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Cross-boundary relationships

The object, the social, and the health professional

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Faculty of Social Sciences and Technology Management
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Trondheim, November 2008

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"Objects. There are many objects here."

John Law in *"Objects, spaces and others"*, 2000

"Subject and object are only one. The barrier between them cannot be said to have broken down as a result of recent experience in the physical sciences, for this barrier does not exist"

Erwin Schrodinger in *"What is life"*, 1967

"People persist when they don't trust the person who tells them to change… …given the central role of tools in defining the essence of a firefighter, it is not surprising that dropping one's tools creates an existential crisis. Without my tools, who am I? A coward? A fool? …Tools and identities form a unity without seams or separable elements."

Karl E. Weick in explaining the death of 13 firefighters at the Mann Gulch disaster, 1949. Their leader's command of "**Drop your tools!**" when trying to outrun a forest fire could have saved their lives. They refused to follow his order and perished in the fire. In *"Drop your tools: An allegory for organizational studies"*, Administrative Science Quarterly, pp301-313, 1996 June.

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My supervisors deserve a special acknowledgement. Both have devoted valuable space and time in their already packed diaries. First of, I would especially like to thank my supervisor Endre Sjøvold for his continuous support, both professionally and personally. His positive attitude has made it possible to achieve the many sub-goals of a PhD thesis, and it's fair to say that without him these years would have been darker and more difficult. Beside Endre's many excellent characteristics as a scholar, I have valued the most his ability of always being available, always being interested, always pushing forward, and always being constructive. And, above all – always with a smile! Second of, I wish to thank my co-supervisor, Roger Klev. Roger has often surprised me with his clarity and intellectual insights, which have offered invaluable inputs to my writing process. Let me add that Roger too has a remarkable ability of always approaching situations with a glimpse of humor and smile.

It is often normal in the acknowledgement section to state that without this and that person, this product would not have been attainable. This goes without saying for Endre and Roger. I would in addition thank these two for learning me how to be a scholar and how to use the analytical (and often theoretical) spirit of an academic in the world of practice – in other words how to *be* a PhD and not only *have* a PhD. Dealing with organizations is often more art than science (the first is sadly a compromised part of a PhD education in favor of the latter), but Endre and Roger have offered me insights also into organizational art, not only delving with organizational science. I believe the strength of a being a PhD in this field, is the ability of knowing both, and surely also how to apply both. The founder of Administrative Science Quarterly, James Thompson, once stated as one of four imperatives for administrative science, that knowledge should be preserved in abstractions (and thus not need to be reinvented for each new local situation). Being a PhD in organizational studies is the ability of abstracting knowledge from local situations, but also to apply general knowledge to practical and local situations. Endre and Roger have taught me this important asset.

I would also like to give a special thanks to fellow PhD colleague Roar Stokken. We have followed

each other mostly in theoretical but also sometimes in empirical ventures. Our discussions have sometimes been quite lofty (especially in our own minds), and it must have been hard for outsiders to grasp the importance and value of our conversations. However, I have learned that if an argument or proposition is not rejected by Roar but acknowledged as plausible, it is worth to develop. Roar also deserves a special thanks for reading many of my texts, and offer valuable corrections.

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Trondheim, 10.10.08

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Frode Heldal

Synopsis

This thesis is about how health professionals at hospitals collaborate across professional boundaries. Societal and political reforms demand for more transparency and efficiency in health care work, yet history tells us that the professional practitioner resists external accounting. They are not used to open up their professional boundaries for neither insight nor outsight, and too much pressure may risk to strengthen the boundary instead of soften it. Due to the rising complexity in many of these services, there is a growing attention towards how management and patients can account the professionals' work. This is often combined with the notion that teams comprised of different professions have a great potential in terms of efficiency. Due to these two aspiring developments – claims of interdisciplinarity and accountability – health professionals need to work with an outwardly rather than inwardly focus.

In other words, health professionals need to construct, build and sustain relations and relationships that extend across their professional boundaries. In this thesis, I pursue the empirical quest of how health professionals do this by employing contributions from two theoretical strands. The first strand is that of team/group development and social relationships. I elaborate here on the meaning of sociality and different models of integration in a relationship. The other strand I draw upon insights from, is Science and Technology Studies; and in particular the notion of objects as mediators of social relationships. The concept of *boundary object* is elaborated upon and argued to be an important asset in cross-boundary collaboration.

Drawing on this theoretical elaboration, added with findings from the papers, I introduce the concept of *cross-boundary relationships*. A cross-boundary relationship is a relationship that is tightly integrated across the professional boundary. The cross-boundary relationship emerges when health professionals are able to see interactions across the boundary as meaningful, mutually influence and share decisions across the boundary, and finally interpret the boundary itself as an implicit part of the relationship. Boundary objects and social relationships are argued to be an important part of this

becoming.

The main contribution of this thesis is to show how health professionals can collaborate cohesively across their professional boundaries. Previous research tend to focus on the work professionals exert to upheld their boundaries, or merely describe interprofessional collaboration at a conceptual level. I show the value in focusing on cross-boundary *collaboration* rather than boundary work, and model how such collaboration in a practical setting may look like. The concept of cross-boundary relationship encompasses this idea.

List of papers

Heldal, F. and Tjora, A. Hn (2008) *Making sense of patient expertise.* Social Theory & Health, forthcoming

Heldal, F. and Steinsbekk, A. (2009) *Health professionals' perceptions of patient knowledge and involvement as basis for decision-making. A qualitative study of the view of health professionals in a Norwegian haematology unit.* Oncology Nursing Forum, forthcoming

Heldal F. *Multidisciplinary collaboration as a loosely coupled system: integrating and blocking professional boundaries with objects.* Under review

Sjøvold E., Heldal F., Andre B., Lium J.T. *Interdisciplinary teamwork in hospitals - the effect of professional cultures and organizational artifacts.* Under review

Table of tables and figures

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Part II – the papers

1 Part I - Introduction

In this thesis I investigate how hospital health professionals may cross their professional boundaries. Today there is a growing pressure from clients, society and management to the health professional actor towards working more collectively and collaborate more. In this thesis, I adopt the basic assumption that such collaboration is a question of relationships. Collaborating across a professional boundary is therefore about constructing a cross-boundary relationship. I also adopt the assumption that this is a matter of integration, and that benefits from cross-boundary collaboration are rooted in more integrated relationships. I will introduce the concept of *cross-boundary relationship* to denote a relationship across a professional boundary that is tightly integrated and adapted for collaboration.

The thesis is a collection of papers, which will be presented in part II. I will first introduce a contextual background for my research study, focusing on professional boundaries and how they emerge at hospitals (chapter 2). The aim of this chapter is to show how these boundaries surface in many forms, but that they in essence confine professional autonomy and knowledge. This chapter is mainly drawing on theories from health sociology. In chapter 3, I introduce theories that focus on relationships. More specifically, I draw on two theoretical strands; one strand that focuses on social relationships, the other on objects that mediate human relationships (boundary objects). Both of these strands are used and have been used as organizational theories and have been put forward as important in collaboration across boundaries. I show in this chapter how they may be understood in confluence. Then I describe my scientific reasoning and methodological assumptions in the thesis (chapter 4). The argument I develop here is based on critical realism, and also closely

related to the theories of objects that I use. The papers are then presented in chapter 5. In chapter 6, I draw on previous theoretical presentation and findings, and then draw my conclusion in chapter 7.

1.1 Paper abstracts

Paper 1: Making sense of patient expertise

Abstract: Although health personnel today have to relate to a complexity of different patients and patient roles, patients have tended to be viewed as either active or passive. In this paper, we investigate how one unique patient was able to defy advices from his treating doctors and nurses, yet maintaining a viable relationship with them. We argue that this patient's ability to draw on heterogeneous resources may have enabled his unusual trajectory. On the basis of interviews with relevant health personnel and the concept of sensemaking, we elaborate on how relationships between health personnel and patients emerge from a complex network of ICT, power and 3rd party actors. We conclude that the active patient is an emergent relationship, rather than a singular entity of knowledge and power.

Paper 2: Health professionals' perceptions of patient knowledge and involvement as basis for decision-making. A qualitative study of the view of health professionals in a Norwegian haematology unit

Purpose/Objectives: The aim was to investigate how health professionals perceive patients with different levels of knowledge and involvement and how this influence shared decision-making.

Design: A qualitative, exploratory approach based on semi-structured interviews.

Setting: Haematology health professionals in Norway.

Sample: 10 health professionals; 5 nurses and 5 doctors.

Methods: Semi-structured interviews were conducted, recorded on audio-tape, transcribed and analyzed using qualitative techniques.

Findings: The professionals in this study perceived that they had a stable basic relationship with patients and simultaneously were flexible towards patients with different levels of knowledge and involvement. The health professionals' perceptions of patients with different level of knowledge and involvement were grouped into four patient types: The passive, the withdrawn, the uncooperative and the 'expert' patient. These perceptions formed the basis of relationships involving shared decision-making or non-shared decision-making. Patients perceived as having medical knowledge were also perceived as capable of being involved in decision-making.

Conclusion: Patients' ability to master medical knowledge is important for how health professionals allow them to involve themselves in decision-making. Health professionals' tendency to see relationships with patients as basically asymmetric and stable may inhibit the possibility for other patients to involve themselves in decision-making.

Implications for nursing: The findings in this study can be used to raise awareness of the relationship between how nurses perceive patients with different levels of knowledge and involvement and implications for shared decision-making. Nurses should be aware of a tendency to exclude patients from decision-making if they perceive patients as not capable of involving themselves.

