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PROFESSIONAL BROKERAGE

Why and how medical doctors improve quality of health care.

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Prologue

Cycling sport is the third popular sport that doctors practice in their spare time (Broersen, 2015). I imagine these medical doctors cycling after an intensive working day: clearing their minds and embracing some daylight. However, the clock has turned to winter time and that means that the doctors need to cycle in the dark. In order to cycle safely – and decrease the chance to get hit by car drivers - you will have to light up.

Do you recognize these battery-driven bicycle lamps? You regularly forget to switch them off or they get stolen by others. Low-battery or no lamps and gone is your safety and it wastes your money, because you need to buy new light. Then this – tire-driven – bottle dynamo where you have to kick your pedals with more power and what produces unreliable light in wet and snowy weather conditions; also not convenient right? But fortunately, we have got innovations in the bicycle lamp industry: *the dynohub*. This type of dynamo is fitted in the hub of the wheel. This dynamo is always connected to the energy you put in cycling, without that pedalling is becoming heavier and you do not face difficulties during average Dutch weather. A delightful solution in dark times to the safety problem, without losing energy?

The development of the bottle dynamo to the dynohub symbolizes the core of this study on professional brokerage. This study shows that connection between medical professionals seems essential to deliver quality in health care. I am convinced that effort across boundaries of professions is increasingly important in contemporary society, and is more than ever the place to produce solutions to ongoing transitions in the work and organization of professionals. In this study I use the term professional brokerage to give meaning to this boundary crossing activity. It refers to professionals that share organizational knowledge across professional boundaries.

The dynamo connects the wheel to the lamp and produces outcomes as safety or satisfaction, because you are visible and you can find the road in darkness which is convenient. Similarly, professional brokerage connects different professionals which can contribute to quality outcomes as patient safety or efficiency. But it is not just about that. The place of the dynamo shifted from the tire to the core of the wheel, what embodies the development towards the dynohub. It is beneficial and certainly increases your satisfaction and efficiency. Correspondingly, professional brokerage could be part of your work activities on a permanent basis, like the dynohub. But it also illustrates, that it is about organizing for better and more effective connections, that being responsive to demands really can contribute to better quality.

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Idwer Doosje, 2 November 2016

Medical dictionary

Ambulatory care	*Ambulante zorg* – Medical care provided on an outpatient location, including diagnosis, consultation, treatment, intervention and rehabilitation services.
Anaesthesiology	*Anesthesie* – Medical specialty, focused on perioperative medicine and administration of anaesthesia. The anaesthetist relieves and prevents pain by patients via narcosis, and/or drugs.
Attending	*Medisch specialist* – Term in USA for medical specialist (NL) or hospital consultant (UK). Also called supervisor by residents.
CanMEDS	Model to explain abilities needed to perform as a responsive physician of 21th century. Contains of seven roles: expert, communicator, collaborator, health advocate, leader, scholar and professional.
Clerk	*Co-assistent* – Medicine or nursing student practicing under the supervision of health practitioner.
Comorbidity	*Comorbiditeit* – Presence of one or mode additional diseases or disorders co-occuring with a primary disease or disorder.
Geriatrics	*Geriatrie* – Medical specialty that focusses on health care of elderly people. It aims to promote health by preventing and treating diseases and disabilities of older adults.
General Practitioner	*Huisarts* – Medical docter who treats acute and chronic illnesses and provides preventive care and health education to patients.
Internal medicine	*Interne geneeskunde* – Medical specialty that deals with the prevention, diagnosis and treatment of adult diseases.
Medical Leadership	*Medisch Leidershap* – Physicians who engages with others to contribute to a vision of a high-quality health care system and take responsibility for the delivery of excellent patient care through their activities as clinicians, administrators, scholars or teachers.
Ophthalmology	*Oogheelkunde* – Medical specialty that deals with the anatomy, physiology and diseases of the eye.
Outpatient clinic	*Polikliniek* - The part of a hospital designed for the treatment of outpatients, people with health problems who visit the hospital
Paediatrics	*Kindergeneeskunde* – Medical specialty that deals with medical care of infants, children and adolescents.
Physician	*Arts* – Professional who practices medicine, similar to attending.
Radiology	*Radiologie* – Medical specialty that use imaging to diagnose and treat diseases within the body.
Surgical suture	*Hechting* – Medical device used to hold body tissues together after ans injury or surgery.

Content

Summary (NL/EN)

Professionele Verbinding

Transities in de samenleving en de gezondheidszorg zijn van invloed op het werk van de professional en vragen om verbindende en organiserende capaciteiten. De transities gaan over de toenemende complexiteit van het klinisch werk, de veranderende relatie ten opzichte van de patiënt en de organisatie die vraagt om meer efficiëntie en verantwoording. De professional zelf lijkt het beste te weten hoe deze transities vorm moeten krijgen door zijn kennis van de praktijk en kan hiermee bijdragen aan kwaliteit van zijn werk en de organisatie. Afgezien van zijn klinische kennis en taken, zou de arts zich daarvoor moeten verbinden met andere professionals en zich richten op de vormgeving en organisatie van die transities.

Echter, het is niet vanzelfsprekend dat de arts zichzelf actief verbindt en kennis deelt (ofwel vertaalt) met als doel de kwaliteit van de zorg te verbeteren. Ten eerste delegeerde de arts vaak de niet-klinische taken naar de manager, om zich op deze manier volledig te kunnen concentreren op klinisch werk. Ten tweede is de arts niet automatisch gesocialiseerd met een organisatie logica gedurende zijn opleiding en is zo mogelijk niet voorbereid om zelf te 'managen'. De manager maakte besluiten zonder inzicht van de klinische praktijk, de arts zonder 'management'-knowhow wat leidde tot suboptimale besluiten en beleid.

Om deze reden ligt het voor de hand dat de arts zelf de verantwoordelijkheid moet nemen om organisatie capaciteiten te ontwikkelen en bij te dragen aan kwaliteit. Empirische data uit deze studie laat inderdaad zien dat er arts-assistenten (AIOS) zijn die pogen bij te dragen aan de kwaliteit door het delen van hun kennis over hoe het beter kan in hun klinische praktijk. Deze studie richt zich op deze arts-assistenten. *In welke mate doen ze dat? En waarom zij juist wel? En hoe doen ze dat?*

Het delen van die (organisatie) kennis die gericht is op het verbeteren van processen in de organisatie noem ik: *professionele verbinding* (professional brokerage). Dit begrip bouwt voort op twee concepten 'organizing professional' en 'knowledge brokerage'. Een professionele verbinder is een professional die organisatie kennis deelt over grens van zijn professie met andere professionals. Het is dus een collectief activiteit, die kan bijdragen aan betere beleidsvorming en andere professionals kan activeren. Met als potentie de kwaliteit van het werk en de organisatie van de zorgverlener te verbeteren.

Het *niet* kunnen, willen en mogen (een omgekeerd AMO model: demotivation, inability and no opportunity: DIN) geeft inzicht in de redenen waarom professionele verbinding is ontmoedigt. Jonge artsen worden enthousiast van medisch inhoudelijke kennis, worden daarop voornamelijk geëvalueerd en het lijkt ze status te geven. De relatief korte stages (3 tot 6 maanden), complexiteit van de organisatie en tijdsdruk werken niet motiverend voor de AIOS, omdat het lastig wordt ervaren iets te veranderen in die (korte) tijd en ze er niet van profiteren. Kennis over organiseren is niet altijd formeel onderdeel van hun opleiding en is dus iets wat in de avonduren moet plaatsvinden. Ook tijdens de introductie van een stage lijkt de organisatie op een tweede plek te staan (met in het ongewisse: wie is mijn teamleider?). De opleider is vaak het eerste aanspreekpunt voor problemen en observaties voor verbetering en is daarmee dus de professionele verbinder in plaats van de AIOS zelf. De opleider zelf staat namelijk wel in contact met andere professionals. Via twee/drie maandelijkse vergaderingen hebben AIOS formeel gezien de mogelijkheid om problemen of verbeteringen aan te kaarten. Dat duidt er op dat professionele verbinding (en dus kwaliteitsverbetering) geen dagelijkse bezigheid is. Dat

professionals fysiek verspreid zijn in het ziekenhuis maakt het bovendien lastig problemen op een informele manier te delen.

Ondanks de ontmoedigende factoren zijn er toch AIOS die professionele verbinding aangaan, ook al is het niet onderdeel van hun dagelijkse werk. Deze binders zijn intrinsiek gemotiveerd de organisatie te veranderen, wat duidt op een *public service motivation*. Die motivatie, om bij te willen dragen aan de organisatie, kondigen ze ten eerste aan bij hun opleider. Kennis en vaardigheden doen zij op door extra cursussen en bestuurservaring. Het zijn verbinders in het dagelijkse werk: informeel contact, humor en een vragende houding naar anderen. Ze lijken daarom ook wel op onderzoekers: ze observeren wat er gebeurt, leren van ervaringen in het verleden en ze zijn (zelf)kritisch. De opleider is wel een belangrijke spil in het web van mogelijkheden. Het reguliere AMO model geeft dus ook inzicht in het bestaan van professionele verbinding.

Al met al, twee verhalen naast elkaar. Die van de arts-assistenten die ontmoedigd worden om kwaliteit te verbeteren naast die van de arts-assistenten die juist graag buiten hun klinische taak bijdragen aan kwaliteit. Het DINAMO-model lijkt waardevol om te begrijpen waarom professionele verbinding al dan niet plaatsvindt. Nu is het niet zo dat iedereen zo'n verbindende rol moet hebben, niet iedereen is daarvoor ten slotte gemotiveerd. Wel zou de kwaliteit van de afdeling en de organisatie kunnen profiteren van de bijdragen van deze gemotiveerde verbinders en zou de mogelijkheden hiertoe verder kunnen stimuleren. Dat de arts-assistent bijvoorbeeld gedurende zijn opleiding formeel tijd krijgt om te werken aan activiteiten (zoals organisatieonderzoek, managementcursussen etc.) ten dienste van de kwaliteit.

Professional Brokerage

This study assumes that transitions in the work and society affect professional activity in health care sector. Doctors need to deal (1) with increasing complexity and uncertainty of their clinical work, (2) with the changing relation with the patient, (3) and with efficiency and accountability demands from the organization. When zooming in on these developments, it becomes clear that the medical doctor himself might be a valuable source of information to shape these transitions and can in the end improve quality. In a similar vein, this would mean that medical doctors themselves should actively engage – share their knowledge – with other professionals to design organizational arrangements to improve the quality of their work and organization.

However, this engagement is not evident; which can be explained by the absence of motivation and ability. Firstly, medical doctors delegated matters as quality improvement (non-clinical tasks) to managers, because they wanted to focus on clinical tasks only. Secondly, they are not automatically socialized with the organizational logic themselves, because medical education does not incorporate this logic yet. As a consequence, suboptimal decisions were made, because the manager was alienated from clinical practice. Reversely, the doctor might not know how to 'manage', because it only focussed on the development of medical expertise.

Empirical data shows that - despite discouraging mechanisms – young doctors still contribute to quality improvement by means of sharing their ideas. Their engagement –knowledge sharing – with other professionals might improve quality. But *to what extent, why and how do these residents contribute to quality in clinical practice?*

In this study the theoretical term *professional brokerage* is introduced and used to interpret what (medical) professionals do in clinical practice when they contribute to quality. Professional brokerage is a

concept that draws on insights from organizing professionalism and knowledge brokerage. It refers to professionals who share organizational knowledge across their professional boundaries while aiming to improve quality of their work and organization. This knowledge sharing activity is expected to inform policies and activate professionals to improve quality and is thus seen as panacea to overcome the manager-professional discussion.

Demotivation, inability and no opportunity (DIN) are factors that explain why professional brokerage is not self-evident in clinical practice. For several reasons young doctors are driven towards the development of medical expertise only: they get excited about it, they are evaluated by others at their level of medical expertise and it gives them status. Residents short internship, the complexity of hospital policies and time constrains do not motivate professional brokerage. Moreover, the organization logic is not automatically taught in formal training programs and during the start of their internship. Teachers seem, nevertheless, to take on the role of professional broker, and substitutes this role of residents. Residents themselves are not automatically included in organization broad (policy) meetings. On top of that, physical separation in the hospital has the effect that residents do not easily build relations with other professionals across their domain.

Despite discouraging mechanisms, professional brokerage still occurs, although it seems not part of *daily* clinical practice. The ability, motivation and opportunity (AMO) are determinant for the occurrence of professional brokerage. The professional broker seems to have a high level of public service *motivation* to change the organization and improve its quality. They developed organization knowledge and skills via additional courses and experiences in boards. In practice they proactively address others: they announce their motivation for organizational activities to the teacher/supervisor, they engage with others through informal contact and humour and elicit professional brokerage via asking questions. They seem to have a research attitude: they observe, learn from past experiences at different divisions and are (self-)critical. It depends on the teacher whether possibilities for organization activities are offered. After all, the DINAMO model seems useful to understand the occurrence of professional brokerage within its institutional context.

I conclude that the discouraging forces seems to position the resident along the principles of pure professionalism, where medical expertise is great good. I conclude that the absence of institutionalised hybrid broker roles among residents (clinician-manager) are an untapped opportunity and ability to potential quality improvement. Nonetheless, organizing professionalism seems a feasible approach to residents to give meaning to involvement in quality improvement, apart from their focus on medical expertise.

1. Introduction

A medical doctor (in training) who wants to improve the information disclosure to patients (R6):

> *"A lot of patients cannot see their personal medical file. Our academic hospital is, however, the frontrunner when it comes to the disclosure of patient information. The patients can access this information at home or in the hospital itself. For example, when I investigate the blood, the patient is also immediately informed about his blood levels. In my opinion, this portal was not advanced enough and the patient information could be displayed more patient friendly. I wanted to do this for the patient. How to share an idea that effectuates the whole hospital?*
>
> *You need ears and eyes to know what divisions and groups are available. I knew that there was a division called Quality and Patient Safety. Quality sounded like the right label to bring in this idea. You search for relevant key players on the right level. […] So I composed a team of different people, from communication, multimedia, patient safety and quality. They were all enthusiastic about my idea. At the moment it is waiting for the right timing to bring in this idea to the Board of Directors. You need to be patient and I hope the media-attention recently might convince them too. Nonetheless, I have composed a team that is ready to implement it."*

This medical doctor in training (also called: resident) contributes to quality apart from his task as clinical doctor. Therefore, the action of this resident falsifies the traditional idea that the doctor exclusively focuses on autonomous case treatment. On the contrary, this resident shares knowledge to other professionals across his own professional group aiming for better presentation of patient information. In other words: a *professional broker* at work who aims to improve quality of care.

Why is this surprising? In the health care sector there is an increasing demand for medical doctors' capacities as collaboration and leadership, apart from their autonomous medical expertise that they apply to diagnose and treat patients (KNMG, 2016). The need for new capacities stems from the assumption that modern physicians should upgrade and broaden their capacities that respond to transitions in their environment. In the first place, the doctor needs to deal with increasing complexity and uncertainty of his clinical work. Secondly, the relation with the patient has changed and patients demand more transparency and responsiveness to their preferences. On top of that, the medical organization requires more efficiency and accountability (Kakihara & Sorensen, 2002; Noordegraaf, 2015; Verhulst & Fuijkschot, 2016).

The capacity to deal with these transitions is suggested to be managerial, rather than professional (Noordegraaf & Siderius, 2016; Voogt et al., 2016). However, medical doctors feel disengaged to management because they experience that their autonomy is affected (Weggeman, 2007). Doctors used to delegate non-clinical tasks to managers before, but as Idenburg & Hilders (2016) argue this led to suboptimal decisions and policies because the manager was not well-informed about their clinical practice. Therefore, doctors' engagement in organization matters and quality improvement, on top of their clinical work, is seen as a *panacea to the policy implementation gap* (Currie, 2016, p. 149).

Apart from the assumption that doctors might not *want* to contribute to organization matters, doctors are also not automatically socialized and familiar with these management values and language (e.g. Westerman, 2010). Therefore, the doctor might not know how to 'manage', because it only focussed on the development of

medical expertise. Nonetheless, the incorporation of organization aspects of medical work in postgraduate training and education of young medical doctors (residents and clerks) marks a change (Voogt, 2016).

Nonetheless, the aforementioned case demonstrates that residents are willing and able to contribute to quality by sharing ideas and organizing connection. Verhulst & Fuijkschot (2016) add to this that young medical doctors are indeed ready to modernize their professions by means of an open culture and engagement in management. This study takes the perspective of residents on quality improvement as point of departure.

This study aspires to overcome the gap between the dualistic managerial and professional logic (Witman, 2008, p. 29) and thus introduces the term *professional brokerage* to interpret what (medical) professionals do in clinical practice when they contribute to quality. Professional brokerage is a concept that draws on insights from organizing professionalism and knowledge brokerage (Noordegraaf, 2015; Curie & White, 2012, these concepts will be reviewed in chapter three). Professional brokerage is defined as: professionals sharing organization knowledge across professional boundaries. This knowledge in turn is expected to informs policies and activate professionals to improve quality (Lomas, 2007; Kakihara & Sorensen, 2002).

A discourse shift to professional brokerage is imperative for multiple reasons. Firstly, professional brokerage is a demarcated *activity* and seen as mean to translate broad container perspectives as medical leadership and organizing professionalism into clinical practice and becomes, therefore, viable for empirical evaluation. Secondly, professional brokerage aims to break with hierarchical associations of the previous terms. The labels 'manager' and 'medical leader' have as side-effect the negative connotations: as leader-led-relation or power imbalance (Jorm & Parker, 2015; Weggeman, 2007). Professional brokerage is an activity that can be done by every professional and is a more *collective effort* and profit. Professional brokerage can also be played out without interference of the 'formal' designated manager and only with professionals together.

