of this study, or would like further information, please contact the researcher:

Dr Charlotte O'Callaghan, Graduate Teaching Assistant, Faculty of Health & Social Care, Edge Hill University, St Helens Road, Ormskirk, L39 4QP
Email: ocallagc@edgehill.ac.uk

The contact details for the researcher's supervisors are:

Professor John Sandars, Professor of Medical Education, Postgraduate Medical Institute (PGMI), Faculty of Health & Social Care, Edge Hill University, St Helens Road, Ormskirk, L39 4QP
Tel: 01695 584515
Email: john.sandars@edgehill.ac.uk

Dr Cathy Sherratt, Programme Leader, MA Clinical Education, Postgraduate Medical Institute (PGMI), Faculty of Health & Social Care, Edge Hill University, St Helens Road, Ormskirk, L39 4QP
Tel: 01695 584154
Email: Cathy.Sherratt@edgehill.ac.uk

Professor Jeremy Brown, Professor of Clinical Education, Postgraduate Medical Institute (PGMI), Faculty of Health & Social Care, Edge Hill University, St Helens Road, Ormskirk, L39 4QP
Tel: 01695 650919
Email: brownjm@edgehill.ac.uk

Is there someone independent I can talk to about the research?

If you would like to discuss this research with an independent person, please contact:

Professor Clare Austin, Associate Dean for Research and Innovation, Faculty of Health and Social Care, Edge Hill University, St Helens Rd, Ormskirk, L39 4QP

Tel: 01695 650772

Email: Austincl@edgehill.ac.uk

12.10 EMAIL TO PARTICIPANTS

This email was sent to participants once recruited by the programme leader.

Dear X

Thank you for agreeing to participate in my PhD study: *An investigation into the value of undertaking a higher qualification in clinical education: a social capital perspective*. Please find attached three documents: two are for completion and one is for reference.

The documents for completion are:

1. Consent form
2. Self-report template

The reference document is 'How to protect your document'.

The consent form may be completed electronically and emailed back to me at the below address along with your self-report template. Typed signature and initials are acceptable. Should you have any questions prior to completing the consent form, please contact me via the details below.

The self-report template asks for information that will be used to inform the interview, which will occur at a later date. Once you have completed this form, in order to protect any sensitive information you may have included, you are advised to save it to a password-protected file prior to emailing it to me, Charlotte O'Callaghan: ocallagc@edgehill.ac.uk. Please send the password to me via a separate email. Details on how to password-protect a document are contained within the 'How to protect your document' attachment.

Thank you again for your time. Should you have any questions or concerns, please do not hesitate to contact me as below.

Regards

Dr Charlotte O'Callaghan
Graduate Teaching Assistant, Faculty of Health & Social Care, Edge Hill University, St Helens Road, Ormskirk, L39 4QP
Email: ocallagc@edgehill.ac.uk

Edge Hill University

Title of Project: An investigation into the value of undertaking a higher qualification in clinical education: a social capital perspective.

Name of Researcher: Charlotte O'Callaghan

I [*research participant*], confirm by initialing the boxes below, that:

1.	I have read and understood the Participation Information Sheet dated 26.06.18 v3 for the above project.	
2.	I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily where applicable.	
3.	I understand that this study involves completing a short Word document and being interviewed and that the latter will be audio recorded.	
4.	I agree to my words being used as quotes in publications/presentations and that these will be anonymised so I won't be identifiable.	
5.	I understand that my participation is voluntary and that I am free to leave the study at any time.	
6.	I understand that if I leave the study it is only possible to withdraw my research data up to 7 days after it has been collected.	
7.	I understand that data collected during the study may be reviewed by individuals from Edge Hill University or from regulatory authorities for audit purposes where it is relevant to my taking part in this research. I give permission for these individuals to have access to my anonymised data.	
8.	I understand that the information collected from me may be used to support other research in the future, and I agree for my research data to be shared anonymously with other researchers.	
9.	I agree to take part in the above study.	