Paper 3: Interdisciplinary collaboration as a loosely coupled system –
Integrating and blocking professional boundaries with objects

Abstract: In this paper, I apply the concept of loosely coupled systems to describe multidisciplinary collaboration in healthcare. It is further argued that tools employed in collaborative activities may be regarded as object components of such a system. Drawing on ethnographical studies and interviews of a group of health professionals from different disciplines collaborating on breast cancer, it is argued that differences in use of such objects may either inhibit or encourage cross-boundary collaboration. One important reason is how the meanings of these objects vary or not within collaborative interaction. Meaning variation allows for more integration across boundaries, while meaning immutability may block the same boundaries. This finding is important for multidisciplinary contexts, adding new knowledge to the important quest in integrating relationships across professional boundaries.

Paper 4: Interdisciplinary teamwork in hospitals – the effect of professional culture and organizational artifacts

Abstract: Increasing challenges and changes are facing the health care sector and hospital organizations. Organizing in interdisciplinary teams is often suggested as a mean to meet these challenges. Establishing such teams is difficult in hospital organizations due to static borders between groups of professionals. Such differences may be caused by distinct different professional cultures, organizational structures or established professional behavior. Given the nature of organizational culture, creating interdisciplinary teams across cultural borders is a serious challenge compared to removing structural or behavior barriers. This study aims to investigate cultural differences between 169 physicians and nurses in six Norwegian hospitals. The

Systematizing Person-Group Relations instrument was used to identify cultural differences between these two groups. The results show that there were found tendency and significant differences between the two groups. Physicians experience their culture as more empathic and whit more enthusiastic and engaged colleagues than the nurses who describe the culture characterized by more caring, but also by more criticism and assertiveness. The nurses experience a lot more friction in collaboration than the physician colleagues. The differences found between the physicians and the nurses seem to be of a more structural character then cultural. This is promising for future work with interdisciplinary teams at hospitals.

1.2 How to understand the cross-boundary relationship (or how to read this thesis)

The thesis present important findings that can add to existing knowledge on boundary work in professional contexts. Previous research on professional boundaries acknowledges professional boundaries as a dynamic entity, i.e. they are constantly rebuilt or moved. However, lesser attention has been offered to the way professionals collaborate across these boundaries. In this thesis I show the value in looking at professional boundaries as not only being narrowed or broadened, softened or hardened. By looking at how boundaries are *crossed*, I turn the focus towards the relationships across the boundary. By using the term *cross-boundary relationships*, I show the importance in understanding how differences in these relationships either sustain or compromise collaboration.

The purpose of this study is to investigate the health professional and how he/she relates to other people, entities or objects that do not belong within his/her

professional boundary. In a collaborative context, such relationships are argued to be of an integrated character. This is the essential idea by the coining of the term *cross-boundary relationship*. I have chosen to focus on essentially three categories, which will be explained more in detail as follows:

1. Patients – Health professionals relate to patients. As will be explained more in detail later in this text, is this a cross-boundary relationship because the patient perspective is different from the health professional's, and always will be. For instance, take two human beings, the one being a doctor or a nurse and the other a patient. These two persons have a close relationship and can possibly obtain a very close understanding of each other. But it will be always be the patient who is sick, with all the subjective emotions and tacit understandings that follow. These will in different degrees influence the objective understandings of a disease that is available for the health professional. Some of this difference is very well conveyed in the difference between the words *illness* and *disease*. An old saying goes "I entered the doctor's room with an illness, and exited with a disease". Health professionals are in turn professional actors, with much of their work being tacit and unexplainable. The chasm between doctor and patient can be diminished, but will because of these reasons always exist.

2. Objects – Health professionals relate to objects. The work of a modern health professional is often involving working with different representations of the disease a patient has (this is often more the case for doctors than nurses). For instance will cancer patients often be subjected to taking different kinds of pictures of the inside of their body (x-rays, MR, etc.). Doctors work directly

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with these representations when trying to understand what is the cause of a patient's symptoms. Likewise they relate to different kinds of samples that are taken from a patient, the medical record, different instruments, and much more objects. This relating is a cross-boundary relationship when the health professional needs to relate to objects that do not belong within his professional domain. As for instance is the case in my paper 3, where a radiologist has to understand the cell-samples of a cytologist.

3. Health professionals – Health professionals relate to other health professionals. As will be explained more in detail later, is the complexity of modern treatments often involving the contribution of several disciplines. As for instance in the treatment of breast cancer, a well-defined disease but (at least in Norway) not done by a single profession but three, sometimes four different professions (radiology, cytology, surgery and oncology). Added, doctors and nurses approach patients in a different way. They may have the same goal of getting the patient well, but different ways to achieve it. A rough distinction is to say that doctors are responsible for the cure, while nurses are responsible for the care (Glouberman & Mintzberg, 2001a); or that doctors treat the disease while nurses treat the patient (Steinsbekk & Launso, 2005); or that nursing is in general a holistic approach while medicine is a reductionist (Melby, 2007). Cross-boundary relationships are therefore to be found between health professionals from different disciplines working together, as well as between doctors and nurses.

This conceptual idea is shown in figure 1.1. It forms the basis for the research questions of each paper – how do health professionals relate to patients? (Paper 1 and

2); how do health professionals relate to objects? (Paper 3); and how do health professionals relate to other professionals? (Paper 3 and 4).
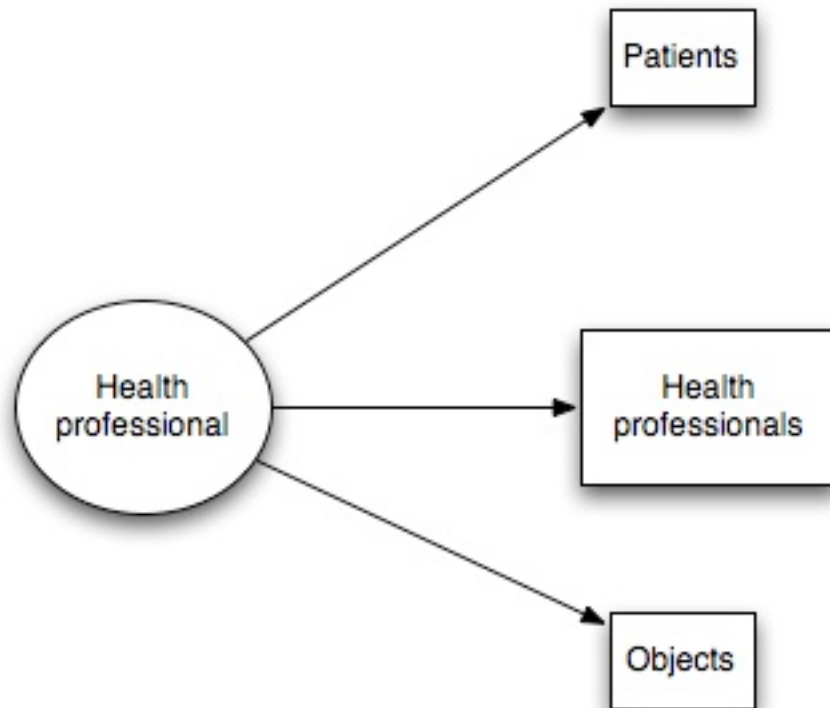
Figure 1.1: Conceptual idea of the cross-boundary relationship

Now, this idea may seem simple and intuitively easy to understand. As will be discussed more at length later in this thesis, is the concept not that straight forward. The different relationships sometimes need to be understood as a complex web of connections, where different entities mediate relations with other entities. For instance will nurses spend more time with each patient than is possible for the doctors, simply because there are more nurses than doctors. It is normal then that the nurses communicate their opinions of the patients to the doctors. The doctors then need to relate to both their own opinion of the patient, as well as the nurses'. Nurses then

mediate a relationship between the patient and the doctor. Another, and intuitively more indirect mediation of relationships, is that which occur between health professionals and objects. When health professionals relate to different representations that are not part of their own professional domain, the object becomes a connection across the professional boundary. As for instance when a team of breast surgeons is shown the position of a breast lump by a radiologist. This is often not a straightforward procedure, but involves quite a lot of explaining from the radiologist on what and why she sees cancer or not cancer. The surgeons need then to relate to the x-ray picture *as it is explained and put forward by the radiologist.* The picture then functions as a mediation of the radiologist perspective, and therefore a mediator of a cross-boundary relationship between the surgeons and the radiologist.

This idea is shown in figure 1.2. This is to be thought of as a development of figure 1.1.

Patients

Health
professionals

Health
professional

Objects
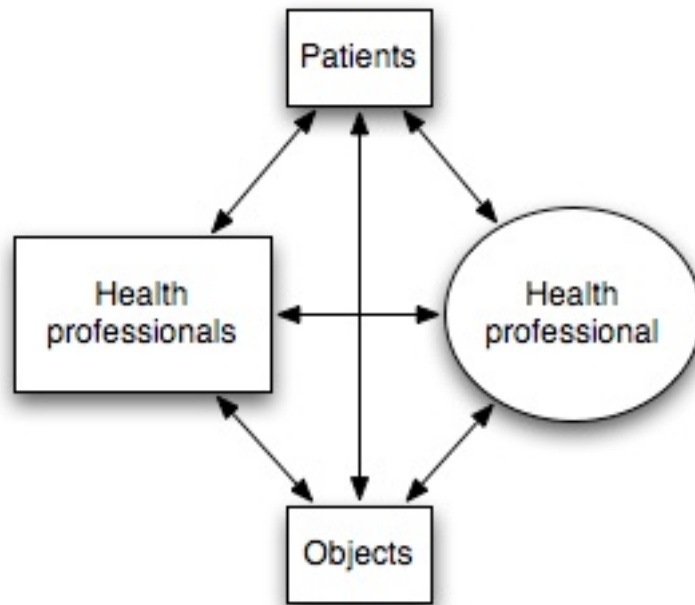
Figure 1.2: Conceptual idea of the cross-boundary relationship part ii

The structure of my theoretical chapter, which lays the basis for the discussion part, is intended to mirror this difference. I start out with explaining a cross-boundary relationship in its simplest essence, namely the social relationship. This relationship is a direct relationship between two human beings. Because these human beings are health professionals, I add the perspective of a professional context. I then develop this understanding looking at also mediating entities, focusing here on physical objects. The cross-boundary relationship is argued to be a mix of both social relationships and mediated relationships.