This exploratory study on professional brokerage addresses the following research question: *To what extent, why and how do medical doctors (residents) act as professional broker in order to improve quality?* As a consequence, the ambition of this study is threefold. First of all, I argue that transitions in the work and society of doctors requires an adequate response. I introduce the theoretical concept: professional brokerage, to give meaning to this required response. Second, through empirical evaluation this study wants to explain the occurrence of professional brokerage within its institutional context; to what extent the act is operated and why it occurs. Ultimately, this study explores the 'tactics' of professional brokers: how do they act. This results in the following sub questions, which are:

- *1. What transitions affect the work of doctors and how should medical doctors respond in order to deliver quality? (theoretical)*
- *2. What is professional brokerage? (theoretical)*
- *3. To what extent does professional brokerage occur in clinical practice? (empirical)*
- *4. Why do medical doctors act as professional broker? (empirical)*
- *5. How do medical doctors act as professional broker? (empirical)*

The relevance of this study for practice is to increase understanding of how quality of care can be improved by individual professionals (with agency) in the health care organizations. Accordingly, the findings can empower these professionals and give them 'tools' to increase the quality of their work and the organization. It also addresses considerations for organizations to facilitate the right opportunities for individual professionals.

The academic relevance of professional brokerage is that the concept embodies organizing professionalism, which is a perspective on adequate professionalism for postmodern professionals (Kakihara & Sorensen, 2002; Noordegraaf, 2015). Therefore, this study will mirror whether the perspective of organizing professionalism in practice is tenable. On the other hand, Curie & White (2012) highlight that empirical evaluation on the interaction of (knowledge) brokerage with the institutional context is lacking. In addition, the tactics of (knowledge) brokers also remained under-researched (Kislov, Hodgson, Boaden, 2016). For this reason, this study will further ground aspirations for more effective professional brokerage in organizations.

Reading guide

In chapter two I start with the health care context and review ideas *why* doctors should improve the quality of health care and *how* they could do that. Transitions in the clinical work of doctors, the changing relation with the patient and organization demands strengthen the idea that the doctor need to respond adequately to these transitions. I argue that the adequate response to these changing context means that medical doctors and other care providers engage in organization activities collectively.

Chapter three extend this line of reasoning by developing the concept of professional brokerage, which is an activity that can be enacted by more professionals than medical doctors only. Changing perspectives on professionalism and knowledge brokerage are elaborated. Subsequently, I explain the choice for professional brokerage and provide a definition. After all, I develop a model to understand why and how professional brokerage occurs in clinical practice.

After the conceptual chapters I move towards the empirical evaluation of professional brokerage. Chapter four is devoted to the research approach; how I conducted this study. Firstly, I discuss my underlying phronetic research philosophy which also relates to the choice for observations and interviews. Subsequently, I discuss the procedures that were applied to conduct the observations and interviews and analyse the data.

In my first findings chapter, I explain how the institutional context can discourage professional brokerage, using the (AMO) model developed in chapter three. In the second result chapter I explain how and why doctors – unless the discouraging mechanisms – are willing and able to act as professional broker. The last chapter elaborates the conclusion and the implications of this study for theory, future research and practice.

2. Why and how should medical doctor connect and improve quality of care?

This chapter discusses what transitions affect the work of medical doctors and how doctors should respond in order to deliver quality. Transitions in society and the health care organization are the driving force and reason why doctors should adapt their capacities. First of all, the doctor needs to deal with increasing complexity and uncertainty of his clinical work. Secondly, the relation with the patient has changed and patients demand more transparency and responsiveness to their preferences. Thirdly, the organization demands efficiency and accountability.

Within the health care domain, medical leadership is seen as the conceptualisation to give meaning to the new capacities required. I argue that the adequate response to these changing context will mean that medical doctors and other care providers engage with each other to managerial activities. That enables them to deliver better quality services and organization.

2.1 Quality in Health Care

Before I explain the transitions, I will discuss my perspective on quality. Quality in health care is an important desire of doctors, patients but also the institution, because we consider health as one of the most important issues in life and society (Fuijkschot et al., 2016). This is also mirrored in the price we pay: one third of the government expenditures in the Netherlands is spend on health care (VWS, 2016).

Achieving quality, nonetheless, is a challenging goal. Because, what is quality? And who determines the quality of health care? In this study I define (transformative) quality as the continuous improvement and organizational change, in which the organization is oriented towards aspirations of clients and (medical) staff. The structure of the organization too enhances this development towards higher quality (Sallis, 2014).

To enhance our understanding what values and desires determine quality in health care, we can use the work of the Committee on Quality of Health Care, which is part of the authoritative Institute of Medicine of America (IOM). This committee formulated six aims for quality improvement, because they pointed out that today's health care system does not functions at the level that it should and can do (Baker, 2001, p. 6; Voogt, 2016; Fuijkschot et al., 2016). These aims are effectiveness, patient safety, timeliness, patient-centeredness, cost-efficacy, equitability. In accordance with Voogt et al. (2016), job satisfaction is added to include the aspirations of the doctor himself regarding quality (see also figure 1).

	Values for quality improvement
Safe	Avoiding injuries to patients from the care that is intended to help them.
Effective	Providing service based on scientific knowledge to all who could benefit, and refraining from providing service to those not likely to benefit.
Patient-centred	Providing care that is respectful of and responsive to individual patient preferences, needs, and values, and ensuring that patient values guide all clinical decisions.
Timely	Reducing waits and sometimes harmful delays for both those who receive and those who give care.

Equitable	Providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location and socioeconomic status.
Efficiency	Avoiding waste, including waste of equipment, supplies, ideas and energy.
Job Satisfaction	Satisfaction regarding working-hours, working environment, personal- or work-relations.

Figure 1. *Values to enhance quality in health care (based on Baker, 2001 & Voogt et al., 2016).*

The aims are synergistic, but in some instances they also conflict with each other. Effectiveness can go hand in hand with minimalizing the costs. For example, when you improve the effectiveness of hip surgeries through preventing infections, then you can cut costs (Hagenaars & Brun, 2010). On the other hand, the values can conflict with each other. For example, patient's requests can conflict with doctor's commitment to evidence-based care delivery. False-positive results on a test can harm the psychological well-being of patients, who feel stressed. Therefore, the IOM advices that '*health care institutions, clinicians, and patients will sometimes need to work together to balance competing or conflicting objectives'* (Baker, 2001, p. 53).

2.2 Transitions in health care

In this paragraphs I will discuss three transitions: (1) the doctor needs to deal with increasing complexity of his work, (2) the relation with the patient has changed and (3) the organization demands efficiency and accountability. I relate these transitions to the values for quality described in the previous paragraph.

2.2.1 Transitions in professional work: increasing complexity and uncertainty of clinical work

The first transition contains that the doctor needs to deal with increasingly complex and uncertain work. Medical research (evidence-based medicine) and innovation (new technologies) are intended to deal with this increasing complexity and aim to treat and diagnose patients more effectively (Noordegraaf, 2015; Kakihara & Sorensen, 2002; Meyer, 2010; Hagenaars & Bruns, 2016). As a result, these innovations are the driver for more specialization, but they also influence the validity of existing knowledge and know-how.

The increasingly body of medical knowledge has developed further specializations of professions, because more subfields were created to get the job done with distinct expertise and knowledge (Kakihara & Sorensen, 2002; Barley and Orr, 1997; Freidson, 2001). As a consequence, more and different professionals with their distinct expertise are involved in the treatment of a single patient.

Parallel to this increasing specialization are the changing health statuses of patients. Patients frequently suffer from so-called multi- or comorbidity (Noordegraaf, Bos & Schiffelers, 2016). These patients have multiple diseases and might have other non-medical problems that transcend the expertise and capacities of a doctor from a single professional domain (Bower et al., 2011; Luijke et al., 2010). For example, an elderly patient had broken her hip and that was caused by heart rhythm disorder and she also suffered from renal function (R9).

In order to deliver more effective care, doctors need to cross the boundaries of their own professional domain and might use the overlapping expertise to deliver adequate care. As a result, these patients see many different healthcare providers working across multiple sites. Therefore, communication and interprofessional teamwork between these distinct care providers seems pivotal. But this communication is regularly suboptimal

and designing effective collaborative arrangements is rather challenging (Ryan et al., 2015; Noordegraaf, Bos & Schiffelers, 2016).

Despite the impact of specialization on effectiveness, this increasing complexity also affects patient safety and timeliness of care. The specialization requires that doctors need to communicate across the border of their own professional domain, which can cause delay. For example, clinicians are dependent on laboratories and radiology divisions to proceed with the diagnose. Delays and/or inaccurate communication negatively affect the continuity of care and normally cause 'inconvenience' for the patient. Nevertheless, in single cases this delay might result in adverse events in clinical practice (Kripalani et al., 2007; Wagner et al., 2008).

For this reason, a safe environment requires teamwork and good communication (Botwinick et al., 2006). Also reflection together on incidents needs attention, but it is challenging to find the right formats to discuss complications (R3). *'To make health care safe we need to redesign our systems to make errors difficult to commit and create a culture in which the existence of risk is acknowledged and injury prevention is recognized as everyone's responsibility* (Leape, et al., 1998, p. 1444). This means that the involvement of medical doctors is valuable in designing organizational arrangements on behalf of patient safety.

Besides the challenges to connect in a specialized environment, knowledge is also subject to change and thus uncertain. The fact that certain knowledge or skills were once accepted and taught, no longer insures its validity today (Boshuizen, Bromme, Gruber, 2004). As a consequence, medical doctors need to be up to date about developments in their domain and need to deal with new technologies. For example, think of bio sensing to measure body temperature, the heart rate and other lab values constantly. This delivers new information, which need to be categorized, prioritized and interpreted to make decisions (Maljers, 2016). Disruptive innovations within a professional domain are often threatening to professionals, because they are used to the status quo (Burns & Noordegraaf, 2016).

Again, connection is important here. An academic hospital in The Netherlands formulated this need for connection in their curriculum as follows: *students do not have to know everything, but they should be able to find the right and actual information. They should know how to use it and to share it* (Henning et al., 2015). Connection is seen as a mean to remain up to date about developments in the field and help doctors learn to work with the newest technologies. But how to develop arrangements in a way that new information flows effectively through the organization?

2.2.2 Transitions in relation to clients: more transparency and focus towards client preferences.

The relation between the care provider and client has changed in several ways. The client demands more transparency about performance and possible underperformance (medical mistakes), the client has more knowledge due to technology and their preferences are better expressed in how care should be organised.

The patient does not only evaluate the doctor in the consultation room, due to internet and social media the clients also rank and judge the performances of the professional at home (Noordegraaf, 2015). For example, the website www.zorgkaartnederland.nl is a platform for clients to share their experiences with health care services. If the service is beneath expectation, clients will opt for services that fit their preferences.

Besides that, the medical world is confronted with *declining toleration for risks and failure*. The public has fears of suboptimal care and high expectations of faultless care (Burns & Noordegraaf, 2016). Media attention to medical incidents which are not reported or evaluated, indicate this collapsing toleration (Effting,

2016). These medical incidents occurred in the academic hospital Utrecht (UMCU) at several divisions. Accordingly, the inspection for health care sharpened monitoring and asked for monthly reports about the situation at these divisions (Feenstra, 2016). This points out that more transparency is required about the services of doctors.

Moreover, patients might be better informed about the diagnoses and treatment of their (potential) disease (Idenburg & Hilders, 2016) and become more equal partners in decision-making regarding their treatment. Technologies such as eHealth enable patients to observe their patient information online and it also facilitates online (video) consults (KNMG, 2016). That can contribute to efficient and accessible care, which is also patient centred. The doctor can play a role in accommodating patient preferences and encourage shared decision making (Baker, 2001).

But also outpatient or ambulatory care is getting more attention (Burns & Noordegraaf, 2016). These are facilities where patients can be treated at an alternative place, because these patients are often unable to come to the hospital. It also lowers the burden on hospitalization of the care and ambulatory care is therefore more efficient. For example, in the Netherlands care providers experiment with a combination between domestic care and hospitalised care ('anderhalve lijnszorg') (Heijne, 2014). Chronically ill patients and elderly can attend clinics close by to treat less complex treatments, while they previously needed to go to the hospital for these treatments. This innovative cooperation need to be designed, but financial or technological systems do not always facilitate such a cooperation (Burns & Noordegraaf, 2016; R9).

2.2.3 Transition in the organization: efficiency and control

Although health care is seen as essential, the cost aspect of care should not be neglected. Demographic changes (aging population) and technological advancement have increased the costs of care. Inevitably, the financial crisis in 2008 made us aware about the enormous spending on health care (Noordegraaf, 2015). Budgetary constraints and efficient care delivery are, for this reason, the main concerns for politicians and managers in the hospital, but were not priority for doctors (Hagenaars & Bruns, 2016).

Tools as Lean Six Sigma or Plan-Do-Act-Check can help analyse and diagnose the efficiency problems systematically and can result in solutions to the waste of equipment, supplies, ideas, and energy (Koning et al., 2006). Medical doctors themselves know best how to prioritize case treatment and make case treatment efficient (Noordegraaf, 2015).

Besides that, the doctor needs to fulfil the accountability quests. More stakeholders are involved and want to exert control on the professionals' services (Schillemans, Bovens, & le Cointre, 2011). Benchmarks as *Meetbaar Beter* or accreditation committees - as Joint Commission International (JCI) - have the implication that doctors need to register the outcomes of their care. This (simple) administrative work and undesired control can of course lead to feelings of displeasure and resistance, certainly when it is unclear why they are registering the information (Noordegraaf, Bos & Schiffelaars, 2016; Hagenaars & Bruns, 2016). If doctors can formulate their own quality criteria, and contribute to effective functioning administrative systems, this might decrease their resistance.

2.3 Towards doctors' engagement in quality improvement:

The care provider himself seems to be the most suitable source of information for how these three transitions above should be designed and organised. Nonetheless, doctors were used to delegate non-clinical tasks to the manager, but they realised that this led to suboptimal decisions and policies because the manager was not well-informed about the ins and outs of clinical practice (Idenburg & Hilders, 2016). This implies that medical practice should not be limited to the diagnoses and treatment by autonomous physicians only. Instead it seems to require a connective effort between different professionals and other stakeholders as patients, managers or ICT professionals who design and organise processes to improve the quality of health care (Frank & Danoff, 2007, KNMG, 2016; Noordegraaf, 2007; 2015; Berwick, 2016).

Don Berwick (2016), the former administrator of Centers for Medicare and Medicaid Services (CMS) describes the transition to more connection – which he labels as 'era 3' - as follows: *From era 1, clinicians inherit the trump card of prerogative over the needs and interests of others. "It's my operating room time." "I give the orders." "Only a doctor can…." "Only a nurse can…." These habits and beliefs do harm. Although most clinicians richly deserve respect and gratitude, the romantic image of the totally self-sufficient physician no longer serves professionals or patients well. Those who prepare young professionals should nurture that redirection from prerogative to citizenship. The most important question a modern professional can ask is not "What do I do?" but "What am I part of?" Physician guilds should reconsider their self-protective rhetoric and policies (Berwick, 2016).*

This quote marks the importance of connection: being part of other professionals. Solutions to this connection on behalf of organization improvement can be searched in organization arrangements, as multidisciplinary teamwork, interprofessional learning or shared care (for example Nisbet, Lincoln & Dunn, 2013; Posthumus et al., 2013).

However, the capacities we are searching for, are moving beyond this connection, but also requires that doctors organise these connections. Multidisciplinary teams are a solution to link different specialisms to realise more effective treatments. On top of that, they pay attention to the organisation side of multidisciplinary teamwork, that they guarantee safe climates for discussion among different members or that they create arrangements about who is responsible for certain tasks.

That brings us back to the capacities of individual doctors in this study to connect and organize. The medical world is gradually embracing this idea of a doctor who also takes responsibility for non-clinical tasks as quality, efficiency and safety (Voogt et al., 2016). The tendency nowadays is to incorporate this organization perspective in education and socialization of young doctors. Through attention for medical leadership steps are made to give meaning to this connective and organizing capacities (Voogt et al., 2016; Parker, 2013).

Medical leadership originates from the Royal College of Physicians and Surgeons of Canada (RCPSC). These fellows developed a framework – the CanMEDS model – to explain the abilities needed to perform as a responsive physician in the 21th century (Frank & Danoff, 2007). The CanMEDS-model contains seven roles for the physician: the doctor as medical expert, communicator, collaborator, health advocate, leader, scholar and professional. The role of manager was later on displaced by 'leader', because the manager did not reflect adequately the required competences of the medical doctor. '*There was little emphasis on how physicians contribute to a vision of excellence in the health care system or how they take responsibility for providing the best patient care possible'* (Dath, Chan & Abbort, 2015, p. 2).

This latter aspect – vision on quality - is included in the concept of medical leadership. The term is defined as '*physicians who engages with others to contribute to a vision of a high-quality health care system and take responsibility for the delivery of excellent patient care through their activities as clinicians, administrators, scholars, or teachers'* (Frank, Snell, Sherbino, 2015, p. 9).