Name of participant

Date

Signature

Name of person taking consent

Date

Signature

An investigation into the value of undertaking a higher qualification in clinical education: a social capital perspective.

26.06.18 v3 [graduate consent form]

DATA SUBJECT CONSENT FORM

Reference: SPPU V 2.2

GDPR consent statement

I, *[data subject name]*, hereby grant Edge Hill University authority to process my personal data for the purpose of my participation in the above-named project.

I am aware that I may withdraw my consent at any time using the Data Subject Consent Withdrawal Form (obtainable from the lead researcher).

By completing this form I will be instructing the research team to delete any **personal** data they hold about me, (e.g. contact details) (See point above regarding limitations to withdrawing **research** data).

Signed by data subject:

Date:

The University is the owner of this document and is responsible for ensuring that this procedure is reviewed in line with the review requirements of the GDPR.

This work instruction was approved by the Data Protection Office on 22 December 2017 and is issued on a version-controlled basis under their signature.

12.12 CONSENT FORM 2ND VERSION: OCTOBER 2018

This update reflects the change in participant information sheet following the addition of a spreadsheet.

Edge Hill University

Title of Project: An investigation into the value of undertaking a higher qualification in clinical education: a social capital perspective.

Name of Researcher: Charlotte O'Callaghan

I [*research participant*], confirm by initialing the boxes below, that:

1.	I have read and understood the Participation Information Sheet dated 11.10.18 v4 for the above project.	
2.	I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily where applicable.	
3.	I understand that this study involves completing a short Word document and being interviewed and that the latter will be audio recorded.	
4.	I agree to my words being used as quotes in publications/presentations and that these will be anonymised so I won't be identifiable.	
5.	I understand that my participation is voluntary and that I am free to leave the study at any time.	
6.	I understand that if I leave the study it is only possible to withdraw my research data up to 7 days after it is has been collected.	
7.	I understand that data collected during the study may be reviewed by individuals from Edge Hill University or from regulatory authorities for audit purposes where it is relevant to my taking part in this research. I give permission for these individuals to have access to my anonymised data.	
8.	I understand that the information collected from me may be used to support other research in the future, and I agree for my research data to be shared anonymously with other researchers.	
9.	I agree to take part in the above study.	

Name of participant

Date

Signature

Name of person taking consent

Date

Signature

An investigation into the value of undertaking a higher qualification in clinical education: a social capital perspective.

11.10.18 v4 [graduate consent form]

DATA SUBJECT CONSENT FORM

Reference: SPPU V 2.2

GDPR consent statement

I, *[data subject name]*, hereby grant Edge Hill University authority to process my personal data for the purpose of my participation in the above-named project.

I am aware that I may withdraw my consent at any time using the Data Subject Consent Withdrawal Form (obtainable from the lead researcher).

By completing this form I will be instructing the research team to delete any **personal** data they hold about me, (e.g. contact details) (See point above regarding limitations to withdrawing **research** data).

Signed by data subject:

Date:

The University is the owner of this document and is responsible for ensuring that this procedure is reviewed in line with the review requirements of the GDPR.

This work instruction was approved by the Data Protection Office on 22 December 2017 and is issued on a version-controlled basis under their signature.

12.13 CONSENT FORM 3RD VERSION: APRIL 2019

This update contains the addition of a sentence under point 4 to add clarity regarding anonymisation and case studies.

Edge Hill University

Title of Project: An investigation into the value of undertaking a higher qualification in clinical education: a social capital perspective.