The knowledge accumulated from the papers on how health professionals construct cross-boundary relationships, is finally intended to be of value for health care managers. The studies form togehter a composite (not exhaustive) idea of how health professionals construct cross-boundary relationships in their medical practices. As will be suggested later, can this knowledge be of value to health care managers

needing to understand how health professionals either close or open up their

professional boundaries.

2   Contextual Background: Hospitals and Boundaries

Health professionals are professional practitioners. The history of the professional practitioner dates back to the medieval period, with the "original" professions of 'divinity', 'medicine' and 'law'. Since then, many other occupations, like nursing, accounting, teaching etc., have claimed the status of being a profession (Lauvås & Lauvås, 2004). The professional organization is a system based on the work and knowledge of professional practitioners. Hospitals have been put forward as the most important professional organization (Adler, Kwon, & Heckscher, 2007). I want to investigate how a professional actor collaborates with other actors in this system. The professional actor has, historically, guarded these actions well within closed boundaries. I will from now on refer to these boundaries as *professional boundaries*.

In this section, I will first offer a brief look at the generic professional organization and practitioner as a basis for understanding hospitals and health care professionals. Then I will review the professional health care practitioner and how professional boundaries at hospitals come into being. The main argument I will put forward is that these boundaries are drawn around autonomy and knowledge, and are deeply rooted in the core values of professional practitioners at hospitals. I also discuss briefly how management ideas fit (or do not fit) with the professional system.

2.1 The professional system

Hospitals are professional systems and the health care practitioner is a professional actor. They share thus some characteristics with other professional

systems and actors. In this section I will try to give a brief overview of the constitutions of such systems and actors, as a basis for understanding the boundaries of the health professional.

2.1.1 The professional organization

Organizations based on professional actors are made to gain persistence and order (Henry Mintzberg, 1979). Organizations with complex tasks that demand a special knowledge and skills from its employees often use professionals. These skills are often so specialized that the organization is structured around these skills. At a hospital, units are for example organized around the medical professions (with some exceptions). Scott (1982) has argued that the presence of professionals in an organization implies the following:

1. Professionals' opposition against bureaucratical rules
2. Professionals' rejection of bureaucratical standards
3. Professionals` opposition against bureaucratical surveillance
4. Professionals` limited loyalty to the organization

All these elements oppose the notion of administrative or managerial guidance. When or if administrational demands are conflicting with professionals' academic norms and autonomy, they are often neglected by the professionals. It is therefore traditionally thought that such steering should be avoided, and that the practitioners' freedom in such organizations should be encouraged (Adler et al., 2007). Some of these ways of non-conforming may be due to the complexity of tasks that are often contributed to such organizations (ibid). This complexity makes it difficult to standardize or making tasks routine. It also makes it difficult to account for

the practitioners' work. It is for instance difficult for an economist to assess whether a doctor has done a proper work or not. This assessment will have to be performed by another health professional.

Thus, an important element of these types of organizations is that methods of accountability and performance related indicators are difficult to employ. Organizations with a large number of professionals will therefore have a structure characterized by little formality, strong decentralization and strong specialization (Henry Mintzberg, 1979). This kind of structure is often nominated as *professional bureaucracy*". This structure and "way of organizing" may be said to have a root in the nature of the professional practitioner. The way he acts or performs within the organization forms the basis for processes and changes from the bottom and up rather than top down. For the professional organization, boundaries emerge as demarcations of knowledge or disciplines, and may be more salient and manifest than in other types of organizations. What may be seen as professional values and core assumptions may be understood as sustaining these boundaries between actors.

2.1.2 The professional practitioner

The professional practitioner is therefore a key actor, if not the key actor, in professional organizations. The distinctiveness of professionals' work has previously been characterized in terms of three main sets of attributes: task and expertise, organizational structure, and occupational values (Adler et al., 2007). These have been laid out differently by different authors, as is shown in table 2.1:

Table 2.1: Adapted from (Adler et al., 2007) - dimensions of "professionalism"

Authors	Expertise	Structure	Values
Abbott (1988)	Abstract knowledge	Exclusive occupational group	
Barber (1963)	A high degree of generalized and systematic knowledge	A high degree of self-control of behavior through voluntary associations organized and operated by the work specialists themselves	A high degree of self-control of behavior through codes of ethics Primary orientation to the community interest rather than to individual self-interest A system of rewards that is primarily a set of symbols of work achievement and thus ends in themselves, not means to some end of individual self-interest
Freidson (1992)	Knowledge and skill	Group organization Control over their own work	Commitment to and identification with work Symbolic rewards
Greenwood (1957)	Systematic theory	Community sanction Professional authority	Professional culture Ethical codes
Hall (1968)		Autonomy	Belief in self-regulation Belief in public service Sense of calling to the field Using the professional organization as a major referent
Middlehurst and Kennie (1997)	Claims to mastery over and practicing a discipline, skill or vocation Advanced learning, usually represented by higher education qualifications High-level intellectual	Independence and discretion within the working context	Claim to a "calling" Allegiance to an ethical framework and often specific codes of practice

	skills		
Parsons (1968)	Skills	Formal technical training requirements Institutionalized mode of validating both the adequacy of the training and the competence of trained individuals	Institutional means of making sure that competence will be put to socially responsible uses
Starr (1982)	Cognitive expertise	Collegiality	Moral orientation
Strauss (1963)	Expertise (i.e. specialized knowledge and skills that can be obtained only through training)	Autonomy	Responsibility to society for the maintenance of professional standards of work (code of ethics) Commitment to calling
Waters (1989)	Theoretical knowledge	Scrutiny of product Professional career Formal autonomy Formal egalitarianism/collective decision making	
Wilensky (1964)		Colleague control	Service orientation

Some elements retrace themselves with most of the authors: Professionals' knowledge is to a high degree based on specialized mastery and skills, they work autonomously, and they draw boundaries between themselves and the rest of the society[1].

Donald Schön (1983) has further pointed to the important aspect of practice for the professional practitioner. He argues that that there is a divide between professional art and science, where the latter is constituted of a technical rationality. The science part of professional expertise is heavily connected with theory, and also constitutes the explicit parts of professional expertise and therefore also what is

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[1] The organizational context may be thought of as a society

presentable for clients. However, as Schön contends, it is the professional art that constitutes the professional practice. The professional practitioner rarely performs routines exactly according to the book but makes local adjustments. This part of professional expertise is tacit, and therefore difficult to express. Although the work of professionals may be excellent, they are rarely capable of communicating what they have done (Ekeland, 2004). Schön explains (pp. 50):

"...even when he [the professional practitioner] makes conscious use of research-based theories and techniques, he is dependent on tacit recognitions, judgments and skilful performances…"

Professional practice thus tends to exclude actors outside a boundary of tacit knowledge. Clients and other practitioners do not easily cross this boundary, which has led to a notion of untouchability and professional power (Timmermans & Berg, 2003). It has also led to a difficulty of collaboration with these practitioners. Researchers often turn to the term interdisciplinary collaboration to describe collaboration across professional boundaries. However, this term arguably pays little attention to professionalism and the professional practitioner. In fact, we have limited knowledge on the complex phenomenon of interprofessional collaboration (D'Amour, Ferrada-Videla, San Martin Rodriguez, & Beaulieu, 2005).

Some reason may be that the issue of collaboration across professional boundaries is rarely an issue within the bulk of the literature. As opposed to co-operation and agreement, it seems to have been normal in the literature to emphasize precisely the notion that professionals build boundaries around themselves and their

practices, nominated as professioanlism[2]. Often is this done with an emphasis on conflict. Abbott (1988) points for instance to how professional jurisdictions are interdependent of each other, and how a move by one profession affects the other. He does not, however, intend a kind of co-operative relationship but rather a kind of hostile conflict. He states, pp. 86:

*"...it [a profession] cannot occupy a jurisdiction without either finding it vacant or **fighting** for it…"* [my emphasis]

He goes on to argue that in general one profession's jurisdiction preempts another's, and that professions are (pp. 87) "…*carnivorous competitors*…" that grow in strength as they engulf jurisdictions. Subordinate professions are lost to a dominant profession once they are sufficiently developed. Abbott concludes that this model seems appropriate for medicine. Freidson (1970; 1986; 1994) also emphasizes the importance of professional jurisdiction. He puts forward that issues of controlling work is a logical conflict between administrative personnel (Elliot Freidson, 1973). He argues that in a professional organization, it will exist a relatively stable modus vivendi that is however not without tensions between various professions and working groups. He also argues that professional workers' relationships with managers, supervisors and their directives elicit more tension than is the case for other working

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[2] There is a growing interest in concepts of interdisciplinarity and interprofessionality, and important exclusions from the conflict perspective will be presented in the next chapter. Research on interprofessional collaboration is all the same in its infancy compared to that of professionalism.

groups (ibid). Professionals' relationships with clients may be even more troublesome. Co-working with other groups offers a shared perspective based on working in the organization, which is not the case with clients. Freidson states (1986, p. 172):

"...All professionals control that relationship so as to be able to work in the way they find appropriate..."