Medical leadership can take place on different levels: the personal, clinical or administrative level. Personal leadership contains the ability to improve the professionals' behaviour, attitude and knowledge. It refers to self-reflection and the ability to have empathy for the interests and needs of others (Idenburg & Hilders, 2015). Leadership on the clinical (or workfloor) level, means that the professional contributes to the improvement of quality and safety of patient care. Furthermore, the doctor should promote a culture which enables innovation and patient safety. Safety incidents are analysed to enhance systems of care and they facilitate change in health care systems to enhance service outcomes (Frank, Snell, Sherbino, 2015, p. 9). Besides that, leadership on administrative level contains participation in advisory boards or professional groups that advocate the interests of doctors (Idenburg & Hilders, 2016). This study in particular focusses on this clinical level.

While the manager was displaced as role in the CanMEDS model due to inadequate reflection, there are also several criticisms on medical leadership as label. First of all, the concept medical leadership is misconceived because it is associated with the exercise of power, like a leader-led relationship. Therefore, the concept is seen as reaction to the loss of medical status and power (or deprofessionalization) (Jorm & Parker, 2015, during observation doctor joked about: medisch lijderschap). Moreover, there is a temptation to incorporate medical leadership in training programs of residents, but it is questionable whether medical leadership is 'teachable' (Parker, 2013).

2.4 Organizing connectivity

In conclusion, there are transitions in the clinical work, the relation to patients and the organisation. These transitions can be best shaped by the care provider himself in relation to other stakeholders in the hospital, because the care provider himself is a suitable source of information about how clinical practice functions. Also, if we recall the definition of (transformative) quality, it explicitly refers to the prioritisation of aspirations of the staff and clients. The response of doctors should be that they actively engage – share their knowledge - with other professionals to organization matters. Consequently, through their engagement they can inform policies on quality.

This study explicitly focuses on the residents' position. They might be socialized with the organization logic and are keen to modernize their profession (Voogt et al., 2016; Verhulst & Fuijkschot; 2016). Moreover, they are positioned in the clinical practice for their majority of their time and have frequent contact with patients, nurses, clerks and supervisors. They are, therefore, considered as agents for change.

In conclusion, there is a need for a certain activity: that of sharing knowledge from clinical practice that informs policies to improve quality. Since the term management and medical leadership have resulted in wrong associations which are demonstrated in the previous part (Weggemans, 2007; Parker, 2013), I would like to introduce a new language to the debate, namely *professional brokerage*.

3. Professional brokerage

The previous chapter elaborated normative ideals why and how doctors should deliver quality of services. They should actively engage – and share their knowledge – with other professionals to design organizational arrangements for the sake of quality. This chapter continues this line of reasoning by building a bridge between two theoretical debates: organizing professionalism and knowledge brokerage. This results in the theory of *professional brokerage*.

The remaining paragraphs provide detailed insights in the debate of organizing professionalism and knowledge brokerage. Accordingly, the interdisciplinary concept professional brokerage is discussed. What is does it mean? The last part of this chapter is devoted to the development of a model to explain why professional brokerage takes place in practice.

3.1 The (organizing) professional

The medical doctor (or physician/clinician) can be considered as *public professional*, besides police officers, teachers and lawyers e.g. Therefore, findings of this study might be applicable to the wide variety of professionals. The basic characteristic of a professional – which is simultaneously the definition - is that he/she regulates his/her own work (Noordegraaf, 2015; Freidson, 2001; Wilensky, 1964). Moreover, this regulation comes forth out of a distinct expertise, a set of ethics and trained skills (Kakihara & Sorensen, 2002). Through protocols of professional groups and domains, socialization and specialized education, the professional develops an explicit vision of his/her profession, its contribution to society and related to that he/she developed a unique way of working (Simons & Ruijters, 2001).

However, not all professionals are the same. In fact, even within health care, different professions such as nurses, ICT employees, managers, residents and doctors - have adopted different knowledge, values, beliefs, attitudes and customs. These practices are shaped by education, socialization and selection (Hall, 2005; Noordegraaf, 2015). Therefore, different professionals from distinct professional domains have different assumptions, outlooks and interpretations of the world (Brown & Duguid, 2001). For example, anaesthetists highly value patient safety (R8), while nurses are more focussed towards patient-centeredness.

3.1.1 Sociology of professions: towards organizing professionalism

In the present study, I argue that that the new capacities of the professional can be inspired by the concept organizing professionalism. This perspective can be best understood by the sociology of professionalism (Noordegraaf; 2007, 2015). Noordegraaf developed four ideal type perspectives to understand the development of professionalism along changes in societal and organizational spheres (see also figure 2).

The first perspective is called *pure professionalism*, which refers to the traditional picture of the professional who treats complex cases in isolation. Thanks to education and socialization professionals have acquired skills, pursue ethical norms and obtained knowledge. In other words: they have developed a professional 'habitus' (Witman, 2007). This status of the professional with his expertise enables him/her to act in relative autonomy, because others are dependent on their expertise. Their values are quality, humanity, which require time and attention.

The second perspective is opposite to the logic of professionalism and is called *managerialism*. With New Public Management (NPM) and marketization (Hood, 1991; Osborne, 2006) as driving forces, organizations were incentivised to run like a business. Terminology and values that guides this perspective are efficiency, optimal results and customer satisfaction. The delivery of products and services were central and the processes and outcomes of service delivery were managed by means of exerting control. As a consequence, the professional himself has less autonomy and the organization is leading (Noordegraaf & Siderius, 2016).

Doctors used to delegate non-medical tasks to the manager, but they realised that this led to suboptimal decisions and policies because the manager was not well-informed about their medical practice (Idenburg & Hilders, 2016). Therefore, new perspectives on professionalism occurred, such as *hybrid professionalism* (Noordegraaf, 2007). This is about meaningful management, which refers to the connection of case treatment to organization goals and challenges. Conflicting values are served simultaneously or are intertwined. This means that the professional pays attention to his clients and values humanity, but considers other aspects as efficiency as well (Noordegraaf & Siderius, 2016).

The fourth perspective is organizing professionalism (Noordegraaf & Siderius, 2016). This perspective moves beyond hybridity where organizing is embedded within professional action. These professionals have strong interactions with other professionals. They link their expertise to other professionals and other actors in organizational settings, but also clients. According to this perspective, the medical doctor shares medical knowledge to other medical doctors and nurses. They also connect to support staff as controllers, auditors and safety experts. And it includes also interaction with patients and their families and with inspectorates or journalists about service quality (Noordegraaf & Siderius, 2016). The professional actively engages with the improvement of processes in connection to others.

	Pure Professionalism	Managerialism	Hybrid Professionalism	Organizing Professionalism
Coordination	Skills, norms	Hierarchy, markets	Cooperation, interaction	Connections, standards
Authority	Expertise, service ethic	Results, accountability	Flexibility, reliability	Responsibility, stakeholders
Values	Quality, humanity	Efficiency, profitability	Meaningful, efficient quality	Multiplicity, legitimacy

Figure 2. *Four perspectives on professionalism, from Noordegraaf (2015, p. 15)*

3.2 The knowledge broker

The knowledge management literature offers an insightful perspective on how connection across boundaries can take place by means of so-called 'knowledge brokers'. There are different definitions of the broker (Meyer, 2010; Curie & White, 2012; Hislop, 2010; Sverrisson, 2001; Gherardi & Nicolinie; 2002; Wenger, 1998). In this study I use the definition inspired by Gherardi & Nicolinie (2002), who refer to a broker as individual who transfer, translate and even transform certain elements of one (community of) practice to another. Curie & White (2012) add to this that knowledge brokering is more a group phenomenon, and that we therefore better can refer to 'brokerage'. In accordance with them in the remaining of this study I refer to 'brokerage'.

The effects of knowledge brokerage in health care are assumed to be positive and connect to demands that were articulated in chapter two. Indeed, knowledge brokerage aims to improve decision-making, innovation and patient safety in healthcare services and therefore organization performance (Waring, Currie, Crompton & Bishop, 2013; Hislop, 2010; Brown & Duguid, 2001; Oborn et al., 2010; Scarbrough & Swan, 2001). It is therefore not surprising that knowledge brokering is seen as fundamental to postmodern professionals (Kakihara & Sorensen, 2002).

Knowledge brokerage can be understood according to different characteristics. Firstly, the broker can facilitate mutual understanding between different communities (or professional groups) while the broker does not need to be member of both or even any of these communities (see also figure 3 to understand three different possibilities of participation).

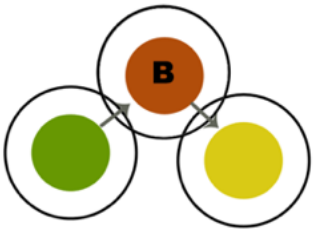
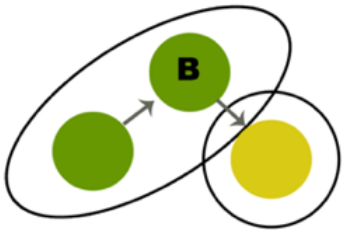
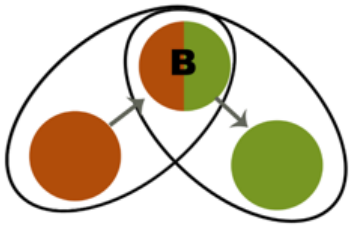
Liaison	**Representative**	**Hybrid**
The broker is an external party and is not part of both communities. Also seen as objective outsider.	(Senior) member of community externalizes knowledge into the other community outside.	Hybrids participate in multiple communities simultaneously and have dual-directed relationships with both practice-levels.
		

Figure 3. *Visual impression of broker roles (based on Fernandez & Gould, 1994; Waring et al., 2013; Kislov et al., 2016; Wenger, 1998).*

Secondly, brokerage is more than moving knowledge only. *'Brokers are able to make new connections across communities of practice, enable coordination, and - if they are good brokers – open new possibilities for meaning*.' (Wenger, 1998, p. 109). The broker creates knowledge, by identifying and localizing it and, subsequently, disseminates and transforms the knowledge. In some cases, the knowledge need to be translated or transformed to achieve mutual understanding or align different values and even interests of professional groups (Carlile, 2002; 2004).

Thirdly, knowledge brokerage can take place formally or informally, visible or invisible, recognized or unrecognized (Curie & White, 2012; Kislov et al., 2016). For example, practitioners can update colleagues or debrief unanticipated events during tea room interactions or corridor conversations (Nisbet, Dunn, Lincoln & Shaw, 2016; Marsick & Watkins; 2001). Although the organization can utilize brokerage as a (formal) strategy, it can also take place even if the environment is not highly conducive to learning (Marsick & Watkins, 2001; Nisbet, Lincoln & Dunn, 2013). In this study I do not focus on designated broker roles, but search bottom-up in practice for people who act the roles unconsciously and unrecognized.

Fourthly, the type and location of the knowledge can be determined to. Currie & White (2012) distinguish internal from external brokerage. Internal brokerage is the mobilization of practice-based knowledge

throughout the organization. Participants share knowledge and understanding on what they are doing and what this means in real time (Currie & White, 2012, p. 1335). On the contrary, external brokerage refers to the inclusion of formal or codified knowledge from outside the organization into practice. Currie & White (2012) conclude that the importance of internal brokerage is neglected and under evaluated in studies. This study aims to contribute to this latter form of brokering.

Lastly, Currie & White (2012) use the distinction between architectural and component knowledge. Component knowledge refers to localised knowledge linked to specific professional practice domains. The architectural knowledge contains the knowledge who enables distinct professionals to fulfil a given task and how they should work together. This latter type of knowledge consists of organizational and management routines, schema or knowledge that structures interactions by local-level actors (Currie & White, 2012, p. 1337).

3.3 Professional Brokerage

In this study I focus on *'professional brokerage'*. The definition of this form of brokerage is inspired by the two theoretical concepts organizing professionalism and knowledge brokerage which are discussed above. This act of knowledge sharing is demarcated by its specific structure of knowledge (interprofessional), specific type of knowledge (organizational) and goal of his sharing action (improving quality). The following definition of the professional broker is used: *"A professional who shares organizational knowledge across professional boundaries while aiming to improve quality of the services within and by the organization*."

The term professional brokerage is invented due to several reasons. Firstly, professional brokerage is a mean to translate competencies of the organizing professional (and also medical leader) into clinical practice. Organizing professionalism refers to a wide variety of activities and skills that the doctor should take on, while professional brokerage is a demarcated *activity* (similarities to EPA's, see: Ten Cate, 2005).

Secondly, every professional can act as a professional broker, therefore, the concept is not only applicable to medial doctors, but also something to nurses or other (non-medical) care providers can do. It is, therefore, a more *collective effort/good* and everyone might profit from it. Professional brokerage can also be played out without interference of the 'formal' designated manager and only with professionals together. Related to that, the terms manager and medical leader have as side-effect their negative connotation: as leader-led-relation or power imbalance (Jorm & Parker, 2015).

The demarcation of professional brokerage can be explained in further detail. Based on Currie & White (2012) I consider professional brokerage as a form of internal brokerage where knowledge is shared within the organization across different groups of professionals. Although, the patient and doctor can also share knowledge which can contribute to high quality of service delivery, this will be excluded in this definition. In the health care context this means interprofessional connection between doctors, nurses and non-medical staff. The structure of the knowledge sharing is directed towards other professionals (interprofessional), which is inspired by the concept organizing professionalism of Noordegraaf et al. (2015).

In this study I specify two types of knowledge: medical and organization knowledge. On the one hand, medical knowledge, which can be scientific or clinical knowledge. These forms will contribute to development of medical expertise. On the other hand, organization knowledge is inspired by the architectural aspect of knowledge by Curie & White (2012). Organization knowledge refers - in accordance with architectural knowledge - to the knowledge that enables distinct professionals to fulfil a given task, how they should work

together and structure the interaction. Or in simpler terms: how they organize the connection between professionals.

Besides that, the broker explicitly intends to improve the quality of the organisation. The professional broker wants to contribute to these changing demands as innovation, cost-efficacy, quality of care or patient safety. This vision to quality is also addressed in the definition of medical leadership.

Therefore, the following definition of the professional broker is proposed. A professional broker is: *a professional who shares organizational knowledge across professional boundaries while aiming to improve quality of the services and organization*.

3.4 Why professional brokerage is expected to take place?

In addition to the definition of professional brokerage, this paragraph develops a conceptual model to explore and explain how and why professionals might act as professional broker. The doctors, lawyers or teachers who act as professional broker do something which is beyond their professional boundary or above their call of duty. They are highly committed to their organization, department, job and are willing '*to go the extra mile'* (Boselie, 2010, p. 45).

3.4.1 AMO-model to understand the occurrence of professional brokerage

The AMO model might explain why professional brokerage takes place. This model from the Human Resource Management (HRM) suggests that employees are willing 'to go the extra mile' - or in this study act as professional broker - when they are given the ability, have the motivation and the opportunities (Boselie, 2010; Appelbaum, 2000). The outcome of this model is often connected to high performance work practices and extra-role behaviour. This can be Organization Citizenship Behaviour (OCB), which refers to employee behaviour that is above and beyond the call of duty and is therefore discretionary and not rewarded in the context of an organisation's formal reward system (Knies, 2012; Boselie, 2010). In this study we have professional brokerage as outcome variable and can be interpreted as a form of OCB.

The ability refers to the necessary knowledge and skills. The motivation aspect means that the professional wants to contribute by means of professional brokerage and is also incentivised to do this. The latter aspect opportunity to participate assumes that the work environment of the doctor does provide necessary support and avenues for expression. The resident can voice his concerns when problems occur (Boselie, 2010).

In addition to the three components, there interrelation caught scholars' attention. Knies (2012) was the first who tested the interrelation between the different components and discovered that ability and motivation directly affected extra-role behaviour of line managers. On the other hand, opportunity had an indirect effect on the outcome variable through commitment on the outcome variable. That also results in their recommendations to managers/policymakers to invest in employees' opportunities for development or helping them to find suitable positions in the organization (see Knies, 2012; Vandenabeele, Leisink, Knies, 2013).

This theoretical and normative expectations result in the following model as showed in figure 4. Although this study does not prove these relations statistically, it attempts to deepen the understanding why professional brokerage is enacted among residents. This study explores what mechanisms can explain why and how professionals act as professional broker and attempts to understand the occurrence in its institutional context.

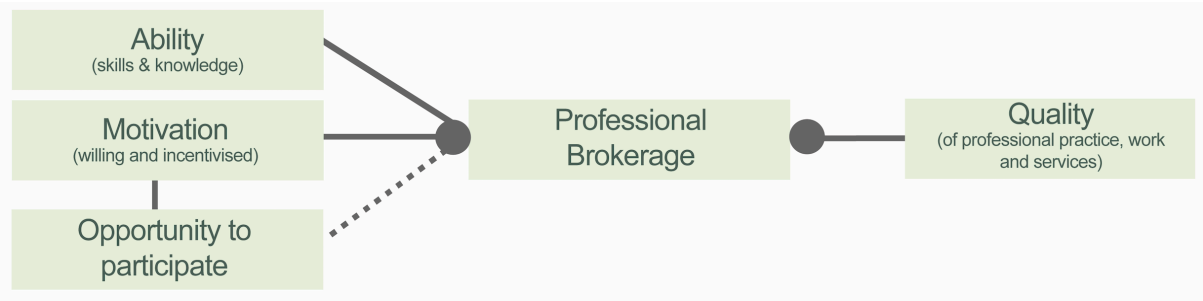


Figure 4. *Professional Brokerage: Potential factor that explain the occurrence of professional brokerage and the expected outcome on quality (including tested interrelation of Knies, 2012)*

3.4.2 The expansion of the AMO model

In order to increase our understanding and expectations of the AMO model in practice, I will now relate the model to literature of knowledge management. (1) The motivation is expected to originate from high levels of public service motivation, (2) the ability might be related to the skills and knowledge how to translate and transform knowledge and (3) hybrid broker roles seem to be an opportunity for effective professional brokerage.