Name of Researcher: Charlotte O'Callaghan

I [*research participant*], confirm by initialing the boxes below, that:

1.	I have read and understood the Participation Information Sheet dated 11.10.18 v4 for the above project.	
2.	I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily where applicable.	
3.	I understand that this study involves completing a short Word document and being interviewed and that the latter will be audio recorded. I understand that, depending on the complexity of the data collected in the interview, I may also be asked to complete a spreadsheet following the interview.	
4.	I agree to my words being used as quotes in publications/presentations and that these will be anonymised so I won't be identifiable. I understand that the nature of case studies is such that it may be possible to deduce my identity; however, there will be no attempt to do so and my data will be reported in a way to minimise the risk of identifying me.	
5.	I understand that my participation is voluntary and that I am free to leave the study at any time.	
6.	I understand that if I leave the study it is only possible to withdraw my research data up to 7 days after it has been collected.	
7.	I understand that data collected during the study may be reviewed by individuals from Edge Hill University or from regulatory authorities for audit purposes where it is relevant to my taking part in this research. I give permission for these individuals to have access to my anonymised data.	
8.	I understand that the information collected from me may be used to support other research in the future, and I agree for my research data to be shared anonymously with other researchers.	
9.	I agree to take part in the above study.	

Name of participant

Date

Signature

Name of person taking consent

Date

Signature

An investigation into the value of undertaking a higher qualification in clinical education: a social capital perspective.

30.04.19 v5 [graduate consent form]

DATA SUBJECT CONSENT FORM

Reference: SPPU V 2.2

GDPR consent statement

I, *[data subject name]*, hereby grant Edge Hill University authority to process my personal data for the purpose of my participation in the above-named project.

I am aware that I may withdraw my consent at any time using the Data Subject Consent Withdrawal Form (obtainable from the lead researcher).

By completing this form I will be instructing the research team to delete any **personal** data they hold about me, (e.g. contact details) (See point above regarding limitations to withdrawing **research** data).

Signed by data subject:

Date:

The University is the owner of this document and is responsible for ensuring that this procedure is reviewed in line with the review requirements of the GDPR.

This work instruction was approved by the Data Protection Office on 22 December 2017 and is issued on a version-controlled basis under their signature.

Self-report template

Thank you for completing this document. You will have read about the study on the Participant Information Sheet, dated 11.10.18 v4. Prior to sending the completed document back to the researcher, please also complete the consent form which you have been sent with this document.

If you have any questions, please contact the researcher:

Dr Charlotte O'Callaghan, Graduate Teaching Assistant, Faculty of Health & Social Care, Edge Hill University, St Helens Road, Ormskirk, L39 4QP
Email: ocallagc@edgehill.ac.uk

1. Please note in the table below whether you have a PGDip or MA in Clinical Education from Edge Hill University. Please also state the year that you obtained your qualification. If you have not yet completed the course, please provide an estimated date of completion.

Qualification		Year of qualification or estimated date of completion
PGDip	Yes/No	
MA	Yes/No	

2. This question asks about your current job roles. Please list clinical and educational roles separately in the table below. For example, 'Consultant in Anaesthesia' and 'Educational Supervisor' would be recorded in different boxes. Please also state how long you have been in the role – precise dates are not required; the number of months or years is sufficient.

Current job role(s)	Length of time in role (approximate)

3. In which year did you obtain full medical registration?

.....

4. Was your undergraduate training in the UK? Yes/No

If no, which country?

.....

5. Was your postgraduate medical training in the UK? Yes/No
If no, which country?

.....

6. Why did you choose to study for a Postgraduate Diploma (PGDip) or Master's (MA)
in Clinical Education?

.....

.....

.....

7. Please list up to five benefits you feel the MA/PGDip has had on your work as a medical
educator:

.....

.....

.....

.....

.....

8. Please list up to five disadvantages of undertaking the MA/PGDip in Clinical Education:

.....

.....

.....

.....

.....

9. Gender:

Please describe your gender:

.....

Thank you for completing this document

Domain 1: information from self-reported template about educational role to contextualise network discussion

Thank you for completing the Word document. I notice that your educational role(s) involve X. Could you tell me a little about your experience in this/these role(s)? Probe: e.g. what factors make your job easier/harder?