It appears further as if conflict rather than collaboration has been of particular focus in health care contexts. Inter-professional conflict, especially in the field of health care, appears to be on the rise (Hartley, 2002). Such a conflict, especially between nurses and physicians, has developed into a significant problem (Bratt, Broome, Kelber, & Lostocco, 2000; Hilhouse & Adler, 1997). In fact, professional conflict has been one of the major distressors for nurses for many years (McVicar, 2003). If we judge from Abbott's and Freidson's most important assets of professionalism, this conflict issue may be due to professionals' trying to expand their professional boundaries in terms of jurisdictions and retaining autonomy over own work.

2.2 The health professional boundaries

Hospitals are by many viewed as the prime professional organization, with physicians as the most highly professionalized occupational category (Adler et al., 2007). In some of my studies I also include nurses[3]. Health professionals have, as

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[3] There is some debate on which kind of occupational groups may be classified as a

professional practitioners, certain characteristics involved in their practice alongside autonomy at work and tacit expertise. I will in this section look closer at the health professional boundaries and how they emerge at hospitals. It is generally thought that these boundaries develop as a socialization process during education (D'Amour et al., 2005). Boundaries refer in general to the physical, temporal, and cognitive limits that define domains as separate from one another. A profession's domain of knowledge may be understood as consisting of the cognitive space of what is included within the boundary and how the domain is separated from others (Kreiner, Hollensbe, & Sheep, 2006). What then are these boundaries at hospitals and why are they sustained?

As a health professional, medical doctors' loyalty may sometimes be attributed to the specialty, and not the hospital. Tjora (1999) has for instance, using Gouldner's concept of cosmopolitan-local, argued that doctors are more cosmopolitan than local[4]. They adhere thus more to their own profession than the organization of the hospital. Yearley (2004) has further argued that such a separation between the professional work and organizational belonging has an historical cause. For over a century ago, medical doctors had no affiliation with the hospital at all, but were called for by the managing nurses when needed. This separation of the professional context from the local is however not as straight forward today.

The health professionals` core values involve elements of care and cure. Care and cure are the essence of the Hippocrathic oath, which is still taught in western medical schools and perceived as the ideal (Eriksen, 2000). Core values and basic

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profession. Etzioni (1969) would for instance regard nursing practice as a semi-profession. However, I apply the definition of Knoff (1986) of a profession as "…*an occupational group with a specific education that qualifies for a core occupation that this group possess a certain monopoly in performing, and that offers a basis of defining certain academic questions that are specific for this group…*" (translated from Norwegian). I concord consequently with Lauvås (2004) in regarding nursing as a profession.
[4] He argues in the same study that nurses have a more local perspective.

assumptions are the central tenets of an organization's culture (Schein, 1985). They are however also an important basis for the professional values that mark the parameter of the professional boundary. These values influence professionals' actions at a hospital, and are therefore important for how boundaries originate. In addition, these boundaries are well sustained by organizational structures at the hospital (Adler et al., 2007; Glouberman & Mintzberg, 2001a). The health professional boundaries are therefore both part of their professional and local (hospital) affiliation.

It is further important to emphasize that there exists a hierarchy between the different health professions. This has by some been named *medical authority* (see Broom (2005a, 2005b), and entails that in questions of treatment medical doctors have the final word. It is also fair to say that the closer to surgery and emergency a profession is the more status it possesses. The medical professions have with no doubt the top authority, but they also rank between each other. Acute heart surgery is for instance thought of as superior to elective services (Glouberman & Mintzberg, 2001b). Further, the difference between nurses` and doctors` practices have been well documented. Nursing practices tend to use a more holistic approach to medical treatment, while doctors tend to rely on data from tests and consultations (reductionism) (Melby, 2007). Some has described this difference with the notion that nurses treat the patient while the doctors treat the disease (Steinsbekk & Launso, 2005), and that nurses adhere to care while doctors adhere to cure (Glouberman & Mintzberg, 2001a). Reductionist approaches have traditionally been given authority over holistic approaches (Steinsbekk & Launso, 2005).

Professional boundaries at a hospital may also be linked to the daily routines and work done at a unit. Autonomy is an important part of the health professional role, and different forms of autonomy are therefore something that plays a part in the

professional identity. Autonomy is commonly defined as 'self-governance' and 'self-regulation', with 'independence' and 'freedom' as alternative definitions, though not sharing all characteristics (Pollard, 2003). Important for the autonomy concept is also a notion of taking responsibility and/or the capacity to make decisions. Berg and Timmermans (2003) differentiate between what they call professional and clinical autonomy. Professional autonomy may be understood as marking the parameters of clinical autonomy, while clinical autonomy marks the frames of everyday work activities. A profession's power is normally given by the autonomy its members has in everyday work (idem). Such actions are thus important for their professional role and its relation with the organization.

The boundaries at hospitals are not only due to professional practice and "the internal" properties of the health professional. Elements external to the boundary also contribute to this division[5]. The context and situation of patients are in many ways essentially different from that experienced by doctors and nurses (Hjorthdal, 2004; Tyreman, 2005). While a patient has the phenomenological experience of living and coping with an illness (Donaldson, 2003), a health professional might relate to biological data and what emerges from medical consultations. Further, the different professions involved may also see things differently. Despite that all health professionals take part in making the patient well, health care actors tend to form their own perspectives, causing a perception of different and segregated worlds (Glouberman & Mintzberg, 2001). In these different perspectives, the knowledge of what is at stake and how to do things right depend on discipline. For a surgeon, the patient is well if the operation follows a normal procedure. For a nurse, the well-ness

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[5] This is in, a sense, tautological in that a boundary marks a division between at least two things; and there is bound to be an inside and an outside. My point is to show how the outside, as well as the inside, maintains this separation.

of a patient depends on how he copes with the aftermaths of surgery. For a physiotherapist the aspect of being well depends on how a patient manages to recover after hospitalization (Glouberman & Mintzberg, 2001). Although all actors may share a goal of "*getting well*", both aims and means might be different. The borders between the different practitioners, in addition to the boundaries of the patient perspective, are well documented (on a general basis).

Professional boundaries in health care thus come in many forms. And maybe more important – they divide a number of actor groups. However, they are all the result of different knowledge domains that do not easily merge, and practitioners that are used to guard these domains within a boundary of autonomy. These boundaries are further heavily connected with assumptions of care and cure – an important essence of performing professional work at a hospital. As will be argued later in this thesis, is this essence of uttermost importance for the health professionals, enabling meaning and motivation in their practices.

2.3 Boundary work

Professional boundaries are often not understood as a static entity, but as constantly being either rebuilt or moved. And in the way a boundary approximates stability, there are often forces that struggle to keep it there. In other words, a professional boundary cannot be understood as a demarcation that exists as a historical measure. Rather, it has to be understood as an entity that is constantly under pressure from both groups within the boundary as well as outside. Activities that exert this kind of pressure is often referred to as boundary work (T. Gieryn, 1983). Drawing on research on how scientists demarcate science from other knowledge, Gieryn

(1999) distinguishes three 'genres' of boundary work: expulsion, expansion and protection of autonomy.

Physical objects or artifacts often facilitate or enable such activities. Walls, fences etc. are objects that are used to separate areas from each other, as for instance the walls that separate hospitals compartments. The placement of walls can be understood as a process of boundary work, in the sense that it is not arbitrary what kind of boundary the wall demarcates. Some scientists suggest that such objects are the result of political processes, and thus embed political decisions. For instance has Langdon Winner (1980) pointed to how a bridge in New York was built low enough to exclude public transport from passing under it, at the same time excluding ethnic minority groups from parkways to beach areas. Winner concludes with what has now become a famous dictum – "*Artifacts do have politics*" – a brilliant example of how objects are utilized in boundary work. Objects may also be used to symbolize knowledge domains, and thus exclude people from other domains in interacting with it (Nieman, 2002). In science, for instance, artifacts and tools are often defined and used exclusively within particular disciplines. For instance are academic journals objects that belong within particular knowledge domains and thus demarcate boundaries. Mol (2002) has on the other hand shown how health professionals use medical objects at hospitals to communicate and relate across their professional boundaries. She argues that boundaries are upheld in collaborative activities, because objects' ontological diversity enable communication as well as maintaining professional boundaries. Professional boundaries are continuously fought over, and as shown here are objects often part of these activities.

Some authors even argue that in a multi-professional system, it is the system itself that maintain the professional boundaries. The professional boundaries enable

such a system to hold. A system is a set of interacting units with relationships among them (Miller, 1978). Interprofessional collaboration may be described as a system of high differentiation and low integration, which in turn may be described as a loosely coupled system (Koff, Defriese, & Witzke, 1994). This is a system where links between various components are relatively "soft" (Weick, 2001a). In this perspective, professionals thrive when working with soft linkages between them. The viability of such a system lies in the little integration across the boundaries. Interprofessional collaboration is therefore not the outcome of easily integrated activities (D'Amour et al., 2005). Rather, it is the result of a system where boundaries enable collaboration. These systems may appear ineffective when assessed by criteria tied to efficiency, but may be more effective when assessed against criteria that index flexibility, ability to improvise, and capability for self-design (Weick, 1977). Loosely coupled systems may be flexible in that higher differentiation enables coping with complex environments, but this creates problems of coordination (Lawrence & Lorsch, 1969). Flexibility is local rather than global. Change diffuses slowly, if at all, through such systems, which means that components invent their own solutions (Weick, 2001a). A loosely coupled system may thrive as lowly integrated, and with regards to health professionals even seek to maintain this because of boundaries of professional autonomy.