Firstly, the *ability* aspect can be expanded by brokers' the capacity to translate and transform their knowledge in a way that it facilitates understanding (Carlile, 2002). As is stated earlier, knowledge brokering is more than just moving knowledge (Wenger, 1998). The broker first creates knowledge, by identifying and localizing it, and secondly shares the knowledge.

Carlile (2002, 2004) identified three boundaries to study cross-community interaction: the syntactic, semantic and pragmatic boundary. The boundaries present different degrees of difficulty for sharing knowledge between different communities (Hislop, 2010; Spee & Jarzabkowski, 2009). The syntactic boundary is the easiest boundary for knowledge sharing, because people share same logics, languages, sets of values and worldviews across the boundary. A relative straightforward process of transferring knowledge is than needed (Hislop, 2010). Knowledge sharing across the semantic boundary is more challenging, because the different people have no shared understanding and interpretations of the same knowledge. Successful interaction across this boundary can be achieved by means of sensitivity to people's understanding and translation of the knowledge (Brown & Duguid, 1998). The label pragmatic boundary refers to type of boundary where knowledge sharing is most difficult and complex. Besides different interpretation and understanding, these stakeholders also pursue different interests. This requires that one party needs to adapt and transform their knowledge in order to develop some common interest (Carlile, 2002; Carlile, 2004; Hislop, 2010).

Secondly, the *motivation* might originate from beliefs and values that go beyond self-interest of the individual professional or group. Distinct professionals might have a weak sense of common identity, what can complicate knowledge processes (Hislop, 2010). Different professions at a division might identify more with their own professional group instead of the organization that assembles the different professions. Subsequently, if you are confronted with questions and demands that clash with your own professional domain, a sense of ownership is not self-evident (Noordegraaf, Bos & Schiffelers, 2016). As such, professional groups are often reluctant to share knowledge where it might threaten their status or identity (Currie & White, 2012; Waring & Currie, 2009).

Unless this absence of a common identity, certain individuals seem to thrive on being brokers

(Wenger, 1998). An extraordinary Public Service Motivation (PSM) might explain the motivation to act as professional broker. PSM refers to the belief, values and attitudes that go beyond self-interest and organizational interest, that concerns the interest of a larger political entity and that motivate individuals to act accordingly whenever appropriate (Vandenabeele, Leisink, Knies, 2013). These scholars extended the interpretation of the motivation aspect of AMO with PSM, which is suitable in a public sector context. Therefore, PSM might be also an explanatory factor for the appearance of professional brokerage.

Lastly, hybrid broker roles might be an effective *opportunity* to translate knowledge from the clinical practice to organization knowledge. The hybrid broker role is an in-between position, where the practitioner moves away from purely professional responsibilities to more managerial responsibilities, while he/she continues to do their professional practice (Kislov et al., 2016, p. 473). Hybrids brokers cut on both sides: hybrids are part of both communities and are seen as legitimate to externalise, translate and share knowledge across different individuals and groups within and outside the organization (see also figure 5). These hybrid roles are effective in bridging the professional and managerial interests which is a *'panacea to the policy implementation gap'* (Currie et al., 2016, p. 149; Waring et al., 2013).

Kislov et al. (2016) specify the hybrid continuum between management and professional responsibilities through the division between managing and quasi-managing professionals. The managing professional has a formally designed supervisory and resource allocation responsibility. On the other, the quasi-managerial role refers more informal responsibilities in areas of management, such as performance measurement or project management.

As described above, the hybrid role is expected to be a role with authority, because this multi-membership might lead to trust and respect among both group members (Kimble, Grenier & Goglio-Primard, 2010, Wenger, 1998). This trust and respect often increases over time. Newcomers start with straight-forward tasks, their level of participation and legitimacy increases over time and that enables them to possibly perform other and more effective broker roles. This is in accordance with the legitimate-peripheral-member theory of Lave & Wenger (1991). In that case the hybrid broker role might also lead to the *ability* to act as professional broker.

Ability	Capacity to transfer, translate and transform knowledge (Carlile, 2002; 2004)
Motivation	Strong common identity between communities what encourage knowledge processes; beyond self-interest: public service motivation (Hislop, 2010; Vandenabeele, Leisink, Knies, 2013)
Opportunity	Hybrid broker roles, clinical-management roles (Kislov, Hodgson, Boaden, 2016)

Figure 5. Relation AMO-model to literature on knowledge management.

3.5 Conclusion

In this chapter I developed the concept professional brokerage, what refers to professionals who share organizational knowledge across professional boundaries. It combines two theoretical concepts from the knowledge broker and organizing professional. With the concept I give concrete meaning to the capacity which seems necessary to respond adequately to transitions in the work of professionals. Professional brokerage is a demarcated knowledge sharing activity and becomes viable for empirical analysis. Likewise, when the professional succeeds in giving adequate responses to these changes this is expected to improve quality of their

services, work and organization. Additionally, the term breaks with term as 'manager' and 'leader' and therefore professional brokerage overcomes the negative associations of management and medical leadership.

With this in mind, we move to the empirical evaluation of professional brokerage in practice. Ultimately, this study aims to find out to what extent, why and how residents act as professional broker. When professionals have the ability, motivation and opportunity, they are expected to show extra-role behaviour and thus act as professional broker. The AMO model was complemented with knowledge management literature. Firstly, hybrid broker roles are seen as an effective *opportunity* to bridge the managerial and professional logic (Kislov et al. 2016). Secondly, the *abilities* to share knowledge were related to their identification and translation skills (Carlile, 2002; Wenger, 2000). Lastly, their drive to share knowledge across boundaries might be related to high levels of public service *motivation* (Vandenabeele, Leisink, Knies, 2013).

After all, this model is expected to explain the occurrence of professional brokerage within it institutional context and will deepen our understanding of the concept in clinical practice. In the next chapter I elaborate the research approach and methods to describe how I have collected data.

4. Research approach

The remaining goals in this study are (1) to identify through empirical research to what extent professional brokerage occurs in clinical practice and if so (2) to deepen the understanding how and why the medical doctor in training (resident) does act like professional broker. This is done by empirical evaluation through observing residents in their daily clinical practice and interviewing them. This chapter discusses how these data are collected. I start with my underpinning research philosophy and subsequently explain the methods for data collection and analysis.

4.1 Research philosophy

'We may transform social science to an activity done in public for the public, sometimes to clarify, sometimes to intervene, sometimes to generate new perspectives, and always to serve as eyes and ears in our ongoing efforts at understanding the present and deliberating about the future.' (Flyvbjerg, 2001, p 166).

Flyvbjerg's quote above inspires my underpinning values and philosophical beliefs on how I conducted this study. Bent Flyvbjerg highlighted that if social science wants to matter, we have to accept that it will never produce cumulative and predictive theory. Instead we must focus on problems that are meaningful in local, national and global communities in which we live. He, therefore, emphasizes the importance of *phronesis*, which means 'practical knowledge'. This study is focussed on practical action – professional brokerage as activity – which embodies the phronesis.

Flyvbjerg has set forth some guidelines to do this phronetic research (see also figure 6 below for an overview of these guidelines). First of all, *the phronetic researcher is concerned with the reflexive analysis and discussion of values and interests in society aimed at social action* (Flybjerg, 2001, p. 60). This study evaluates the direction towards organizing professionalism and investigates how residents in particular give meaning or not to this perspective through professional brokerage. The following questions are central to this normative direction: Where are we going? And is this desirable? What should be done? Ultimately, its goal is to make a normative judgment about a researched phenomenon.

Secondly, the phronetic researcher has close interactions to the phenomena during the whole research process. So did I, because I positioned myself among the doctors and patients and became even an active participant in some situations. All with the aim to understand how and why residents act as professional broker, which is typical of interpretative or - in Flyvbjerg's terms - phronetic social science (Deetz, 1996; Flyvbjerg, 2001; Hammersley & Atkinson, 2007; Cunliffe, 2010). As a result, this allowed me to understand and explain professional brokerage within an institutional environment.

Thirdly, the phronetic researcher takes practice as point of departure before he applies any discourse (theory) (Flyvbjerg, 2001). I started this research with observations in clinical practice without the application of specific theoretical lenses. The conceptual development was done when the empirical data was transformed to written accounts. In practice, I constantly modified the frames to understand the data, which can be called an iterative process of data collection and theoretical inquiry (Boeije, 2009; Agar, 1980). During the analysis of my data I still conducted interviews and observations to constantly check my interpretations and my theoretical ideas.

Fourthly, phronetic researchers also try to break with the classic dualisms of agency and structure. I focussed on the resident as actor with agency, but at the same time searched for what structural and discouraging mechanisms would influence individual actions of the resident (Flyvbjerg, 2012: p. 138). For example, the resident (agent) can bring in an idea to improve the quality, which might result in a change. On the other hand, the culture (structure) can also restrict and demotivate the resident to act as broker. Insight in how both perspectives – structure and agency – is central in this study.

Fifthly, the dualism agency and structure also shows how power is enacted through the organization. 'Tactics' that professional brokers use to share knowledge on behalf of quality, are a form of 'power' which are productive and positive. That is why power is seen in relation to others, which is exercised and not as something that someone possesses (Flyvbjerg, 2001). Although I will not use the term power, it is inevitable part of the processes I describe in this research. Furthermore, this research explicitly focusses on residents as actors of change and how they influence policies (exercise power) to improve quality.

Lastly, the context of the cases does matter in phronetic social science. The residents' intentions to broker are incentivised or discourages dependent on the context. This means that our analysis can add up to the recognisability of results, but might not be representative to all residents.

Focus on values	Value-rationality as point of departure. Where are we going? And is this desirable?
Close to reality	Researcher gets close to the people and phenomena he studies.
Little things	Focus on micro-practices and experiences. Little questions and thick descriptions.
Practice before discourse	Focus on daily and practical activity before discourse or theory is applied.
Cases in context	Examples and cases are context-dependent.
Joining agency & structure	Actor and structural level are both studied; how do they influence each other?
Continuous dialogue	Producing ongoing social dialogue. Polyphony of voices, with no voice claiming authority.
Power is central	Analyses of power is core of study. Who gains and who loses?
Asking how?	Asking how and why: aiming for explanation and understanding.
Narrative	Focus on narratives provide us insight in past experiences and future scenarios.

Figure 6. Methodological guidelines for a reformed social science (Flybjerg, 2001, p. 129-140)

4.2 Data collection

I collected data in the period of March till August 2016 by means of observations and interviews. These two methods were useful to explore this relative unknown phenomenon and give meaning to the concept professional brokerage. Moreover, the use of different sources can confirm and complement findings, which is called data triangulation (Silverman, 2011; Boeije, 2009).

4.2.1 Residents only

The choice for residents as reference group is motivated by the fact that they are seen as agents of change, that they are positioned in clinical practice and because of their accessibility. Firstly, the incorporation of management courses and attention of medical leadership in formal curriculum, result in the idea that the new capacities start with young medical doctors. Verhulst & Fuijkschot (2016), two medical practitioners, add to this

that young doctors nowadays are indeed ready for an open culture in which they can speak up and collaborate in a constructive. Residents seem to be keen to modernize their profession and therefore respond to transformations in professional work (Verhulst & Fuijkschot, 2016). They can be seen as the *agents* for change.

Secondly, residents are positioned in clinical practice for the majority of their time. They have direct contact with patients, nurses, clerks but also their supervisors. This study is focussed in particular how professional brokerage takes place in this *clinical practice* and the resident is therefore a suitable position to investigate (KNMG congress, 2016).

Lastly, a pragmatic reason to focus on residents is because of their accessibility. They were willing to show me their clinical work in the hospital and to reflect on their work. And I also experienced this when being connected: they text or phone you back as fast as possible and even late in the evening.

4.3 (Participant) observations

In total, four residents were shadowed resulting in 63,5 hours' of observation data (see figure 7 for overview of respondents). Observations were seen as suitable method for data collection to get an impression to what extent residents act as professional broker. It also enabled me to get up close to reality and get familiar with the complexity in clinical practice. These reason are motivated in detail beneath.

Firstly, knowledge brokerage can take place formally or informally, visible or invisible (Curie & White, 2012). That implied that residents could take on this role while they were not aware of it. But it also meant that I was trying to observe something that perhaps did not take place at all. Observations, nonetheless, would reveal to what extent doctors would give meaning (or not) to this act of professional brokerage. It also enabled me to get an impression how residents connected themselves to other stakeholders as nurses, specialists, clerks or other non-medical staff as secretaries or managers in daily practice (Boeije, 2009).

Observations also enabled me to get familiar with the complexity of the medical world. It provided me the opportunity to obtain a complex and deep understanding of the ins and outs of the daily clinical practice, because I was present in clinical practice. Therefore, the researcher came close to the phenomenon he studied (characteristic for phronetic research, see also figure 6).

The observations were also a mean to focus first on daily and practical activity before I applied any theoretical lenses to guide my view (see also practice before discourse of Flyvbjerg, 2001). This engagement in the field, also increased the chance for collecting naturally occurring data, which are authentic accounts of the social world (Silverman, 2011). I observed this daily practice partly as *fly on the wall*, because I was wearing a white coat and was often perceived as clerk. That diminished the impact of my presence as researcher on social reality (Higginbottom, Pillay, Boadu, 2013; Silverman, 2011).

	Resident 1	**Resident 2**	**Resident 3**	**Resident 4**
Specialism	Ophthalmology	Internal Medicine	Anaesthesia	Geriatrics
Gender	*Male*	*Male*	*Male*	*Female*
Hours of observation	*32 hours (4 days)*	*9,5 hours (2 days)*	*16 hours (3 days)*	*7 hours (1 day)*

Years in education	*Third year*	*Fourth year*	*Second year*	*First year*
Hospital	*Academic hospital*	*Academic hospital*	*Regional hospital*	*Academic hospital*
Setting	*Outpatient clinics*	*Ward rounds*	*Operation room*	*Emergency room*
Reference	R1	R4	R8	R12

Figure 7. Overview observations of residents

4.3.1 Selection residents for observations

My selection strategy was not aimed to be representative for the whole population of residents. Nonetheless, my aim was to contribute to recognisability among larger groups of residents and therefore, I wanted to include different cases in explaining brokerage roles. Therefore, I included a rich and a variety of contextual factors when selecting data. My design was, nonetheless, limited by opportunities to field access.

Empirical clues in initial interviews (R1, R2) guided me to select new cases to enrich my data. I included different specialisms, regional and academic hospitals, male and female doctors, residents at different stages in their training and different clinical settings as operations or outpatient clinics.

The fact that broker roles can be enacted consciously or unconsciously, recognized or unrecognized, formally or informally (Curie & White, 2012), means that nearly every resident possibly acts as a professional broker in given situations. In other words, every observation in clinical practice already enabled me to check whether this broker activity would occur or not.

4.3.2 Fieldwork impressions

The main activities of the researcher in the field were watching what happened in the daily work of medical doctors and listening to what was said. In the meantime, I asked small questions as: *why are you doing it that way or in this manner? Or how do you inform others if you want to improve this? Does that always happen in this manner?* These conversations took place throughout the day, during lunchbreaks, in the corridors or in the work area of residents. During the observations I wrote field notes and these were elaborated the same evening when the observations were done. The ten observation days are reported in separate files.

During the fieldwork I wore the well-known white coat and was therefore often perceived as learner (resident or clerk). This seemed to decrease the impact of the researcher on reality, because I was perceived as part of their practice. Moreover, residents are familiar with clerks as observers and, therefore, did not notice my presence as deviant or disruptive. At times, I also shortly participated in practice, when I was asked to call patients from the waiting room or when I stocked the consultation room with new wimps. Nevertheless, on the continuum observer and participant, I mainly took on the role of (passive) observer (Boeije, 2009, p. 60).

The observations in itself stimulated reflection on work floor processes for individual residents and perhaps tickled them to broker knowledge. *'You ask questions I never thought of (R1)' or 'You told me that most of our work is invisible to patients, that was an interesting observation (R2)'.* One respondent even told me that he addressed his supervisor that he wanted to explore more management related tasks and that this was stimulated by the fact that I observed him in the field.

My presence in a high risk environment also requires ethical consideration. Informed-consent - as

mentioned above – was somewhat ambiguous. I was perceived as learner in the organization and most people accepted that. When patients or other caregivers asked me to share medical knowledge, I immediately introduced myself as non-medical outsider (as student of Public Administration and Organization Science).

4.4 Interviews

In addition to observations I also conducted two types of interviews. On the one hand, I conducted ten exploratory interviews with health care professionals. On the other hand, I conducted eleven formal interviews with residents; nine were identified as professional broker.

The exploratory interviews were conducted with different specialists, teachers, residents and clerks involved in health care organizations: Universitair Medisch Centrum Utrecht (UMCU) or Westeinde Medisch Central Haaglanden (MCH) (see figure 8 for an overview). These exploratory interviews were used to develop ideas, familiarize with the health care organization and to do member validation at later stages of the research process (Boeije, 2009).

	Function	**Date**	**Ref**
1	Clerk UMCU	26-02-2016	E1
2	Two residents not in training (Radboud UMC)	21-03-2016	E2
3	Teacher Westeinde MCH	22-03-2016	E3
4	Doctor Westeinde MCH	06-05-2016	E4
5	Doctors / professor UMCU	19-05-2016	E5
6	Meeting *Sciene in Transition* UMCU	26-05-2016	E6
7	Symposium Medical Leadership KNMG	02-06-2016	E7
8	Resident / Phd UMCU	Throughout thesis period	E8
9	Member checking doctor / professor UMCU	16-08-2016	E9
10	Member checking teacher/supervisor (UMCU)	20-09-2016	E10

Figure 8. Exploratory interviews with different care providers.