Domain 2: drawing out the social network

- a. The participant will be shown a sample social network and asked to draw out a similar network of the contacts/individuals who provide support/advice/help/information for them in their role as a medical educator. A feasibility study has demonstrated that individuals require different explanations to understand what is being asked of them, so the phrasing of this question will therefore be adapted accordingly for each participant.
- b. Please draw a line between the individuals in your network whom you perceive to be in contact with one another.
- c. How long have you known (each alter)?
- d. How did you get to know (each alter)?
- e. How frequently are you in touch with (each alter)?
- f. How do you contact (each alter)?

Domain 3: support provided

- a. The participant will be asked what support is provided by each of their alters. The precise phrasing of this question will depend on the phrasing best understood by the participant in domain 1.
- b. Is anything expected of you in return for this support? Probe: do you provide support for them?

Domain 3: homophily and heterophily

- a. What do you feel you have in common with these people?
Probe: e.g. do you share common activities outside your work role(s), same gender, clinical specialty, geographical area? Do they have a qualification in clinical education of which you are aware?
- b. In what ways do you feel you may be different from these people?

Probe: e.g. work in a different clinical environment, they are more experienced/less experienced.

Domain 4: difficulties

- a. Is there any support you would like to receive, but which you do not at present? Probe: e.g. Why do you think you do not get this support? Do you have any plans for how you may access it?
- b. Do you provide support for anyone who does not provide support for you? Probe: e.g. Why do you provide them with support? Do you anticipate they may be able to provide support to you in the future?

Domain 5: General questions about the role of medical educator and the impact of the MA/PGDip to contextualise the network

- a. On the Word document, you mentioned X positive and X negative aspects of undertaking the MA/PGDip Could we discuss this further, please?
- b. How influential have these positive aspects been on your work as a medical educator in comparison with the support you receive from the social network we have just discussed?

12.16 CONFIRMATION OF ACCEPTANCE TO PRESENT AT 'SUNBELT' 2020

Below is an email to confirm that a presentation based on this thesis was accepted for the 2020 Sunbelt Conference in Paris. This is an international social network analysis conference, which unfortunately was cancelled due to the COVID-19 pandemic.

23/02/2021

Email - Charlotte O'Callaghan - Outlook

[Reply](#) [Delete](#) [Junk](#) [Block](#) ...

Sunbelt 2020: notification of acceptance

- ① Getting too much email? [Unsubscribe](#)
- ① You replied on Fri 13/03/2020 09:32
- ① Label: keep for (2 years) Expires: Sun 27/02/2022 21:22

S2 Sunbelt 2020 <sunbelt2020@easychair.org> [Like](#) [Reply](#) [Reply all](#) [Forward](#) ...
Fri 28/02/2020 21:22
To: Charlotte O'Callaghan

Dear Charlotte O'Callaghan,

It is our pleasure to inform you that your abstract:

628 Charlotte O'Callaghan, John Sandars, Jeremy Brown, Cathy Sherratt A mixed methods network study of the impact of a master's in medical education

has been accepted for the 2020 Sunbelt Conference in Paris.

We will confirm the session in which you will be presenting your research and the format (oral presentation or poster) in the next few weeks. As we told you earlier this month, we have received an unusually high number of submissions this year, and we have to manage time and space very tightly. Therefore, some submissions are being moved to different sessions and/or from oral presentation to poster format. This occurs mostly in cases in which the submission is not sufficiently linked to the session's theme and/or the fit with other papers submitted to the same original thematic session is relatively less straightforward.

We will inform you as soon as the preliminary program is online. Please be aware that due to a high number of presentations, the conference will continue until Sunday, 7 June, 3pm.

In the meantime, please make sure to register as a participant before April 10th, 2020 in order to secure your place on the program. Participants registering before March 31st will benefit from early bird registration fees.

Click here to access the registration page: <https://www.insna.org/events/sunbelt-2020>

If you need a Visa to come to Paris, please make sure to ask us for an invitation letter and to start the process as soon as possible.

Looking forward to meeting you in Paris in June

Emmanuel and Paola
Sunbelt 2020 organizers

[Reply](#) | [Forward](#)

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