2.4 The push to move from autonomy to accountability

Managing boundary work is traditionally understood as a way of enforcing control over these boundary developments. As mentioned previously have health care institutions traditionally been managed in a very distributed manner. This has implied

a flat organizational structure, with a considerate amount of autonomy on the part of health professionals. As a number of authors indicate (E. Freidson, 1994; MacDonald, 1995; H. Mintzberg, 1989), is this self-regulation often considered as more appropriate than external regulation given the tacit nature of professional knowledge and practice. This professional autonomy is however, as mentioned in the previous section, not a static and stabilized constituent of professionals. Professionals' tendency to self-regulate is often contrasted with the notion of managerialism, which is today a general source of re-negotiation of the professional boundary (Doolin, 2002). Where professionalism denotes the tacit, self-regulated, autonomous and practical work of professionals (and thus often with an individualistic perspective), managerialism denotes the belief that all organizations can be optimized by using *generic* methods of management skills and theory. Managerialism, or neo/new-managerialism[6], is today thought to have great impact on the professional role in public sector. The so-called New Public Management (NPM) is a philosophy of management based on neo-managerialism (Ekeland, 2004), that since early eighties has reached a great widespread in most western countries. NPM is a management philosophy used by governments to modernize the public sector. It is fair to say that NPM is variously characterized (Dunleavey, Margetts, Bastow, & Tinkler, 2005), but a general conception is the idea of making the public sector more efficient by copying leadership ideas from the private business market and more market orientation. Power (1997) argues that NPM is associated with a rise in audit systems, which lead to 'audit rituals' of verification, designed to produce government and societal confidence (McGivern & Ferlie, 2007). NPM is often thought of as the underlying premise of

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[6] The two concepts are often used interchangeably, with the ''neo''-prefix often denoting a stronger decline towards market orientation and liberation, and being more in line with Taylorism and transaction-cost economics (Terry, 1998).

many public reforms in Norway today, and is the ideological basis for the "Hospital Reform", that will be explained more in detail in the next section. It is fair to say that NPM ideas in the Norwegian health care sector implies a focus on cost-efficiency and recruitment of leaders and managers form the private sectors into boards and higher positions of hospital organizations. In the health arena we are thus witnessing the greater penetration of neo-managerialism into medical practices and knowledges. This implies a consequent re-negotiation of professional boundaries between management and medicine (Doolin, 2002). In line with the underlying philosophy, the reform has implied a more market-based and efficiency-driven management. This re-negotiation of the professional boundaries can be denoted as a push from autonomy to accountability.

This has implied an increased focus on patients as customers and implementation of cost-effective solutions. The market-orientation has, at least in the US, implied a great rise in the involvement of 3rd party actors in the medical treatment. Potter (2005) states for instance that 3rd party payers intrude upon the patient-physician relationship, and confine their liberty of actions. They are able to do this through access to previously esoteric medical information, which by some researchers is thought to challenge medical dominance (Broom, 2005a). With the help of access to evidenced medical information, 3rd party actors thus involve and engage in medical decision-making. It may lead to a considerable loss in the health professionals' liberty at work when third-party non-clinical administrators "…*micromanage physician clinical decisions…*" (Waitzkin, 2001). There is further a growing notion that patients too involve themselves on the basis of medical information. Patients use Internet sites on health information to research own conditions and healthcare and make decisions about their treatment (Bessell,

Anderson, Sansom, & Hiller, 2003). Lupton (1997) and Henwood et al. (2003) also suggest that the growth in health information has transformed the patient into a reflexive consumer, making active decisions concerning treatment procedures. Some research has pointed out that this active involvement leads to professionals clinging to power in their engagements with patients, controlling information and dismissing efforts by patients to theorize or explain their condition (Henwood et al., 2003). Claims of accountability (or also transparency) lead to a reorganization of the relationship between the professions and society (organization) where professionals' autonomy are wore down and delimited (Ekeland, 2004). Accountability on a clinical level may affect professional power and professional autonomy (Timmermans & Berg, 2003), which make these external demands a threat to the professional boundary. The increased involvement of 3rd party actors and patients may thus be seen as a challenge to the professional role that meets resistance from the professional practitioner.

Management's wish to optimize solutions is often also a basis for a push towards interprofessional collaboration. There is a growing notion in health care contexts that professional actors need to collaborate, not only with patients but also with other disciplines. Tasks in the health sector are becoming so complex that they often need the efforts from more than one discipline (Hall & Weaver, 2001). Different professions thus have to work together on resolving patient cases, and the idea of interdisciplinary teams working together in health care has received some attention over the past decade (McCallin, 2003). Such approaches to care are essentially team-based and necessarily driven by a collaborative leadership process that focuses on joint success rather than individual performance (Mourning, 1999). There is also a pressure from more management-driven outcome-based health systems to move from

traditional service delivery towards more inter-disciplinary approaches to care (Nancarrow & Borthwick, 2005). This creates a need for shared responsibility (McCallin, 2003). The problem is that interdisciplinary team-work in healthcare often enhances boundaries between the different professionals working together, instead of integrating them as a team (Shaw, Heyman, Reynolds, Davies, & Godun, 2007). In spite of several successful introductions of interdisciplinary teams in hospitals that prove their efficiency, many authors report difficulties when introducing interdisciplinary teamwork in hospitals (Phillips, Eskes, & Gubitz, 2002; Sjøvold & Hegstad, 2008; Skjørshammer, 2001).

Previous research thus point to health professionals' reluctance to this push towards accountability, and instead of softening the boundary exert efforts in fortifying it. In doing this, health professionals employ various defense mechanisms. For instance, a number of researchers have argued that medical professionals have resisted NPM style reforms, and used tactics such as 'gaming' around targets or superficially absorbing it at the local level (McGivern & Ferlie, 2007). Audit and 'appraisal' are often put forward as important elements of NPM style reforms. Professionals show resistance to being audited, and as a result often co-opt audit to present their practice as legitimate whilst continuing to practice as before (Power, 1997). One important reason may be professionals' disbelief in the effectiveness of auditing (ibid), not acknowledging auditing as objective and neutral. In fact, audit is not neutral but an active process of 'making things auditable' (Power, 1996). This has led some researchers (and especially Power) to speak of audit rituals, namely a ritualistic defense towards being audited. This implies tactics of following audit system rules, while continuing to perform as usual. McGivern & Ferlie (2007) even suggest that health professionals play 'tick-box' games to create the impression of

accountability…

> *"...while continuing to practice in a traditional professional way, less visible to those outside the medical profession…"*

Professionals may have this tendency to resist external assessments also because of their excessive training and education. In fact, Larson (1977) argues that professional practitioners are typically over trained. This allows the profession itself to define the very standards by which its expert competence is judged by. These can in some sense be thought of as ideologies, which are presented to the outside world as (p. xiii) *"...the most valid definitions of specific spheres of social reality…"*

2.5 Context - empirical universe, healthcare and hospitals in Norway

In this section I will present the context surrounding my investigation. I will give a closer look into hospital organization and healthcare in Norway. I have previously described some of the issues facing professional health care organizations of today. I will show that these are valid also for hospitals in Norway, and offer a brief insight into the more particulars of the national context.

One of the major, if not the major, changes in the Norwegian healthcare context the last decade has been the so-called "*Enterprise reform*" (in Norwegian "*Foretaksreformen*"). This was a reform that was set in motion in 2002 which was transferring ownership of all hospitals from local communities to the national state.

All hospitals were to be run as enterprises (in Norwegian "foretak"), a decision having its ideological basis in New Public Management theories (Ekeland, 2004). All hospitals are therefore now run as local organizations, with local ownerships and local management. They are owned by the National Department of Health, but thus also with the freedom to make local adjustments with regards to administration (Finstad, Gjernes, Hovik, Lie, & Rommetvedt, 2005). The local enterprises are administered by 5 regional health organizations, under the authority of the national government.

There are of course many issues with this implementation that I will not discuss here. But important in this context is the intention behind the reform that is sought to be implemented in all Norwegian hospitals (Ot. prp. nr. 66, 2000-2001:11-12):

"...the intention behind the organization of hospitals as enterprises is to decentralize administration, enhance efficient management and?increase access to information and delegate economic responsibility..."

The government wants to increase efficiency at the hospitals. This aim was envisioned to be fulfilled by implementing leadership theories and enrolling leaders and managers from other business areas. A report from 2005 shows however that managers with background in the health professions still form the largest single groups, but that external managers and leaders have been enrolled in boards and administrations on a minor scale. A widespread perception is that the reform has led to more focus on economics, efficiency and cost-benefit, than on serving patients and clients (Finstad et al., 2005).

I will not discuss here the results of this implementation, but point out that the reform has put an emphasis on external demands on health professionals. The report shows that the external demands of efficiency have been easier implemented within managerial functions, but that the more client-based services (clinical work of health professionals) resist external control (Finstad et al., 2005). There is thus a need to understand how health professionals in Norwegian hospitals should relate to these challenges.