4.1.1 Sampling residents for formal interviews

After the observations in the field I realised that professional brokerage was difficult to observe. In order to increase my understanding of what they do, I needed to identify the professional broker. Therefore, I conducted interviews with residents who were identified as professional brokers as well. A snowball sampling technique was used to select residents for interviews (Bryman, 2016). This form of sampling enabled the researcher to identify participants with specific knowledge or experience (Higginbottom, Pillay, Boadu, 2013). In this particular study I tried to 'catch' the residents who act as professional broker (Coyne, 1997).

I asked the residents at the end of the interview to identify other residents who they perceived as competent broker or role model resident. Or the resident suggested another resident who would be interesting related to the topic of the interview. On a conference about medical leadership I asked a resident if I could observe him. Later on, I also used a teacher and expert of medical leadership to identify professional brokers in

a hospital organization. In the professional hierarchy, professional brokers were identified bottom-up (peers, through congress) or top-down (teacher / expert), which was done to access a variety of brokers (see also figure 9 where the snowballing relations are displayed).

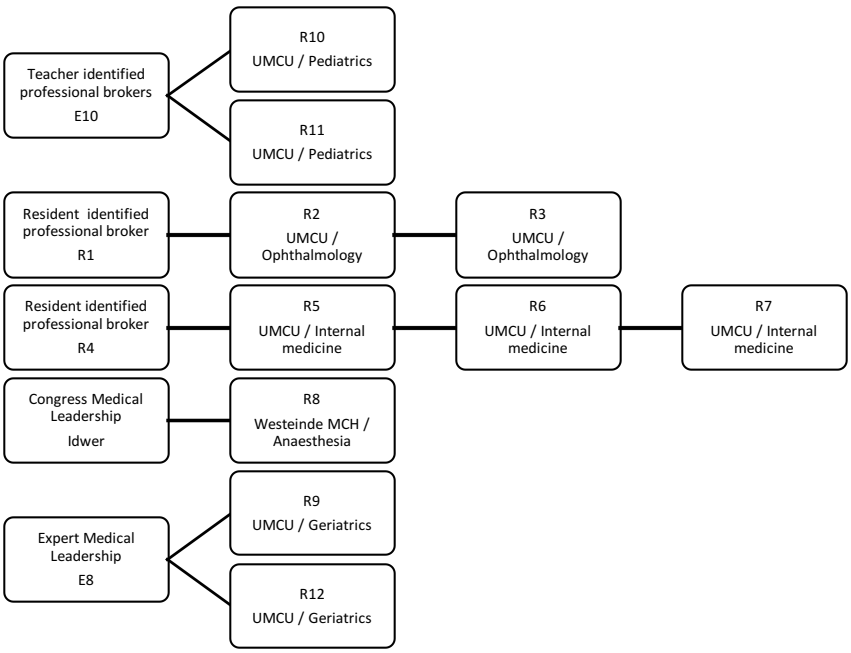


Figure 9. *Anonymous display of snowball sampling. In this study the names of the participants are removed or fictional to guarantee the anonymity of the participants.*

4.4.2 Content interviews

I conducted semi-structured (open) interviews with identified residents (a topic list with some opening questions is included at p. 67). The format of questioning was inspired by guidelines for phronetic research. 'How' and 'why' questions were formulated and asked, because this might lead to answers which contain stories and more structural components (Flyvbjerg, 2001). Similarly, I asked residents to give concrete examples of cases where they spoke up or shared ideas of improving quality. Therefore, I collected stories which gave me insight in their micro practices and lived experiences which reveals information about how they act as professional broker. The interviews were in addition to some guiding questions very open, which was a mean to enable the resident to share the story he/she wanted to tell and thus also enable practice before discourse.

4.4 Analysis

The extensive fieldwork resulted in written accounts: the observations were elaborated, the interviews were digitally recorded and transcribed verbatim along with memos I wrote during my fieldwork. Due to the combination of field observations, exploratory interviews and the interviews with identified brokers, data saturation was achieved (Bryman, 2016).

The subsequent step was to analyse these accounts in a systematic manner. Due to the exploratory status of this research, I started with open coding and used Nvivo software. This is a process of breaking down, comparing and categorizing data (Bryman, 2016).

This labelling process was extended by means of axial coding. That means that I structured my labels of open codes according to discouraging factors, why professional brokerage was discouraged in clinical

practice and I was abstracting out the characteristics of professional brokers.

Based on discussions and extensive literature reading, I structured my findings a third time according to the theoretical AMO model, as explained in the previous chapter (Boselie, 2010). And the examples that I had collected of professional brokerage were related to values described by Baker (2001). This selective coding model is added in the appendix (see p. 61).

4.5 Quality: triangulation, respondent validation, authenticity and thick description.

The quality of interpretations in this study was enhanced through data and theoretical triangulation, member validation and collecting and describing authentic accounts of the field. First of all, the observations in clinical practice were complemented by in-depth interviews. For this reason, the interpretations of the researcher resulting from observations were checked and complemented by perspectives of the residents. This can lead to varied dimension of the phenomenon leading up to layered and thick description of the field (Boeije, 2009). The application of three theoretical debates – AMO-model, knowledge management and professionalism - to interpret the data is a form of theoretical triangulation. This was aimed to arrive at a better understanding of residents' reality (Boeije, 2009; Bryman, 2008)

Secondly, throughout the whole research process I conducted observations and interviews, what enabled me to do respondent validation in later stage of the process. During interviews E9, E10, R9, R10 & R11 I announced that I also explicitly wanted to check my initial interpretations and therefore they were given space to (dis)agree with me. The triangulation and respondent validation added up to the credibility of this study (Bryman, 2008).

Thirdly, the perspective of residents is context-dependent which questions the external validity of the findings. I have included different specialisms: Ophthalmology, Internal Medicine, Aneasthesia, Geriatrics and Paediatrics, mostly from the same hospital. Not every professional domain is included and therefore external validity might be limited, which means that the findings might not be generalizable to other contexts. However, producing cumulative and predictive theory was not my aim, rather an understanding of the complexity how medical doctors respond to transitions in their work (Flybjerg, 2001). Through thick description of the contexts of a small group of residents this understanding was obtained (Bryman, 2008).

4.6 Conclusion

In conclusion, the phronetic science philosophy guided my research methodology, which consisted of close interactions to the medical field, combining structure and agency, practice before discourse. In accordance with this philosophy, this study analyses the perspectives of residents on a normative ideal: that medical doctors themselves should improve quality through professional brokerage. This study investigates empirically to what extent professional brokerage occurs (where are we going?), whether this direction is desirable and also argues in the end (conclusion) what should be done (see also paragraph 4.1).

The 'tools' to collect data were participant observation and interviews. I shadowed four residents in clinical practice and conducted eleven formal interviews with residents who were identified as professional broker. These type of residents were selected via snowball sampling and revealed their perspective on why and how they improved quality, apart from their clinical duty. Answers to the extent, why and how of professional brokerage, are reported in the next three chapters.

5. Why professional brokerage is discouraged

This findings chapter starts with describing the observations in clinical practice of medical doctors and shows that the activity of professional brokerage by residents is not self-evident. The institutional context (structure) seems to discourage residents to act as professional broker on top of their clinical tasks. The discouraging mechanisms will be discussed using a reversed AMO model: Demotivation, Inability and No Opportunity (DIN).

5.1 The resident in his daily habitat.

Case 1: "Emma is the responsible anaesthetist in training today for the operation of a patient with heart and vascular diseases. It is a difficult case today and Emma tells me that she is happy with that, because she can learn from such cases. She has prepared the operation accurately yesterday evening, but needs to tackle one last issue: Which pipe should be used for the patient to facilitate the narcosis? Together with the assistant anaesthetist she discusses his doubts. Later on, in the corridor she encounters an experienced supervisor and asks him for advice." (R8)

Residents have a double role. One the one hand, they are in training and follow internships of three till six months at different divisions and learn the tricks of the trade. On the other hand, they are employees and need to do patient care – or 'production work' in their parlance (R1, R8, R11). During clinical work they observe, diagnose and treat unique patients throughout their days on an assembly line. Most residents hope to encounter unique and complex patient cases and learn in particular how they can diagnose and treat these complex patients effectively (R8).

Once they put on their white coat an alien language is exchanged, which is impossible to understand for the ordinary layman – me (see also the medical dictionary in the beginning). The day usually starts with formal transfer meetings where medical knowledge is shared among other supervisors, residents and with the clerks in the background of the gathering rooms. The most difficult cases are discussed and these are often initiated by the resident. Some residents indicate that it is sometimes difficult to assess whether you can bring in your doubts and what you need to know yourself (R1).

Subsequently, the supervisor - who is sitting first rank - advices his learners about the cases. Like a puzzle they are linking their expertise to each other, aiming for solutions to find the right diagnose and treatment for these unique patient cases. The most knowledgeable doctors share their thoughts and finish the puzzle.

From then on, the clinical work starts, which can be an operation, an outpatient clinic, research time or a 'paper' visit where nurses and the resident exchange medical information about patients. Nurses are often patients' first and direct encounter with medical staff. They start with transforming patient status to numeric values, which are the building blocks for doctors' detective work: what illness does the patient have? And what is the cause?

Based on their own medical expertise and (historical) patient information, the doctors diagnose and decide what treatment or action is required. This expertise is obtained via lengthy education programs, reading

loads of medical books or scientific (medical) articles and after having made a lot of *'flight hours' (R6)*. Also during lunch breaks – if time allows it - the discussion continues about challenging patients.

In clinical practice the resident attempts to involve a supervisor – whether or not via phone calls – certainly if he doubts what to do with a specific case and his medical knowledge is insufficient. Or they refer the patient to another specialist who can takes the diagnoses further. They are often peering at a whiteboard or schedule with phone numbers to enable phone connection. However, this is challenging when the supervisor is not accessible or when they want to call the supervisor during midnight or in weekends.

Nonetheless, the resident himself is also disturbed throughout the day by phone calls to share medical patient information. Medical doctors have a minimum of two cell phones and it frequently happens that they need to multitask with two phones at the same time. Sometimes the resident is given 'orders' unexpectedly to do a treatment. This becomes clear in the following case.

Case 2: This afternoon Tim has got designated time to continue his medical research. However, he gets a call, whether he can inject an eye, because the functioning resident is not available. Although he is a bit hesitant to this request, he will do it of course. During our walk to the operation room, Tim informs me about what treatment will be given to the patient. The operation room is similar to the one of a dentist: an electric chair in the middle lit up by an enormous lamp. Tim locks the door of the operation room and is given the syringe from the nurse. Tim attempt to inject the eye at different places in the eye; at least four times. "The other clinician only injected once." The patient voices his concerns. The substance, however, is dripping from the patient eyes, which is thus not injected correctly. Tim decides to involve his supervisor. In the meantime, he tells to the nurse that he actually was not scheduled to do patient care. After a while, the supervising doctor is coming and tells to the patient that his retina is difficult to inject. The supervisor injects the eye in a different manner than Tim is taught. Tim also observes this. When we are back in the residents' office he proposes to share this way of injecting the eye (R2).

The case above again illustrates that the 'flight hours' are important to develop medical expertise and that medical knowledge is shared throughout the day or obtained via research. In accordance with that, it is remarkable that the doctor often works a substantial part out of sight of the patient behind his computer. This happens in special work areas which are designed for residents. In an academic hospital the residents have their own workspace. When sitting in office, he/she is diagnosing, researching or administrating patients' health status via the electronic patient system (Electronic Patient File (EPD).

Nonetheless, the doctor will also see the patient in real life. This regularly starts with rituals as pressing soap dispensers, wearing rubber gloves, putting on surgical masks or disposable caps. Other safety prescriptions are the lead apron X-ray protection equipment or that their long sleeves are not allowed to be visible underneath their white coat. This is to guarantee a safe and hygienic environment. After these rituals, they talk with patients. Although the patient is mostly concerned about whether he is still able to drive home, the doctor wants to transform the patients' complaints to clear clues that will activate his/her medical expertise. Or they share the results of their tests in an understandable language to patients.

At the end of the day, the resident might attend classes, but this depends on whether the clinic or operations do not run out of time (R1). For example, new patients are added to the list for outpatient clinic,

clients have many questions or the supervising doctors came too. That will cost time of course and leads to delays, the operation cannot start or the clinic takes longer due to more attention to the patients' concerns. This delays can already be caused in the morning, which is illustrated in the next case:

Case 3: When the operating room is prepared – the injections are double checked, all equipment is present and computers are tested - Emma walks to the nursing unit where she will pick up the patient. Around four care deliverers are standing around the bed of the patient and check the status of the patient. Emme discovers that the International Normalized Ratio (INR) (a blood clotting test) is not measured yet. 'Why is the INR not measured? We cannot start the operation without knowing the INR'. Emma walks back to inform everyone, the surgeon, but also the other anaesthesia specialists and assistants. Supervisor Lars - who would help her with this difficult case - tells her that he runs into a fix when Emma's operation delays. (R8) In the end, the operation delays with half an hour.

After education classes – if they can attend - they write the letters to the general practitioner, finish administrative work and prepare the drug recipes and work for tomorrow. Tomorrow these rituals start over again.

5.2 The reversed AMO-model as explanation why professional brokerage is discouraged: DIN

The work of the medical doctor can be considered as knowledge intensive. The connection between doctors from a similar professional domain is evident when it comes to sharing medical knowledge, although this can be challenging too in some cases as I have showed (e.g. when accessibility is challenging).

I expected that I could explain the occurrence of professional brokerage using the AMO model. To repeat, this model suggests that employees are willing 'to go the extra mile' - or in this study act as professional broker - when they are given the ability, have the motivation and opportunities (Boselie, 2010; Appelbaum, 2000).

However, professional brokerage was hardly observed during clinical practice. Even worse, it seemed discouraged by different factors in the daily clinical practice. Therefore, a reversed AMO model would be helpful to structure the findings and explains why professional brokerage is discouraged. Due to demotivation, inability and no opportunity (DIN-model), the resident withdraws from the act of professional brokerage

5.2.1 Demotivation

The demotivation component of the reversed AMO model assumes that doctors do *not want* to act as professional broker and that they are not adequately incentivised. First, as learner they are interested mainly in medical expertise and their status is also evaluated by their level of medical expertise. Second, residents as employee do not feel problem ownership to improve the quality, because changing something is complicated and does not profit them during their short stay and commitment at their division.

As learner: medical expertise is priority

A reason why professional brokerage does not occur is because the resident is not motivated to act like that. *"I think a minority of the residents is interested to put time and effort into change and improvement of the*

organisation." (R5). First priority of most residents is to become a qualified clinical doctor, which can be achieved by obtaining more medical knowledge and experience. *"Medicine is an experience-based profession; you need to make a lot of flight-hours"* (R6). As the introduction of this chapter also indicates, their days are mainly characterised by sharing and obtaining medical knowledge of patients. This primacy of medical expertise is stimulated by external factors. Residents are mainly evaluated on their level of medical expertise. Moreover, this expertise is driven by opportunities to do research. On top of that, their status is also derived from having adequate medical knowledge.

Firstly, residents are evaluated by supervisors and teachers on their medical expertise mainly. *"We are in a situation that we use feedback and that people reflect critically on their selves. However, mostly your medical action and communication with the patient is evaluated, not your behaviour and manners within the organization"* (R3). Also the following example shows how medical expertise remains priority and that residents are judged on their level of medical expertise also by their peer residents:

"We usually have complication meetings at Monday, that should be a safe environment to share complications. That is, however, not always the case, because it is difficult not to point fingers. A few years ago I cut a suture during an operation, which I should not have cut actually. It all ended well, but it was caused by the suboptimal position of the patient. Due to the fact that this patient was intubated and given anaesthetics, you are not allowed to move the patient too much. To make the best of it, I cut the wrong suture. The complication would be less impactful when the patient was better positioned. I discussed this complication that Monday and I felt offended by the rest who said: 'of course you position the patient adequately first.' That is how things work. Than the barrier for me, although I am not that afraid, is higher to bring in complications" (R3)

In addition to the steering evaluation, the resident is stimulated to increase his medical expertise by doing research. The resident conducts research into a specific area of his interest within the field of his specialisation. Teachers also stimulate their students (residents) to conduct research and offer them opportunities to do so. *"I have got a nice article for you, do you want to write that?" (R6)*. This incentive for doing research also happens prior to the training of a resident. In order to get accepted, the idea is dominant that you need a PhD. "*Am I going to do a PhD first, yes or no? Research is better integrated in the traineeship than management. […] Organizing is something that you have to learn along the way."* The hybrid role of clinical consultant combined with doing research seems more common in clinical practice. *"You have got residents who are competent researchers. They are doing less clinical work. […] They are passionate about it, they like to do it and are competent as well."* Moreover, they also bring in their own financial resources (R7, R11).

Having medical knowledge also give residents status. *"Who can name the most rousing diagnose? I have got more knowledge than you. That is how we bid against one another" (*R6*)*. Having medical expertise is great good within the professional domain and this might demotivate residents to improve to quality, which distract them from focussing on medical expertise. *"We are learning, so we do not know everything, but missing a diagnose – you will hold that against yourself. I have failed"* (R6). Also Kimble et al. (2010, p. 433) conclude that medical knowledge defines the status of professionals and is key to their authority. Sharing information and knowledge on behalf of innovation is then difficult and complex.