2.6 Aim of thesis

Health professionals are thus challenged by rising demands for transparency and performance-related measures. Claims of accountability, more complex patient cases and pressure from the management in establishing efficient interdisciplinary teams create a need for health professionals to extend their work across their professional boundaries. In other words; they need to collaborate across these boundaries. Previous research shows that health professionals show resistance to cross-boundary collaboration, and that this kind of work may actually fortify boundaries instead of softening them.

There is thus a need for knowledge on how health professionals may collaborate across their boundaries in a more productive manner. In other words, it is important to know more about what constrains and sustains the development of relationships across the professional boundary. The main research question of this thesis thus mounts to:

How do health professional practitioners at hospitals build and sustain relationships across their professional boundaries?

This thesis is therefore about how professional boundaries in hospitals are crossed. More specifically, it is about the special kind of relationship that is sustainable across the boundary and allow for co-operation. I call this a *cross-boundary relationship*. This is meant to encompass a relationship where health professionals collaborate integrably with actors on the other side of their professional boundary. I develop this concept basing discussions on relevant theory (chapter 3) and the empirical studies (the papers, part II).

3 Theoretical Background: On cross-boundary relationships

The previous section aimed to explain how health professionals' boundaries are challenged, and how health professionals react unfriendly to this challenge. Previous literature on professional boundaries seems to focus on how professional boundaries come into being and how professionals fight to maintain these boundaries. As mentioned in the previous section, is such a conflict perspective quite visible also with research on health professionals. Quite the smaller amount of literature focuses on how boundaries are crossed, as in a co-operative perspective. In this section I will develop an argument that takes a collaborative perspective on professional boundaries. I introduce the concept of cross-boundary relationship to describe this perspective.

A cross-boundary relationship is a relationship that entails collaboration across the professional boundary. In this section, I advocate how such a concept can be understood as both a social relationship and a relationship mediated by objects (boundary objects). When understood in confluence, these two perspectives on collaborative relationships can offer new insight into how the professional boundary can be crossed. I will start out by describing a collaborative relationship as a matter of integration, and further how boundary objects can achieve integration across the professional boundary.

3.1 Social relationships across boundaries

I will first use the concept of social relationship to describe collaboration. The

key issue of collaboration in a social relationship will be put forward as a matter of integration in the relationships. I will thus first try to model integration, by looking at different kinds of integration and what the literature seems to agree on regarding these differences. I will then focus on the more integrated levels of such collaboration, and draw attention to what I see as important aspects of this relationship – joint transformations and the ability to interpret meaning from social interaction in a professional system. This importance of integration can be related to the study presented in paper 1; on how health professionals understand otherwise incomprehensible patient actions. As is argued here, is an integrated relationship an important reason why the patient in this study could collaborate on a quite unique level with his caretakers. This special kind of collaboration is demonstrated by the unusual kind of control of own treatment this patient obtained, and the integrated relationship by the health professionals' construction of meaning from this otherwise meaningless situation.

3.1.1 Social relationships and development

Actors that form well-developed social relationships are often thought of as teams. I will therefore start out my investigation with a brief look at what the literature has to offer on teams, and how social relationships develop in such a context.

The level of integration across boundaries towards reaching a team may, in professional contexts, depend on autonomy. It has been argued that collaboration within a team of professionals can be described as a continuum of professional autonomy (see for instance Brill (1976), Satin (1994) and Ivey et al. (1987)). At one end of the spectrum, professionals intervene on a basis where they work together, but

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with little integration between them. They work autonomously on a parallel basis, thus creating a *parallel practice* (Satin, 1994). On the other end of the spectrum, individual autonomy is narrower and the team as a whole is more autonomous and more integrated (Ivey et al., 1987; Satin, 1994). To reach more mature levels of collaboration, professionals thus need to give up some of their autonomy, and change their perception of themselves as independent and autonomous. This entails to refrain from their professional boundaries, and is not an easy task (as will be argued later in the thesis, this is neither the point).

Such processes therefore often require external guiding - or at least a conscious approach of the goal for the development (Sjøvold, 2006). *Team leadership* is for instance launched as important for developing a team's collaboration (San Martín-Rodríguez, Beaulieu, D'Amour, & Ferrada-Videla, 2005). Further, *entrainment* has been launched as important for developing alliances across boundaries (Standifer & Bluedorn, 2006), as well as pacing of activities (Hare, 2003). Entrainment entails the process whereby one or more activities are set to oscillate in rhythm with others (idem). Such guiding or management of team processes is supposed to improve team developments for a number of reasons (McCallin, 2003). It may for instance improve team identification, which is said to correlate with team performance (Gundlach, Zivnuska, & Stoner, 2006). It also contributes to developing a shared mental model. This improves the coordination between collaborating actors, and subsequently leads to improved performance (Standifer & Bluedorn, 2006).

Further, it is important for team development that social role structures dissolve (Sjøvold, 2006). Within a team with well-developed and mature relationships, the role structure is often difficult to grasp as it changes continuously (Sjøvold, 2007). In a team with less developed social relationships the role structures

are, on the other hand, rigid and not contested (ibid). The team perspective offers some insight on how social relationships may develop towards more integrated, and maybe more important that these developments are not easy and may be hard-won. They are often the result of hard work, well-adapted leadership, and refraining from individual comfort zones. This knowledge is useful in that it offers well-evidenced knowledge on how a cross-boundary relationship can develop. Next, I will look further into this development from a perspective of integration.

3.1.2 Social relationships and integration

I will continue with a closer look at the different structures of integration in a cross-boundary relationship. These differences have been criticized for being hard to re-find in practice, but are all the same important for showing that relationships are not an on/off question[7]. My intention is to show that relationships come in many fashions, and that these differences are a question of integration. Further, I will also show that integration is normally understood as the opposite of boundaries.

In ventures of collaboration across disciplinary boundaries in health care one often distinguishes between the concepts of multi, inter and trans-disciplinary collaboration (see figure 3.1). The concept of *multidisciplinary* collaboration signifies a task structure that is easily divided in separate subtasks and low interdependency between the different disciplines (Satin, 1994). *Inter-disciplinary* work signifies that members with different backgrounds come together to work on shared tasks, with

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[7] This is not an important point in this thesis, but readers may interpret this statement as a challenge to the social exchange theories of for instance Homans. Social exchange theorists would probably recognize the individualistic and linear parts of the structures I describe. However, the more integrated relationships become, the more difficult it becomes to analyze them in terms of cost-benefit and rationalistic approaches.

"…*a truly interactive effort and contribution from the disciplines involved…*"
(Fordyce, 1981). Here, the prefix "inter" refers to a common space, an element of
cohesion, and a shared ownership (Gusdorf, 1990). The *trans-disciplinary* co-working
may be understood as a level where team members succumb to team perception of
task and approaching dissolving of roles and responsibilities to the team rather than to
individuals (Lauvås & Lauvås, 2004). Within a trans-disciplinary team, boundaries
become blurred or vanish (Paul & Peterson, 2001; Stepans, Thompson, & Buchanan,
2002). These different concepts entail different levels of integration through a
continuum (Gilbert, 1998; Satin, 1994).

In a similar fashion, Thompson (1967) describes three hierarchical levels of
workflow interdependence - *pooled*, *sequential* and *reciprocal*. Pooled workflow
entails the lowest level of interdependence, with little or no coordinative mechanisms
required. Sequential interdependence signifies a workflow that is unidirectional - one
discipline completes its work and transfers it to the next. Reciprocal entails a more
complex interdependence, with work flowing back and forth between disciplines. A
fourth additional level of interdependence has later been put forward as *intensive*.
Here, people from different disciplines must collaborate simultaneously to accomplish
the task (Bell & Kozlowski, 2002). These differences in interdependence are often
applied to understand to what extent groups work coherently (ibid), and may as such
be understood as differences in integration.

Differences in integration between actors may further show in how they
employ socio-emotional functions (Sjøvold, 1995): one function describes a
relationship's emphasis on *control*; one its emphasis on *nurture*; one on *opposition*;
and one on *dependence*. These functions say something about a group's ability of
sustaining structured work over time (control), to exert caretaking behavior (nurture),

questioning "taken for granted" assumptions (opposition), and demonstrate acceptance of differences (dependence) (Sjøvold, 2007). A group with *low maturity* meets challenges with only one function, while a group with *high maturity* employs all four (idem). A low maturity group may collaborate well in stable environments, but its abilities of learning and developing are poor. On the other hand, a group with high maturity is well equipped to learn from its experiences and adapt to complex and unstable environments (Sjøvold, 2006).

All these approaches have in common a reflection of different social structures in terms of differences in integration. Integration may therefore be modeled as differences in workflows, group functions and sharing. The more shared space, the more complex the workflows, the more socio-emotional functions in use, - the more integration in the relationships. It is important to note that these perspectives thus advocate integration as the opposite of boundaries. The more integration, the lesser the boundaries. When boundaries are no longer a matter of influence, actors influence each other mutually and constantly. They will in this case not be constrained by social roles, but change continuously. And even more important - they transform together.
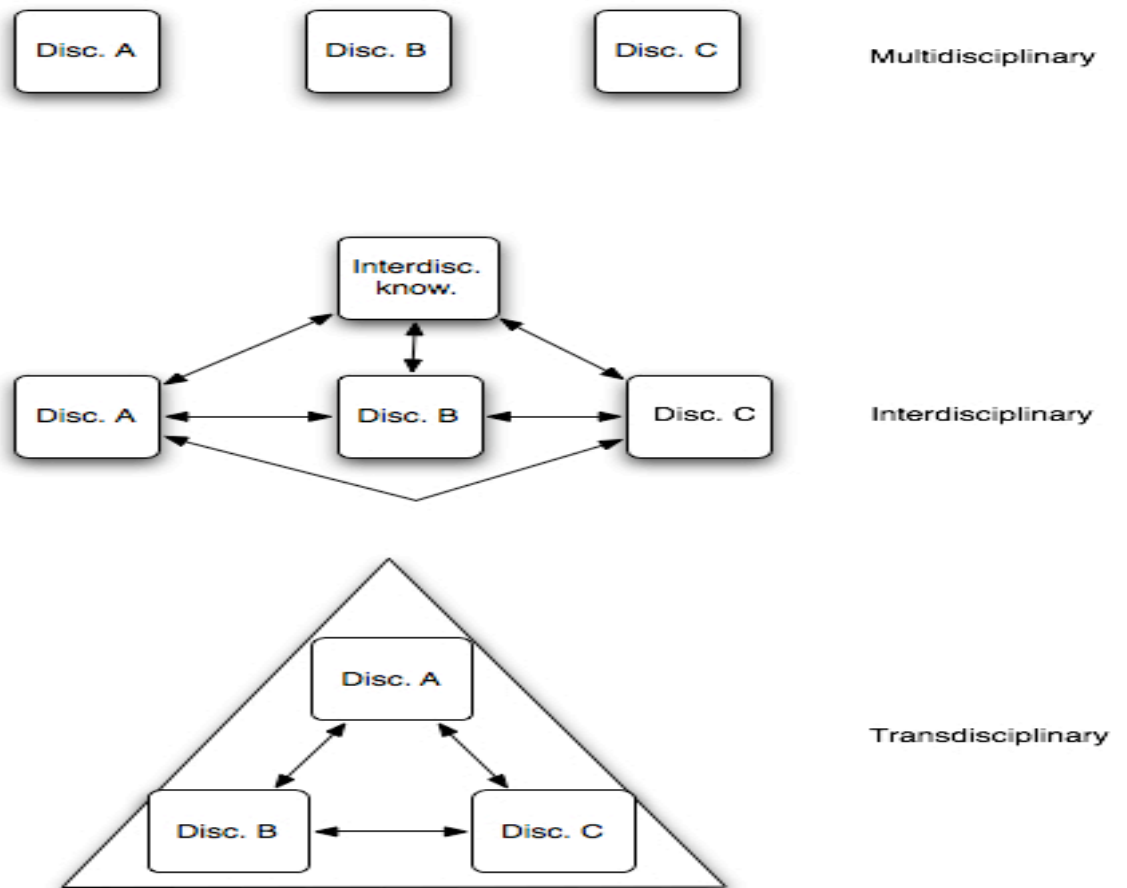
Figure 3.1: Multi, inter and trans-disciplinarity, based on Jantsch (1980)

It is important to note also that the benefits of such collaboration are often associated with the more integrated levels. Cross-boundary collaboration adds the contributions of several disciplines, and is as such in it self valuable. However, only at the more integrated levels may one achieve the benefits of cross-boundary learning and shared knowledge (Sjøvold, 2006). Only when the relationships are integrated, may one learn from each other and from previous experiences *across the boundary*. Further is it also important to note that the more integrated workflows become, the

higher the possibility of offering a coherent service for patients (San Martín-Rodríguez et al., 2005).

A cross-boundary relationship is therefore a relationship that is highly integrated. This is not to say that lesser integrated relationships may not work or even be more efficient in other contexts, but that more integration across the professional boundaries in health care may lead to several benefits. As argued in paper 1 (on patient expertise), is the highly integrated relationship between the patient and his caretakers suggested as an important reason for the patient's ability to influence and even take control over own treatment (such an ability is an important contribution to a better patient treatment experience). Admitting, however, that healthcare workers are professionals and that the presence of professional boundaries impede on integration, how may *social* relationships influence on the professional boundary? If integration is a social matter, where does the professional context enter? I will turn to this question next. As argued in the paper was the health professionals' ability to construct meaning in this relationship an essential contributing factor.

3.1.3 Social relationships and meaning

Hare (2003) contends that a relationship (in general) may be described as a set of roles that people either play or are expected to play. It may be formal, informal or dramaturgical. By the latter, he means a kind of Goffmanian role, where interaction depends on setting, stage, actors and audience. In this section I want to emphasize the actors' importance for how this "play" of relationships is performed. The social and the professional is, as I will argue, not distinctly separated. They become intertwined through human interactions, and are glued together by how individuals see these

actions as meaningful or not.

Blumer (1969) advocates that relationships are constantly negotiated between individuals. A professional relationship would in this perspective be described as an interaction between *people* rather than roles. This implicates that professionals have to interpret and handle what confronts them, rather than meeting a set of expectations tied to the specific role. Professional roles are formed and performed in a social space, with individuals testing and developing their perceived roles. Testing and developing the professional role is dependent on the individual's interpretation of the situation. In a social context, this often translates into questions such as "*who are we, what are we doing, what matters and why does it matter?*". In a professional context, it would translate into questions of professional identity such as "*What kind of doctor am I?*" and moreover as "*When I am in these kind of situations, what kind of doctor am I and what kind of doctor do the nurses and patients see me as?*" (Tjora, 1999). Blumer contends that such questions revolve around a construction of meaning, in an effort to understand oneself[8]. Social relationships in a professional context are therefore based on the meaning people interpret from their performances in a professional role. This framework of understanding oneself is formed and sustained by social interaction (Gioia, Schultz, & Corley, 2000). Social and professional relationships become intertwined through a construction of meaning, which is heavily based on social interaction and interpretation. Meaning may in this way be understood as an important basis for how social relationships enable integration in the cross-boundary relationship.

It is not unproblematic to claim that something is constituted by such a

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[8] *The self* is an important concept with both Mead and Blumer, but will not be elaborated here.

difficult concept as 'meaning'. Linguists and philosophers such as Frege, Quine and Putnam battled with this concept in the last century, but it has shown to be difficult to capture or pinpoint. What then do I mean by meaning as a basis for the integration of social relationships? Karl E. Weick has tried to look at what 'meaning' does, rather than what 'meaning' is. The main concept he uses to denote what meaning does is *sensemaking*. Sensemaking involves the ongoing *retrospective* development of plausible images that rationalize what people are doing. It may be regarded as a process of organizing, where people enact order and identity in the social context of other actors (Sitkin, Sutcliffe, & Barrios-Cholin, 1992). Organizing is here intended as the process of making the world intelligible. From the perspective of sensemaking, identity is about whom we think we are, and how this perception shapes what we enact and how we interpret situations. Communication and activity are essential elements in this process (Weick, Sutcliffe, & Obstfeld, 2005), which often takes place through interactive talk (Taylor & Every, 2000). This is usually translated or visualized through the dictum "*how can I know what I mean until I see what I say?*" and further "*how can I know who I am until I see how I act?*". This meaning construction is further important in how people construct social relationships, and thus for how health professionals construct cross-boundary relationships.

Moreover, this perception is affected by what outsiders think we are and how they treat us. This stabilizes or destabilizes our perception of identity (Weick et al., 2005). Our construction of identity, and therefore also the ability to develop a meaningful social relationship, is thus very much in the hands of others. Gioia intends for instance with his concept of sensegiving, that the image others have of us is as important as how we interpret the environments (Gioia & Chittipeddi, 1991). Such an image and how we interpret it may in many ways be regarded as the essence of a

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social relationship. This sociality manifests itself in a social relationship as *trust, self-respect* and *honesty* (Weick, 1993). Actors in sustainable social relationships have a basic trust in each other and their different points of view, the self-respect to believe in own knowledge and contribution, and the honesty to act or perform in accordance with these views (in a way that personal views are made explicit). Weick emphasizes the importance of a social context for these properties to emerge. If the individual seeks to maintain or approach a behavior of trust, self-respect and honesty, it is compromised without social support. Drawing on Wiley's (1988) concept of *intersubjectivity*, Weick advocates that this social support consists of (1) the interchange and synthesis of meaning between two or more communicating selves and that (2) the self or subject gets transformed during interaction "…*such that a joint or merged subjectivity develops…*".

Meaning is therefore an important basis for the cross-boundary relationship. A cross-boundary relationship is constructed on the basis of an interactive process. Professional identity, role and social relationship are elements that are not easily separable, because they all emerge through social interaction. Individuals enact meaning from their performances in a professional role, but this depends in turn on how they are able to interpret this role. Important is also the notion that this meaning construction do not develop independently of other actors. It is therefore a process that involves retrospective interpretation, it is ongoing, and it depends on a social context.

3.1.4 The limitations of the social relationships approach

Social relationships are useful in this context, because it says something about

what integration in a cross-boundary relationship entails. Social relationships are more or less integrated, which is an important point in regards to collaboration. The more integrated kind of a social relationship is one where actors are mutually influencing each other and thus changing together. In a professional context, this is a matter of how actors are able to interpret meaning from their performances in a professional role.

These insights may be useful in themselves, and help us understand better the relationship described in paper 1. They may also help to understand the relationships described in paper 2, where different kinds of relationships between patients and health professionals are put forward. In this paper I describe health professionals' perceptions of relationships in terms of patient knowledge and involvement, which can be understood as efforts in meaning construction. Only in the relationship where patient knowledge and involvement is perceived as a benefit to the treatment, is it possible to suggest a kind of mutual influence. While also the other perceptions can be understood as relationships across professional boundaries, do they not describe a relationship where actors collaborate jointly. The mutual influence is important for the concept of cross-boundary relationship. This concept entails collaboration at an integrated level, where all actors contribute on equal levels.