As employee: absence of problem-ownership at organization level

Contributing to organization improvement is perceived as something additional to patient care, which is complicated, and something that does not profit residents because of their short commitment during their internship. Therefore, residents do not always feel *problem-ownership* (R5).

Contributing to quality improvement is perceived as an additional action that transcends daily routine of medical expertise. For example, the doctor can e-mail the executive assistant or ICT professional after work to inform them about a defect printer. Or when the nurses do not structurally stock the consultation rooms with wimps, they can give nurses feedback in the end of the day by mailing or addressing the head nurse (R1).

This perception of doing things extra might be a barrier since their work is already considered as busy. Some of the residents already face difficulties with keeping their heads above water (R1). "*If you work 100% than you work around 48 hours a week. And if you are having hobbies or a family, then you will not put effort in something that does not profit you" (R5; R9; R11).* Other residents stopped with their participation in boards or side projects, because they want to focus on their trainee program only, which already keeps them busy enough (R2, R5).

Changing (small) things is also perceived as complicated. "*The policy in a big hospital is horrible. All these stakeholders. I do not really mind that we do not have to interfere' (R3).* Some residents are demotivated that their effort does not lead to any change. "*If you have indicated that three times and it is still not changed, then you give up. I think most residents are beaten into submission and leave it as it is" (R1).*

Most residents do their internship only for a short period and it is therefore not in their interest to improve organization processes, because they will not experience the benefits. *"Sometimes I think: I am done here in three months. I just bide my time and someone else should pick up the responsibility"* (R6). Or: *"How is it going to profit me in the short term? Very little. I think it is a waste of time* (R1)."

As a consequence, only a few professional brokers put effort in improving organization processes. Therefore, change is slow (R5), which can also demotivate the ones - who act as professional brokers - to keep on sharing their ideas. When no one changes things, you will not contribute as well. A cost-benefit trade-off seems applicable to their situation and influences their motivation (see also Voogt et al. 2016, p. 5). If the impact of brokerage is perceived as low and the short term commitment does not profit them, they are not motivated to act as professional broker.

5.2.2 Inability

The inability component of the reversed-AMO model would mean that the medical doctor does not act as professional broker, because he/she does not possess the knowledge and skills. Although the hospital organization offers courses about organization themes, this is mostly additional to their formal training program. This might be a reason why residents do not familiarize with the organization logic. On the clinical level, the resident is not automatically informed about organization matters at the start of his internship.

As learner: management courses are side projects

Residents are able to do courses, congresses and seminars about organization themes and can therefore obtain knowledge about the organizational logic. For example, one resident participated in the 'pearl project' in a hospital. Members from the board of directors or employees of financial control taught him about organization

matters. Other courses were 'MBA in one day', or a course about negotiating or leadership in healthcare (R7, R6, R11). It differs whether these courses are optional or part of the regular curriculum of the postgraduate training.

Apart from knowledge development, residents can obtain experience and skills with organizational matters by means of participation in boards as well as within or outside the hospital organization. These boards – such as the Young Specialist (Jonge Specialist) or resident boards - advocate the interests of residents.

Remarkably, residents rarely take on hybrid roles that contains recognized and formal management position as well as clinical work (Kislov et al., 2016). This hybrid role is attributed to attending doctors who have succeeded their training or nurses who proceeded their career at the division (E10). As a consequence, the absence of this *opportunity* might also discourage the development of managing abilities.

Knowledge and skills about the organizational logic are thus available but are mostly additional to their formal training program. "*I indicated that I wanted to do something additional. The fixed response was: nice that you are enthusiastic, but focus first on your training. You can do the rest during holidays" (R8).* In addition to their clinical work and regular training program they can follow courses or do administrative functions. Their effort takes mainly place during evening hours or holidays (R3, R7). The organization logic is nurtured by external opportunities and education and are not always incorporated within the formal curriculum. Residents indicate that the managerial logic is, however, becoming more institutionalised and part of regular education and training (R11).

The absence of education and socialization regarding organization matters in regular training programs can be a reason why residents do not observe and might not give meaning to organization problems and solutions. Consequentially, their effectiveness as professional broker will be low. The following quote of a resident illustrates this point:

> *"During the 'pearl' project, I had negotiation courses. There was a negotiation expert, who gave me knowledge how to do this. I have learned a lot from this. Sometimes you have to negotiate with the patient, the nurse or with a colleague. I am convinced that it helps you move forward if you know the principles, then without any prior knowledge." (R7)*

As employee: No attention for organization knowledge at the beginning of the internship

When residents start their internship they are not automatically informed by their teacher or supervisor about the organization structure of the division (R9; R11). Therefore, the organization structure is not always clear to residents (R3, R5). This absence of organization knowledge is also confirmed by the fact that residents explain that they do not really know who the manager or team leader is and what his/her activities are (R1, R2, R5, R9, R10). *"I think I am the only one who walks into their office to discuss things" (R3).*

They seem, therefore, less familiar with the organization participants beyond their teacher and supervisors and do not always know what avenues are available to share knowledge. How to approach the other professional? This might hinder residents to act as professional broker. A professional broker explains this as follows: *"If you start at division X, they do not tell you that you can address problems to the team leader. That would be actually very helpful though"* (R10).

5.2.3 No opportunity to participate:

The opposite of having the opportunity to participate, the reversed version assumes that the work environment of the doctor does not provide necessary support and avenues for expression. The resident does not have the opportunity to voice concerns when problems occur (Boselie, 2010). There are formal meetings bi-monthly where residents can share their ideas to improve quality. Professional brokerage seems to happen indirect and is more or less disconnected from the organization. Quality improvement is valued, but seems to be not something that happens on a daily base in clinical work. Despite formal meetings, informal interaction across professional boundaries seems restricted by physical separation.

As learner: there are platforms that connect residents and teachers.

Different platforms enable residents to share their observations and complaints about current work practices and their education programs. Every two months' education meetings (opleidingsvergaderingen) are accessible to residents. This does not automatically mean that all residents participate in these meetings, but can mean that only the representative of the group residents attend. This platform assembles residents from a specific professional domain and their teacher/supervisor. They exchange ideas about their education program and how this can be improved. Although the main focus is the education program, the improvement of organisation processes appears as topic on the agenda.

Quality improvement is, however, the main topic of the Ponder & Improve (PIMP) program. This is the mean for residents to bring in their complaints and solutions to problems in clinical practice. Also this platform assembles residents and teacher, like the education gatherings do. These meetings, thus, encourage residents to re-think quality improvement. On top of that, an empirical study also proved the success of PIMP in creating organizational awareness among residents (Voogt et al., 2016). In conclusion, this platform gives them the opportunity and also ability to familiarize with organizational matters.

The residents' ideas and knowledge about improving quality might reach the teacher, who also initiates follow-up action. *"If we want structural change, we mostly address the supervisor. They are sitting around the table with managers more often than we do" (R4, R9).* The teacher might search for relevant key partners to solve problems or might initiate project groups of residents to take the plans further to improve quality.

The teacher or supervisor, therefore, need to translate and include the voice of residents within meetings of other professionals. He or she mediates the knowledge to other professionals during organization gatherings and can be considered as the professional broker, while the resident himself does this indirectly. The role of a liaison seems applicable to the teachers' position (Fernandez & Gould, 1994; Waring, 2012). It depends on the teacher, whether he or she advocates the interests and concerns of the residents. That the resident himself shares knowledge across boundaries of his professional group to others is somehow unusual, since this role seems assigned to the teacher.

As employee: disconnected from the organization platforms

This indirect form of professional brokerage is strengthened by the fact that the resident is not automatically involved in organization meetings called organization meeting (zorglijnoverleggen) or policy meetings (beleidsvergaderingen). These meeting assemble nurses, executive assistants, managers and attending physicians.

Residents can take initiative to get involved in these meetings (R6) or the resident is invited during a specific internship and is considered to be present. This latter form is not seen as an effective involvement: '*The turnover is very high, because every three months these meeting takes place. You are present only once and therefore you cannot really effectuate something (R1, R3).'*

Residents have, however, the impression that their involvement and participation within the organization structure is becoming more institutionalised. During a congress a medical teacher told me that she recently included residents to her organisation meeting and that this resulted in fruitful ideas (KNMG Congress). Like the education about managerial logic, which is discussed in the previous paragraph, also their participation is becoming normalised (R9).

Professional brokerage is something which happens formally (bi-)monthly via platforms mentioned here. These formal meeting might enable these residents to share knowledge and ideas on behalf of quality. However, this also indicate that professional brokerage seems not something that gets daily attention in clinical practice.

Geographic physical separation

Apart from formal meetings, residents can be heard or voice concerns during informal interactions with other professionals (Nisbet, Lincoln & Dunn, 2013). In the clinical practice the interaction between resident and manager was not observed. This observation was confirmed by the fact that resident do not really know who the manager is and what his/her activities are (R3).

Physical separation between and within professional groups is especially observable in the academic hospital. The doctors, nurses and managers have their own areas where they work and have their coffee breaks. In most cases they also have their lunch breaks separately with professionals from their own professional group.

Not only between professional groups separation is visible, also within the professional domain separation occurs. The supervisors and residents have their own offices at different locations within the hospital. They also have different places at the table during the transfer meeting of medical knowledge. The physicians are sitting in front, then the residents and lastly the clerks, who are sitting in the back of the room.

While the doctors within a domain are geographically separated, they connect via – more or less formal - daily (transfer) meetings. These meetings enable residents to share medical knowledge face-to-face with the supervisor during, after or prior to the meeting (R1). Residents often 'save' questions throughout the day and perceive these moments as opportunity to pose them. Across the boundaries of professional domains this interaction is not automatically facilitated. For example, the management office can be next to the office of the resident, while it does not result in any interaction (R1). These findings are in accordance with Waring & Curie (2012) who observed that close proximity stimulate brokering and that there is a barrier to broker for those who do not work side by side on a regular basis.

5.3 Conclusion

Learning is priority for residents, but simultaneously they are employees too within the organization. Their training is focused on developing medical expertise of the professional domain and they also get enthusiastic by obtaining medical knowledge. Medical research is often the opportunity to increase their medical expertise. Furthermore, their perceived status and authority is derived from their level of medical expertise. Therefore,

they seem to identify more with their own medical professional group than with the organization as a whole (see also Noordegraaf et al., 2016).

When they act as professional broker this was not always incentivized. Due to temporary stays at the division they will not experience the benefits of their effort, because their effort cannot materialize benefits in that short time period. The low priority also arises because of time constrains to do something. On top of that, the perception that organizational change is too complex withhold them to act as professional broker.

Additionally, residents are not automatically socialized with organization skills and knowledge, which can be obtained by means of external side projects (membership in boards or extra courses). For this reason, they do not always know what channels are available to broker knowledge and might not observe what problems and solutions exist.

The residents are, nonetheless, heard during education gatherings, where they also share ideas for organization improvement. The introduction of the Ponder & Improve program is an explicit initiative in the direction of residents' involvement to improve quality. However, they are not automatically included in organization broad meetings. It depends, therefore, on the supervisor or medical teacher whether this knowledge is mediated to other professionals in the organization. Then the teacher act as professional broker, but residents do not. The frequency of these gatherings on behalf of organization improvement is often bi-monthly, which demonstrate that improving quality is valued but not part of daily work.

Due to the geographic separation and absence of meetings that assemble professionals across their professional boundaries, professional brokerage might be discouraged. The daily interaction seems to take place mainly between the medical doctors form a similar professional domain. Figure 10 sums up what processes explain the absence of professional brokerage.

Figure 10: *DIN-model explains the discouragement to act as professional broker*

6. Why the professional brokers' act survives.

Although professional brokerage seems discouraged by the mechanism discussed in the previous result chapter, by means of snowball sampling I discovered residents who - unless this discouraging mechanisms - still act as professional brokers and are agents that want to improve the quality. This discovery confirms that professional brokerage can persist in the hospital organization. I will first provide an overview of examples of professional brokerage and how they respond to the three transition formulated in chapter two. What do they do? After all, I use the AMO model in his regular fashion to explain why and how these residents (agents) act like professional brokers.

6.1. Examples of professional brokerage

The focus on cases is in concert with the phronetic approach, as advocated by Flyvbjerg (2001). Examples of professional brokerage activities demonstrate that it can serve the three transitions described in chapter two: that (1) the medical doctor deals with increasing complexity and uncertainty of his clinical work, (2) that he/she responds to the changing relation with the patient and (3) meets organization demands as efficiency and accountability (see figure 11 for an overview of the examples categorised according to the three transitions).

6.1.1 Professional brokerage that respond to the increasing complexity and uncertainty of clinical work.

Residents can share knowledge that contribute to more effectiveness in clinical practice. One resident implemented a new technology at his division at internal medicine to diagnose diseases more effectively after he had visited a congress where this technology was promoted. He introduced this idea to his supervisor and took accordingly responsibility for the whole purchasing process. *"I move to every patient with this new echo technology. And because I am enthusiastic about it, I ask others, do you still need to make echo? Other colleagues are getting enthusiastic too and want to learn from it."* (R6)

Other residents suggested cooperation between different divisions – such as geriatrics and internal medicine (R9) or the laboratory researchers and clinical researchers (R7), all with the aim to be more effective in diagnoses and in the end also more patient-centred. These brokers expected that the use of overlapping expertise between these different professional domains would be beneficial; and therefore they organize connection. It is, however, unclear whether this knowledge really activates a change towards more cooperation, a quote of R9 illustrates this point when she shared here idea for cooperation between two divisions *"That I am not involved in the sequel, does not bother me. If they want me to get involved, I would like to do it. And I am also curious and ask sometimes: what has happened so far? Is there any progress? But I also realise that I do not have unlimited time. So it is fine. I just want to get heard."* (R9).

Additionally, residents can broker on behalf of patient safety. For example, they give other instructions and share knowledge about how to guarantee a sterile and hygienic environment (R8). This can happen during clinical practice; a nurse spoke out the following to the supervisor about safe clothing style: "*It is not allowed to wear long sleeves underneath your coat."* She continued her feedback to us, me and a clerk: *"It would have been nice if you had expressed this" (R3)*. This feedback seemed to have two objectives; she spoke out to

improve patient safety and also shared knowledge on how to structure the interaction, because it is also the responsibility of clerks to correct supervisor.

Some professional brokers attempt to defend and protect the learning time against production work and other distractions in their work (R3, R4). For example, during education gatherings (opleidingsvergadering) they indicate that policlinics run out of time, what makes it impossible to attend their classes. Another resident succeeded to get a day off to spend time to her membership in a board (R3). In this case, professional brokerage serves the interest of the resident himself, who wants to learn and obtain more time to develop medical expertise. Therefore, their broker activity to advocate learning can contribute to more effectiveness, which might result in better diagnoses and treatment.

6.1.2 Professional brokerage that respond to changing patient relation.

Only one example was found that gave meaning to the changing relation with the patient. The resident quoted in the introduction of this thesis spread knowledge that might impact the hospitals' policy as a whole (R6). He initiated and even composed a team of organization members to make the information system - that discloses patient information to patients - more user-friendly (R6) (see also the introduction of the thesis).

Although professional brokerage is not investigated in relation to the patient and focussed on professionals only, the act can, nevertheless occur in the relation with the patient. *"If a patient wants to know why he has got stomach pain, you can propose to do an exploratory surgery, because it can mean that the patient has got a tumour. But you can better ask the question to the patient, do you want to know your diagnosis and do you want the surgery? Because the patient can be satisfied with only knowing the diagnosis, certainly if someone is 88 years old. Because than it is better to make a scan instead of doing the whole surgery*." This form of professional brokerage structures thus how care should be delivered and can be beneficial for efficiency as well as meet client-preferences.

6.1.3 Professional brokerage that respond to efficiency and accountability of the organization.

Also organizational knowledge was shared that intends to meet demands from the organization. One resident introduced a new software program to schedule the doctors in his hospital, which happens more efficient and effective now (R11). *"We have to get used to it, because it is something novel. Novel things are difficult to medical doctors. But it seems to function well. Not only residents are convinced, also attending staff"* (R11).

Another (paediatric) resident proposed an idea to his supervisor and nurses to change the structure of the visit at his internship Neonatology. *"There is a century old agreement that you check all children who are present at the Neonatology division. While some children are there for two months already. So I addressed my supervisor: Why do we need to check all the children every time, why not only the sick ones? Or the ones where the nurses are concerned about?"* When they implemented a new structure of visits, this led to more time to do other activities: *"We were finished at ten o'clock, while we are ready at twelve normally. So we had time available to administrate our work and to debrief the parents. My supervisor and me were both really enthusiastic"* (R10).

In addition, research projects were aspired and also conducted to improve the efficiency. One resident concluded: *"Mistakes are part of daily medical practice. Most have no serious consequences, but they lead to*

delay. Although nothing happens in half an hour, all these professionals are getting paid. That is costly." This resident had the ambition to study the logistics in the hospital and whether this could be improved (R8).

Another resident started research to improve the length of stays of geriatric patients (R9). Old people stay relatively longer at the emergency room, because they have more health care problems and different specialists need to investigate their status. Moreover, elderly people have a-typical complaints about their health status what complicates (and might delay) the diagnoses. The emergency room is, for this reason, overcrowded in some cases, what makes it impossible to accept new patients. These patients have to go to another hospital which takes more time and the ambulance drivers are less accessible to others who need help. So they started an investigation to what extent elderly really stay longer in the emergency room and how this can be better organised.

Transition 1: Clinical practice	- Suggesting cooperation between division to realise effective treatment (connecting different expertise) and enhance job satisfaction (sharing night shifts) - Sharing knowledge about new technology at the division - Stimulating others to be proactive about patient safety - Advocating time to learn and develop medical expertise - Idea for more efficient structure of the patient visit.
Transition 2: Patient relation	- Making the disclosure of patient information more attractive and patient friendly. - Implementing technology that patient can judge his food in the hospital
Transition 3: Organization	- Investigating handling times - New scheduling program - ICT

Figure 11. Examples of professional brokerage structured according to the three transitions.

The examples of professional brokerage seem to mirror their responsiveness to transitions: they deal with the complexity and uncertainty of doctors' work, meet the client preferences and contribute to organizations' efficiency. Although this study does not measure the contribution of knowledge sharing to factual quality of care, their ideas are enhanced by other professionals who are both enthusiastic about the initiative. That relates to our definition of quality which takes the aspirations of clients and staff as point of departure. Other outcomes are that new conversation structures are still used, like technologies or residents obtained time to attend education classes. These signs slightly indicate the potential positive effects of professional brokerage on quality.

6.2 Why professional brokers survive, the AMO model again.

In my previous chapter we observed that professional brokerage was discouraged. This chapter show that the AMO model in his regular fashion also explains the occurrence of professional brokerage and thus answers why and how residents act as professional broker.

6.2.1 Motivation

The motivation aspect of the AMO model assumes that the medical doctor wants to contribute by means of professional brokerage and is also incentivised to do this. The residents who act as professional broker have an intrinsic motivation and are convinced by the benefits. This motivation can be explained by their open attitude and identification with matters beyond their clinical work and medical expertise.

Professional brokers are intrinsically motivated to change and improve their workplace and organization in addition to patient care and clinical work (R7, R6, R3). Early in their training programs they are searching for additional experience in boards or they follow courses within or outside the hospital organization to increase their understanding of organizational matters.

They are aware of the benefits of obtaining experience and knowledge on organization matters. *"If you don't learn it, […] you will face the facts later on. Therefore, I think when you dig into organization processes, which is time consuming and difficult, you will have better luck […] If you know how care is organised in the Netherlands, than you can negotiate with insurance companies about contracts"* (R3).

Some residents who act as professional broker might move away from the clinical practice and aspire to concentrate on organization activities only. *"One of my ambitions is to become medical manager of a division. Than you are busy with administration and you do not have anything to do with patients." (R6)*. There is even one resident who started with a full time MBA and moved away from the work floor and another resident will leave the clinical practice for half a year to focus on innovation in health care (R11). This latter career paths are unique.

The motivation of professional brokers might originate from specified values on how they want to deliver quality in care. These visions and values are different but all have in common that care is more than only applying medical expertise to patients (see figure 12).

1	**Safety first (Patient safety)** This resident sees patient safety as important value and priority and will therefore share knowledge that support this value (R8): *"I am keen on hygiene and infection prevention. If you can prevent something, then this will be infections. The number of infections is, however, still frightful. That needs to be prevented. All these prescriptions do contribute to preventing complications."*	**R8**
2	**Entrepreneurial attitude (Patient-centeredness)** This resident has an entrepreneurial drive. He argues that care is also an experience and that we therefore should learn from the service industry (R6). *"An important pillar to me is how care can learn from the service industry. The key question is: if you look into the future, does the patient live longer with less diseases? We mostly focus on mortality or diseases as outcome. […] In my opinion good care means also that your bed is comfortable, that the coffee tastes well and that you get a*	**R6**

	newspaper for example. We can learn so much from the service industry."	
3	**Multidisciplinary research: personalized care (Effectiveness)** This resident is inspired by his predecessor who combined as much research disciplines as possible to deliver personalised care (R7). *"He is convinced that you have to combine as much disciplines as possible. You observe your patient and conduct research in the clinic. Simultaneously, you investigate DNA, blood, proteins etc. You combine these disciplines and create profiles of the patient and you can create more personalised care. That is why the laboratory and clinic needs to cooperate."*	**R7**
4	**Resilient to external decision-makers. (Effectiveness and job satisfaction)** This resident is convinced that involvement in policies is necessary. *"Doctor have become the mercy of politicians and managers by now. More decisions are made that influence your work, while you cannot participate. So I think it is good that doctors are stimulated to do administrative tasks."*	**R9**
5	**Efficiency** This resident cannot stand inefficiency. *"Something inside me cannot handle the waste of time. Some processes are happening really illogical. We can organize this way more effective."*	**R10**
6	**Vision on work environment (job satisfaction)** Advocates a vision of being critical and fiercely to supervisors and caring to nurses, clerks and secretaries: *"They call me a bitch sometimes, that somehow my nickname here. But I am convinced that you may be critical to your boss. On the other hand, you have got a responsibility to other employees as secretaries, nurses, that you have to care for them. You have to remain friendly. And if you are critical you need to be careful."*	**R3**

These visions on care have in common that they aim to enhance quality of work towards patients and colleagues within clinical practice (see also the relation to the quality values of IOM, figure 1). Currie & White (2012, p. 1354) also conclude that when professionals are motivated by the idea that their work enhance quality of patient and carer experience, it 'convince' them about the need for interaction across professional boundaries. These vision on care seem to be related to Public Service Motivation (PSM), which are the beliefs, values and attitudes that go beyond self-interest and organizational interest, that concerns the interest of a larger political entity and that motivate individuals to act accordingly whenever appropriate (Vandenabeele, Leisink, Knies, 2013).

Nonetheless, the residents recognize that a variety of motivations exist among doctors. Some prefer to do education, others research, some doctors want to focus on clinical work and professional brokers are the ones that prefer management related responsibilities. *"I think not every doctor needs to be interested in organisation or administration fields. It is all right, if you are a high quality clinician. But if you like it, then they should ask for opportunities to fulfil this wish"* (R7). This latter thing is shared among another resident (R9): *"I do not think you should put too much effort in motivating people who do not want to contribute to organization matters."*

6.2.2 Ability

The ability aspect of the AMO model refers to the necessary knowledge and skills. Despite residents' vision and motivations about organization improvement, the residents - who show professional brokerage - are proactive connectors to other professionals, their medical expertise is from a high level and they adopt are researchers attitude.

6.2.2.1 Courageous to connect

Residents directly address other professionals, they put things on the agenda of gatherings and externalise their ideas for organization improvement to the teacher. They sometimes get involved in meetings that assemble nurses, supervisors and managers, because of their proactivity (R3, R6, R11).

The professional broker is also able and proactive to announce his motivation to their supervisor for organization responsibilities. Teachers can provide them with the opportunities to pursue this interest (R9). One of the respondents (R8) was encouraged by the researcher to speak out to his teacher his motivation for organization matters. After doing this, he obtained e.g. the opportunity to observe the board of directors of his hospital. In other words, the resident is aware of his motivation to act as professional broker and is thus up front about this to others.

Residents who act as professional broker are also aware that the change needs to be done together. They are networkers and can make others enthusiastic – and build coalitions - to change work practices (R6, R10; R11). "*If you want to change something, you need the whole team. […] You have to carry out the change together. And then you should realize that it will take time. If you consider that, you will make some great progress" (R11).*

They use other 'tactics' to approach their networks: by asking questions, using informal settings, their networks and they make use of humour. During clinical work, they ask other professionals (nurses) little questions: "*How do you do this normally? Is this not inconvenient to you? Don't you think we can do it like this way?"* (R2; R10*). "Asking questions already helps. It opens the eyes of people that work there. In my opinion, our role as residents is also to ask questions" (R10).*

Or they connect to others in informal ways during coffee or lunch breaks in shared rest areas, sport activities beyond work hours or by means of attending (Christmas) drinks (R8, R2; R7). They use their (past) network: *"I searched for someone who worked for the division Safety & Quality. I had spoken to him earlier. I always try to remember names. You try to maintain your network. I mailed him and asked him to meet once, because I wanted to share my idea to him"* (R7). The use of humour was another tactic (R8, R12).

This observation and notions relate to the influence of team atmosphere as described by Curie & White (2012,). The team atmosphere that stimulate brokerage is one in which *social interaction, mutual trust and understanding are evident across professional boundaries, even in the presence of professional hierarchy, in line with workforce development policy initiatives towards integrated healthcare.*

6.2.2.2 Medical expertise is sufficient, but with some vulnerability.

The medical expertise of the resident – who act as professional broker – is at a satisfactory level. Also the teacher will consider the medical expertise of the resident before he/she opens the route to more organization responsibilities or when he/she takes their ideas more seriously (R9, R10). Therefore, these are mostly residents

who are longer in training (R3, R6, R9, R11). This relates to the legitimate-peripheral-member theory of Wenger (1980), who argues that the participation of members in organization increases over time.

Furthermore, the residents who act as professional broker is honest and vulnerable to others (patients and other doctors) about his limitations with regards to his medical knowledge (R3; R6; R7; R8)

> *"I am an open, self-criticizing doctor, who also shows that he is doing wrong sometimes. They first advised me not to do that. But nowadays they observe that I succeed with epidural injections and that my administration is sufficient. They evaluate you on these aspects. But then they appreciate an open attitude, which also increases your learning potential" (R8).*

This vulnerability and self-critic also takes place regarding organizing abilities. '*I can also admit that I am wrong with my idea' (R10)* or *'Sometimes I make a wrong connection, but then someone will let me know (R6)*. This is in accordance with Brown (2013), who argues that vulnerability is the source for more connection, creativity, empathy and responsibility.

6.2.2.3 Professional brokers have developed additional knowledge and skills

This intrinsic motivation – as mentioned in the previous paragraph – is nurtured by education, congresses and courses. There they get inspiration for new ideas and learn the language how to negotiate, take on medical leadership or manage certain things (R3, R8, R9; R11). Others obtained experiences in committees and boards in and outside the hospital (R2, R3, R6; R11). They participated in boards to advocate the interests of residents (R5), they organized projects that connected residents with other employees in the academic hospital (R2) or they were part of organization meetings where they bring in ideas. Unless the extra effort that is needed to obtain these experiences, these platforms profit them because they develop organization skills and knowledge.

6.2.2.4 Research attitude

While some residents experience the short commitment to division during the internship as disadvantage (see also demotivation 5.2.1), professional brokers see the changing workplaces as beneficial (R10). It allows them to compare divisions and to observe how processes can be improved. *"As resident you get the chance to have an inside look. Every division is different. That is why you experiences different ways of working. That enables you to see, that things happen in a logical manner. And at other division you are surprised that something happens inefficient or it causes problems to nurses. If you are attending, you will not observe how you can improve things" (*R10).

The last characteristic is that professional brokers have obtained an observing capacity (R10). "*In other words, it is searching, mailing, observing. Open your ears and eyes for who has some money left or how the organization structure works. Moreover, I like computers and I try to follow the developments in technology. I know how it works, check some sites and I use this knowledge as stepping stone to develop my ideas."*

In conclusion, the resident can signal and identify problems in their clinical work practice. The tactics mentioned earlier as asking questions to elicit others to share organization knowledge, their critical attitude towards others and themselves, their observing capacities and that they learn from past experiences, seems to point to a research attitude of the professional broker. This research attitude might point to skills to identify and also transform knowledge as broker. Indeed, brokerage is more than moving knowledge (Wenger, 1998).

6.2.3 Opportunity

The latter aspect of the AMO model is the opportunity to participate and voice concerns when problems occur. Does the organization provide necessary support and avenues for expression? When residents speak out that they want to be active in organization spheres, they often get the opportunity. But it is questionable whether the teacher or organization sufficiently promotes possibilities and opportunities for professional brokerage. What might lead that residents are unconsciously able to act as professional brokers

When residents are willing to transcend their medical work by initiating ideas for organization improvement, their teacher will give them access to opportunities when their medical expertise has reached a certain level (R9). Residents can always do additional non-clinical tasks as addition. This is, however, unpaid and always voluntarily. Or they search for solutions outside the current system. For example, a resident can bring in grants for research and can, therefore, finance himself half a day for other activities than research. Or they apply tricks in the work schedule. *"I know the trick how I can change the schedule. Then I am registered as absent at certain days, but when I do the final check I act like if was present."*

The open culture is also seen as opportunity to voice ideas to quality improvement. *"It is really open; I can even address problems to the director of the hospital"* (R11) or *"I think everyone at [medical specialty] is very approachable. Everyone addresses one another by their first name. Also the professor. That makes it easier to speak out: why are we doing it this way?"* (R10). This open culture thus promotes that residents speak out.

Contrastingly, one resident is motivated by the fact that the opportunities are not available: *"I like my job. In most of the times everything goes well. But it should not go too easy, because than there is no challenge. I like challenges."*

6.2.3 Conclusion

Through snowball sampling I discovered that professional brokerage is enacted in health care organizations by medical doctors in training. The examples show that organizations can profit from their effort. They bring in new technologies, suggest more effective cooperation, they initiate new conversation structures to discuss medical knowledge effectively or they suggest new and efficient methods to do patient visits, think how patient information can be displayed more patient friendly. Although the effects of professional brokerage are not measured, their stories reveal that it contributes to enthusiasm and positivity. Their effort might be the first step to give meaning to the three transition in this study.

Foremost, professional brokers are intrinsically motivated to contribute to quality by means of sharing their ideas. This motivation might originate from visions on adequate care that transcend their clinical work of their professional domain and extend to an identification to how care can and should be organized. They developed 'tactics' via additional experience in boards or they followed courses within or outside the hospital organization to increase their understanding of organizational matters.

In the second place, the professional broker is proactive in connecting to others at the workplace. He/she speaks out the motivation for organizational activities, he/she actively engages with others and elicit others to share their vision on organization processes (through questions). They are the residents who obtained experience in boards, additional courses on organizational themes, which is seen as helpful. Their attitude is critical and they seem to be good observers to what is happening in clinical practice. Therefore, their abilities seem similar to that of a researcher.

In most cases, the opportunities to act as professional broker offered to the resident after he/she has indicated to be interesting. Although, it highly depends on the teacher who mediates the possibilities. There seems to be a shift towards more acknowledged and institutionalised hybrid roles. For example, that the resident work four days in the clinic and one day for management activities. Unfortunately, at the moment these possibilities are offered outside the system.

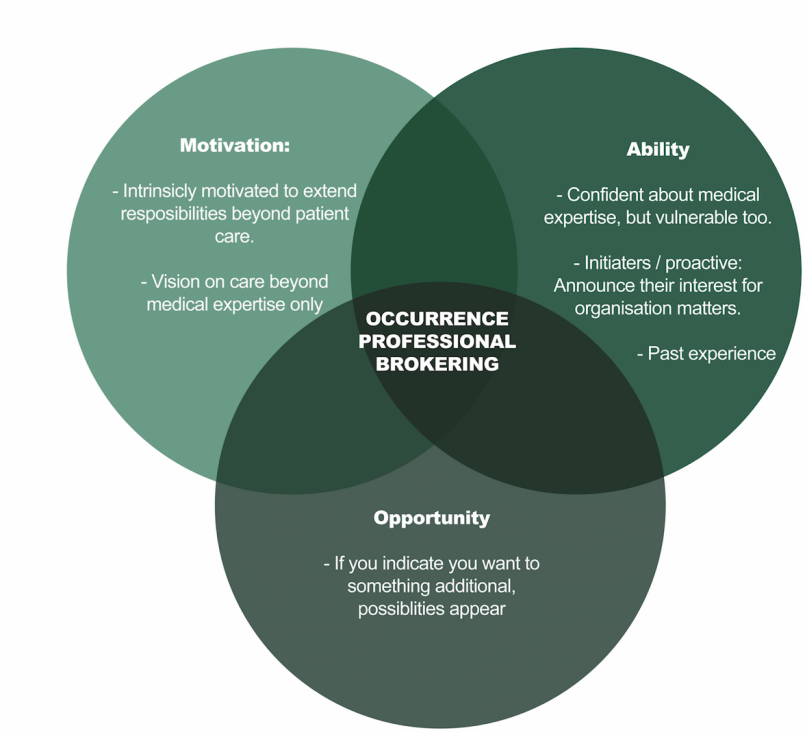


Figure 12. AMO model explains why residents act as professional broker

7. Conclusion

- "Inaction, apathy and indifference frustrate every process. The few passionate need to keep the system going. And I hope to be one of these, but that is not easy". (R8) -

This study attempts to answer the question: *to what extent, why and how do medical doctor act as professional broker in order to improve quality?* This main question consists of three sub questions to evaluate professional brokerage empirically: (1) to what extent professional brokerage occurs in clinical practice, (2) the reasons why professionals act as broker and (3) how they act as professional broker. This results in two stories: the unfortunate and promising narrative, with a balancing act in the end. Afterwards, I discuss the implications for the theories used in this study, the implications for future research and I end with considerations for practitioners.

7.1.1 The unfortunate story: The extent of professional brokerage and why residents do not improve quality (sub questions 1 and 2).

First of all, based on the observations and interviews I conclude that professional brokerage is valued but is not something part of *daily* clinical practice of doctors. This insight gives us perspective to the extent to which professional brokerage in clinical practice occurs (sub question 1), which seems to happen infrequently. The clinical practice is, nonetheless, characterised as knowledge intensive. Throughout the day's medical doctors share and obtain medical knowledge to increase their medical expertise. Moreover, this medical knowledge informs their decisions regarding the diagnoses and treatment of patients. Nonetheless, this can be challenging, when e.g. supervisors are not accessible or when they cannot attend education meetings because of delays. In contrast, sharing organizational knowledge across professional boundaries is rather a side-project and it is therefore not self-evident that residents contribute to quality. Contrastingly, this study shows that professional brokerage is even discouraged in the clinical practice of hospital organizations.

Therefore, the second sub question should be formulated negatively instead of positively: *why is professional brokerage absent?* The empirical data provide insight in discouraging mechanisms, which are demotivation, inability and no opportunity (DIN). This is inspired by a reversed version of the AMO-model, which explains the absence of extra-role behaviour in this case: professional brokerage. First of all, residents are motivated to increase medical expertise and rather *demotivated* to contribute to organization improvement. Obtaining and having medical expertise gives residents status, they get excited about discussing complex patient cases and they are evaluated by others at their level of expertise. In addition to medical expertise as priority, the identification with the division as a whole is demotivated due to short duration of their internships. Along with the perception on complexity of organization policies and time constrains, residents have the idea that they cannot effectuate their knowledge in quality outcomes in clinical practice. Thus, the benefits of their effort to act as professional broker are not materialized and that withhold them to act as professional broker.

Second, the organization logic is not automatically taught in formal training programs and, similarly, also not at the start of their internship. Developing knowledge about organization matters can be obtained by means of external side projects (membership in boards or extra courses). For this reason, they do not always know what channels are available to broker knowledge and might not observe what problems and solutions

exist. Due to time constrains, the resident might not commit himself to these side activities. That may be a reason of the *inability* to observe and give meaning to organization matters.

Moreover, they do not always have a direct *opportunity* to address problems to other professionals. The residents voice is formally heard and represented during education gatherings, where they also share ideas for organization improvement. The introduction of the Ponder & Improve program is an explicit initiative in the direction of residents' involvement to improve quality. However, residents are not automatically included in organization broad (policy) meetings. It depends, therefore, on the supervisor or medical teacher whether residents' knowledge is mediated to other professionals in the organization. Then the teacher act as professional broker, but residents do not. Additionally, the frequency of these gatherings on behalf of organization improvement is often bi-monthly, which demonstrate that improving quality is valued but not part of daily work. On top of that, the physical separation in the hospital has as effect that residents do not always have informal opportunities to share knowledge across their professional domain.

7.1.2 Why residents - despite discouraging mechanisms - still improve quality and how they do that (sub questions 2 and 3).

This study, however, has discovered that, despite discouraging mechanisms, professional brokerage can still occur and has a promising effect on quality. In practice I identified professional brokers – via snowball sampling - who attempt to improve the quality of their work and even impact the entire hospital organization, without holding a formal 'management' position and thus besides their clinical duty. Examples of professional brokerage are that residents bring in new technologies, suggest more effective cooperation, they initiate new conversation structures to discuss medical knowledge effectively or they suggest new and efficient methods to conduct patient visits and even think of ideas how patient information can be displayed more patient friendly. The examples of professional brokerage seem to prove doctors' responsiveness to transitions formulated in paragraph three: (1) the increasing complexity and uncertainty of his clinical work, (2) the changing relation with patients that required transparency and client-oriented practice and (3) the accountability and efficiency demands of the organization. Therefore, the empirical data also provide insight in the meaning of professional brokerage as activity in clinical practice (subquestion 2).

Although quality outcomes are not measured in this study, the stories of residents reveal that their organization knowledge is embraced by other professionals who are enthusiastic and positive too. In turn, that relates to our definition of quality which centralizes the aspirations of clients and staff. New conversation structures are still used on a structural base, which is similar to new technologies. The potential of professional brokerage seems positive and might be the first step to give meaning to transitions in their work.

While the DIN-model explained the absence of professional brokerage, the AMO model in his regular fashion can explain why and how professional brokerage still occurs (sub question 1 and 2). Foremost, professional brokers are intrinsically *motivated* to contribute to quality improvement by means of sharing their ideas. This motivation might originate from visions on adequate care that transcend their clinical work of their professional domain and extend to an identification to how care can and should be organized. This notion points to high levels of public service motivation.

In the second place, professional brokers developed organization knowledge and skills via additional courses and experiences in boards and put extra time in developing these *abilities*. In practice, the professional

broker is proactive in addressing others. He/she announces his motivation to deploy organizational activities to the teacher/supervisor. They actively engage with others through informal (humoristic) contact during clinical practice. Most important, the broker seems to adopt a research attitude: he observes, learns from past experience at different divisions, is critical also on his own (medical) action and he elicits other professionals to share organization knowledge by means of asking questions. These aspects thus sightly reveal how professional brokers act (sub questions 3).

Thirdly, the *opportunities* seem to be offered when the resident announces his motivation. It depends, nonetheless, on the teacher whether he/she offers possibilities to engage in organization activities. The medical expertise must be trusted before this opportunity to organization responsibilities is offered. The dynamic context of this study shows that a shift is evolving towards more acknowledged, recognized and institutionalised hybrid broker roles, which means that the resident obtains responsibilities and time to devote attention to organization activities apart from clinical work. At the moment such hybrid roles are rare and in some cases designed outside the system. For this reason, hybrid broker roles among residents (clinical tasks -managerial tasks) are seen as an untapped opportunity and ability to potential quality.

7.1.3 Balancing the unfortunate and promising story

This study shows that the two stories deepen our understanding of professional brokerage among residents. One unfortunate story of residents who do not contribute to quality because they are discouraged by their institutional context. But also the promising story of the residents who are agents for change and want to improve the quality of their work. So *to what extent, why and how do medical doctor act as professional broker in order to improve quality?* I conclude that professional brokerage is valued but not something that is part of *daily* clinical practice of medical doctors. That act is rather discouraged than stimulated. Nonetheless, the positive side of this story is that there are still passionate brokers who are able and motivated to improve quality of care. The opportunities are, however, not always available or promoted. To express their spirit, they sometimes need to 'fight' for opportunities to act as professional broker. Increasing the opportunities should, therefore, be considered when stimulating professional brokerage.

7.2 Theoretical implications

The implications to theory are threefold. Firstly, it contains a reflection on the DINAMO model, which was used as mean to explain the reasons (why) for and tactics (how) of professional brokerage activity. Secondly, professional brokerage is an embodiment of organizing professionalism and this perspective is evaluated accordingly. Thirdly, knowledge management literature is the last theoretical contribution. We explore this more in depth below.

Firstly, the DINAMO model is a suitable perspective to investigate and structure the institutional context of professional brokerage. It answers why (motivation) and how (ability) medical doctors act as professional broker and also provide insight in the institutional context of brokerage, which was under researched (Currie & White; 2013; Kislov et al., 2016). This study shows that the AMO model is a useful framework which can provide aspirations and theoretical angles for more effective brokerage in organizations.

The DIN in addition to AMO shows that there are two sides of the coin: it explains the absence and occurrence of professional brokerage. In addition, the model reveals information on how power is enacted in the

institutional context of health care organizations. For example, the external pressure of evaluation and status as mechanism to focus mainly on the development of medical expertise. On the other hand, professional brokers are tricking reactions via questions and use their past network to take others on board in change (Flyvbjerg, 2001). The DINAMO model also combines the agency and structure. On the one hand, the individual himself can announce his motivation and proactively share ideas. On the other hand, absence of education and disconnection from organization meetings show that the structure does not always ensure that individuals will act as professional broker.

Secondly, professional brokerage is an embodiment of the organizing professional and with the findings I aspire to contribute to the debate on perspectives on professionalism (Noordegraaf, 2016). First of all, these discouraging mechanisms - described in chapter five – seems to position the resident along the principles of pure professionalism. It is still the dominant view on what doctors seems to do. The ones who can 'manage' a high level of medical expertise and competence, are taken seriously, have the status or authority. Sharing information and knowledge on behalf of innovation and quality seems unpopular and complex (see also Kimble, 2010, p. 433). For this reason, pure professionalism seems to be a perspective that still forms the core of the medical doctors' identity.

Nevertheless, this study shows that there are residents who are willing and able to improve quality in addition to their clinical tasks. Organizing professionalism (beyond hybridity) seems a feasible approach to residents to give meaning to improve quality, apart from their focus on medical expertise. However, professional brokerage is perceived as an additional but not substitutional action. The findings are interpreted by using the AMO-model (without applying this discourse prior to data collection, see also Flybjerg, 2001) which is a suitable perspective to understand the occurrence or professional brokerage. The AMO model on its turn confirms that professional brokerage is extra-role behaviour. This perception - of extra-role behaviour - marks that professional brokerage is still not something embedded within professional action. For this reason, empirical reality shows that perspectives on professionalism (such as pure and organizing professionalism) are rather complementary then substitutional. The embedding of brokerage could be stimulated when the resident obtains opportunities to devote attention to organization activities. Do we, therefore, need to increase the opportunities to this willing and able individuals?

Hybrid broker roles are than seen as valuable opportunity, which can offer the opportunity to more professional brokerage. This study shows that residents rarely take on any forms of hybrid broker roles; they never combine the role as clinician and manager simultaneously (Kislov et al., 2016; Waring et al., 2012). This role is often attributed to attending specialists. Residents with hybrid roles participate in boards that represent interests or side (research) projects. This is often voluntary, additional to their clinical work and their participation is limited due to time pressure. This hybrid role can be considered as quasi-managerial, which refers to more informal responsibilities in areas of management (Kislov et al., 2016).

Nonetheless, empirical studies have shown that hybrid roles are the panacea for bridging the professional and managerial interests (Currie et al., 2016, p. 149; Waring et al., 2013). Therefore, more recognized hybrid roles can be a valuable opportunity to residents, where they obtain recognized time during their training to deploy responsibilities in managerial areas. The infrequency of professional brokerage in daily clinical practice strengthens the idea that designated time besides clinical work might be a solution to more professional brokerage. On top of that, in accordance with Knies (2012), if the organization increases the

opportunities for combining the professional and managerial logic, it would also meditate via motivation to outcomes as quality. In other words, this means that when the health care organization offers opportunities to act as professional broker, this might increase their motivation. If the health care organization really values quality than it should increase the opportunities and re-design structures to do so.

Despite this contribution of knowledge management literature (hybrid roles), also another contribution to knowledge brokerage is needed. Sharing knowledge is disconnected from taking responsibility and action. Although policies are better informed by resident's contribution via sharing their knowledge, this does not need to result in action or better performance. Examples show, however, that professional brokerage increases the satisfaction among staff. If no action will take place or when residents do not obtain the responsibility for the implementation of their idea for better quality, knowledge sharing in itself seems useless.

7.3 Limitations and implications for future research

This research explored the concept of professional brokerage. Observations and interviews enabled me to understand the concept. However, whether knowledge sharing across boundaries really effectuates outcomes as patient safety and effectiveness, is not empirically tested. Although some signs in this study show that aspirations of staff (and patients) are met, further research should investigate and test whether this activity contributes systematically to quality. Besides, how many professional brokers are desirable in your team or at your division? Future research can draw further on this exploratory research. The professional brokerage model (figure 4, p. 25) can be used for further quantitative evaluation. But also other professional domains can be considered; for example, lawyers or teachers who contribute to quality by means of sharing knowledge. In accordance with Curie & White (2012) I also recommend mixed-methods design to keep close to contextual factors.

Different contexts play a role in this research and determine whether professional brokerage is stimulated or discouraged. Often surgery as specialism was considered by residents as an interesting and even extreme case. They always had a negative vision on surgeons, that they only wanted to act in the operation room and do nothing else. This surgery context was not considered in this research. Therefore, it is questionable whether the results are meaningful to other situations. Rigorous comparison between cases/contexts would enhance the quality of future research to professional brokerage.

Furthermore, this study did not meet one characteristic of *phronetic science* (Flyvbjerg, 2001), that of dialoguing with a polyphony of voices. I exclusively focussed on residents. And as I concluded and observed, professional brokerage can be acted by nurses too or other care providers apart from doctors. The exploratory interviews gave more space to the diversity of doctors (it included clinicians, teachers, professors, clerks, ANIOS), but the scope should be extended towards other (non-medical) care providers. On the other, this research might empower residents' perspective in an environment which does not automatically include their voice. Future research can also include a wider range of professionals to facilitate this polyphony of voices.

7.4 Practical implications

The advantage of the AMO model is that the model is studied in relation to Human Resource practices and people management. This means that this model can be related to practices as training, coaching and selection and that leaders can also play an important role in facilitating extra-role behaviour (Knies, 2012). These

instruments can be related to spheres as motivation, ability and opportunity, which can accordingly contribute to more professional brokerage. I will discuss here some implication for the organization and professional broker.

Firstly, fragmented perspectives on adequate professional action seems to be the reality. For that reason, it is not feasible that everyone needs to become a professional broker. This has consequences for the resident as well as the organization. Firstly, when residents want to start their postgraduate education they have to choose for a specialism. I recommend in addition to that, more awareness to what kind of doctor they want to be: do they want to focus on research, organizational responsibilities, education or just their proficiency as clinical doctor? That means that doctors need to reflect early on in their study about suitable and desirable professional identity, as in accordance with Cruess (2015). The ideas that not everyone needs to be a broker, requires a focus on diverse composition of the pool of residents might be helpful. The pool of residents should always contain residents who wants to act as professional brokers, the ones who wants to manage, to do research or do education etc. This might affect the recruitment and selection of new residents.

Secondly, the opportunities towards more organization responsibilities could be promoted and further facilitated. The Ponder & Improve (PIMP) program is one of these opportunities that stimulate residents to share their organization knowledge about clinical practice. The dynamic environment in which this research takes place also reveals that some hospitals already attempt to facilitate more opportunities in practice to enable more professional brokerage. One of the hospitals will experiment with a *day start* coming months. Everyone involved in that division is present and can bring in knowledge to improve quality. This might result in several interventions to improve the processes (E9, R10). Another program enables clerks to write a paper with the topic: *what would I change if I was the manager/leader of the division?* Students are then encouraged to develop organizational awareness. On top of that, this hospital implements a new training program that allows the resident – early on in the training – to spend one weekday to organization activities, or research, or education, in addition to four days of clinical work. The hybrid role of clinical and managerial responsibilities (hybrid roles) becomes than institutionalized, which is perceived as pivotal to quality enhancement. For the professional broker himself I recommend that he/she speaks out his/her intrinsic motivation to organization activities. If you want to contribute to quality of your work, please do. *Nothing is more powerful than people who do what they do, because they want to* (Bregman, 2016).

7.5 Epilogue

To conclude, my normative judgement after all would be that in order to improve quality of care that medical doctors - who are motivated and able to act as professional broker - should be given the opportunities to do so. This motivation and ability on its turn can only be incentivised when there are opportunities (time, resources, education) available which are directed towards quality enhancement. Only then professional brokerage becomes embedded in professional action, like the dynohub which places connection at the centre of the wheel.

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9. Appendix 1: Topic List

- **Focus:** knowledge sharing across professional boundaries aiming for quality improvement
- **Recording interview**

Introduction

- What activities do you employ regarding organization level?
- What do you do differently from others? Why is that?
- What do you do to improve organization processes in daily practice? Examples?

Quality improvement

- What do you want to improve? What problems do you face?
- Can you take me with you when you want to improve something? How do you do that?
- Do you think organizing/improving processes is also part of your work?

Professional - Management

- When do you contact the manager? For what reasons? What do they do?
- What gatherings are there on organization level? Which ones are accessible to residents?
- How are you involved in policy making / management decisions?

The ability, motivation and opportunity category was only added in later topic lists.

Ability

- What is your experience with organization courses/skills?
- How do you connect to other professionals?
- How are you socialized at the start of your internship to organization matters in clinical practice?

Motivation

- What motivates you to contribute to quality improvement?
- Proactive behavior is not always acted (short term involvement / nothing changes), why is that? Why do other not act proactive?

Opportunities

- Focus on research, what possibilities are there to fulfil the role as manager? Or if you want to contribute to organization matters? (hybrid roles?)
- Do you have the impression that you can contribute to organization change?
- How to balance clinical practice vs management activities?

Role model

- What is according to you a role model resident / clinician? Why?

Appendix 2: Axial Coding

- Discouraging mechanisms (DIN)
    - Demotivation
        - Short term commitment
        - Avoiding vulnerability
        - Different interests / Low priority
        - Extra / additional
        - Focus on research – specialization – clinical action
        - Idea of no impact
        - Too complex
        - Tenure to long
        - Future career
    - Inability
        - Absence education
        - Tension of evaluation
        - Passive coping
    - No opportunity
        - Absence platform
        - Culture
        - Future career
        - Absence hybrids
        - Indirect
        - Learning by coping
        - Negative atmosphere
        - Physical separation

- Professional brokers (AMO)
    - Ability
        - Agenda setters
        - Coalition builders
        - Confident about development
        - Correctable
        - Critical
        - Direct
        - Expertise
        - How
        - Intuition
        - Observer
        - Openness + Respect
        - Peripheral-Legitimate-Theory
        - Research to investigate problem
        - Selection
        - Sensitivity
        - Speak out motivation
        - Stimulate others to broker
        - Vulnerable
    - Motivation
        - Dislike research
        - Exploring motivation
        - External motivation
        - Intrinsic motivation
        - Personality
        - Moving away from clinical practice
        - Variety
        - Vision
    - Opportunity
        - Change in discourse

        - Credits
        - Culture
        - Education (organizational courses)
        - Experience boards
        - Experimenting
        - Explicit
        - Hybrid role
        - Informal atmosphere
        - Learning
        - Outside system
        - Platforms – organisational
        - Platforms – medical knowledge
        - Representative residents
        - Socialization
        - Space (rewarded for management activities)
        - Teacher
        - Work-life balance
- Outcome professional brokering
    - Efficiency
    - Effectiveness
    - Happy workers
    - Quality
    - Safety