This knowledge does not however cover all aspects of the cross-boundary relationship. While the before mentioned differentiations in social relationships may help to understand the structures of collaboration, they do not help us to understand the interactional dynamics seen in collaboration across professional boundaries (D'Amour et al., 2005). Neither is it possible to suggest team leadership as an important basis for the cross-boundary relationship. Despite an increased focus on interdisciplinary team leadership in healthcare, the concept remains under-researched.

The term seems to have emerged from traditional approaches to leadership, approaches that are fashioned for very different environments than people from different disciplines working together (McCallin, 2003). As such, it may not be put forward as *the enabling factor* of more integration between collaborative actors in an interdisciplinary setting. Labels are not enough, we need to understand the processes that induce or reduce efficient collaboration (ibid).

Finally, and maybe the most important reason why this perspective is not readily applicable, is because integration in this perspective entails an obliteration of the boundaries. If health professionals construct meaning from these boundaries, how then is it possible to remove them? What could possibly motivate a removal of meaning? I will return to this question later – but first look at a perspective that allows for integration across boundaries through the usage of boundary objects.

3.2 Objects across boundaries

The other theoretical strand I will focus on has turned its attention towards objects rather than the social[9]. The aim of this section, is to offer an insight into how objects mediate and influence human relationships, and how this can be associated with integration. In other words, I will here advocate objects as an important part of the cross-boundary relationship. The importance of objects for integration across boundaries is treated mainly in paper 3, with the focus on physical objects. It may also be argued that objects, understood in its broadest sense, were important parts of the integrated relationship described in paper 1 (I intend here objects such as the Internet

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[9] In science studies, this focus on objects is sometimes denoted as "The Material Turn" (Lamont & Molnar, 2002)

and 3 party actors, argued to be important actors in the relationship).

3.2.1 Objectualization of relationships

Objects can mediate human relationships. As a small introduction to the subject of objects and relationships, I will give a brief insight into what is often called objectualization. The notion of mixing objects and social relationships has by some been called *objectualization of human relationships* (see for instance Karin Knorr Cetina (1999)). The important argument is that objects have influence upon human interaction. Objects that connect humans have influence in this relationship. A strong thesis of objectualization implies that objects displace human beings as relationship partners or that they increasingly mediate human relationships, making the latter dependent on the former (Cetina, 1997). They are therefore not passive bystanders to social interaction, but emerge through a network of relations (Law & Singleton, 2005). Further, it is also of significance to understand that objects are not determining social relationships. Rather, they enable or "lend form" (Middleton & Brown, 2005). In this way objects slow down or insert a form of stability in the relationships (ibid). Bruno Latour (2005) goes even further in claiming objects' importance for social interaction, advocating that human relationships separated from the influence of objects are not only volatile, but also not sustainable. Drawing on Serres (1982/1995) he resembles human interaction without objects to an unstable band of baboons, where social changes are flaring up every minute (Latour, 2005)[10]. It is hard to imagine if he has ever witnessed a band of naked humans interacting without objects,

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[10] He often supports his arguments with examples that provoke the rest of the scientific community.

but the argument that objects stabilize and mediate relations is important. This proposition is often used to explain how relations hold, but is rarely applied to understand human interaction. However, as both Cetina and Latour suggest, is there reason to believe that they have a similar effect on the kind of social relationships that emerge through human interaction, important also for the cross-boundary relationship.

Scientists from this theoretical strand, also known as Science and Technology Studies (STS), have for nearly three decades advocated the importance of objects in connecting different scientific bodies (see for instance the works of Latour (1987; 1993; 1999, 2005), Callon (1986) and Star & Griesemer (1989). Objects that cross boundaries may further be important facilitators in collaboration across functions (Carlile, 2006) and diverse communities (Hislop, 2005). In more recent years, there has also been some attention towards objects and collaboration in health care (see for instance Law & Singleton (2005) and Mol (2002; 2002)). It is an approach where boundaries are not seen as separators and inhibitors of collaboration, but rather as means for communication and relations (Lamont & Molnar, 2002).

It is fair to say that this theoretical strand has focused more on connecting bodies across different contexts and thus more sparsely connected interactions than the ones normally associated with research on social relationships. Portuguese vessels have for instance been launched as important for long distance control (see works of John Law); chain keys as an example of inscribing behavior (see works of Bruno Latour); maps of California to unite different perceptions of the state (see works of Star & Grisemer). Lesser attention has been offered to how objects are employed in

interactions that are more closely connected in time and space[11], forming a basis for knowledge on how objects influence social interaction. In other words, we know that objects can mediate communication and relations; what we know less about is how objects mediate *social relationships*, and even more so how they enable or disable integration within these.

Objects may thus mediate relationships, but the different forms of integration depend in many ways upon how they are used. A cross-boundary relationship depends therefore in other words on how objects are used in social interaction, which is where I will turn my focus next.

3.2.2 Network objects

The importance of objects in mediating relationships is seen especially in paper 3, where different medical objects are put forward as mediators of relationships between different health professionals. How, then, do objects get involved with social interaction? How do they make themselves count in a human relationship? Actor network theory (ANT) may offer some insights into these questions, as it is a theory of relations and objects. I will in this section look closer into what an object entails from this perspective. It is an entity that comes into being, precisely because it is involved in human interaction. This is, however, not without influences on the relationships. I will here look closer at these influences. Objects mediate human relationships by connecting a network of relations between actors.

In ANT, the important matter is not the actors themselves but what goes on

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[11] One exception is Melby (2007), who describes doctors' meeting practices discussing patients using them as boundary objects.

between them. This ontological position entails a special perception of what an object is. Scientists from this strand do not a priori differentiate between material objects and humans. Actors can be anything, like for instance humans, machines or symbolic references to abstractions (Feldman & Pentland, 2005) or micro, meso and macro actors (Ellingsen & Monteiro, 2004)[12]. It is further important in this theory that an actor becomes an actor only if he/she/it makes a difference (Latour, 2005). The argument of making a difference is difficult and often meaning different things; such as adding new knowledge, leading actions in new directions, enabling or disabling actions, etc. In ANT, making a difference is often translated to a notion of actors in a network being *heterogeneous* (Latour, 1987). A difference in ANT is therefore the result of an interaction between different actors. This is by some illustrated with the notion of semiotics (Hernes, 2005). The sentence "*The dog bites*" changes meaning with the addition "*The dog bites the man*" and further "*The dog bites the man in the leg*". ANT regards networks much in the same way as the meaning(s) of this sentence (ibid). Networks, as in meanings, change when actors (or sentence parts) are put in relation to each other (in ANT vocabulary – enrolled). Networks, as in the sentence meaning, grow out of the relations between diverse (heterogeneous) actors.

The *heterogeneous relations* argument of ANT is easily transferable to the concept of cross-boundary relationships. This is a relationship that implies a connection, but that at the same time is separated by a boundary (which in my thesis is the professional boundary, in ANT it is a boundary of difference). The ANT perspective suggests that objects are what keep a cross-boundary relationship stable. One reason is, as argued previously, that they stabilize human relationships; another

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[12] The concept of 'actants' is sometimes used to denote non-human agency (Latour, 1999)

important reason is their abilities in crossing boundaries. The concept of *immutable*

mobiles is in these regards an important concept. It entails objects that 'travel' across

boundaries and sustain the relations between actors. It does so by being both a

physical entity, but also a set of associations (Law & Singleton, 2005). It is a physical

object that moves around (attaining different meanings), yet retaining its shape

(Latour, 1999). The argument was originally worked out as a tool to understand how

long distance control was possible. European imperialism was for instance made

possible by vessels that functioned the way they did, and as a centre of a network of

associations (Law, 1987). These ships traveled across boundaries, connecting the

imperialist leaders with the home country royals. However, they also functioned as a

network because their performance was a result of many actors – the Arabic

competitors, the currents, the crew and the guns. The vessels held their structure

(immutability) because they moved from port to port (mobile); which in turn

stabilized the network (Law, 2000). While earlier versions of ANT (and the concept

of immutable mobiles) tended to focus on the stability of such objects, more recent

ANT thinking draws attention to their mutability. This development is commonly

referred to as '*the performative turn*' (Laet & Mol, 2000; Law, 2004; Law &

Singleton, 2000; Timmermans & Berg, 2003). According to these researchers, there is

a distinct shift from focusing on the stability of entities to rather focus on how entities

are performed. It is this liability to change that produces relationships between actors.

Objects may therefore stabilize a network of relationships by being open to re-

interpretation and differences in performance. For the cross-boundary relationship,

this entails a focus on how objects emerge with different meanings for different health

professional actors, changing both in content and relations.

Law and Singleton (2005) suggest further to call an object that mediate

relations for a mutable mobile or also *fluid object*, simply enough to emphasize the importance of change for relations to hold. However, they also suggest that some objects can only be understood as "…*a pattern of presences and absences*…" (pp. 343). By this, they intend that meanings emerging in one context (becoming present) at the same time exclude other meanings (becoming absent). They argue that this is something else than the relationships enabled by fluid objects, renaming it to *fire objects*. The analogy of fire is used to show that fires are energetic and transformative, and depend on difference – for instance between (absent) fuel or cinders and (present) flame (pp. 344). Mol and Law argue that this difference is of an ontological character (fluid objects in contrast are of epistemological character), and that it is this difference that enables collaboration across boundaries. The example they use to underpin their arguments, alcoholic liver disease, fits quite well with the context of my thesis. Different health professional groups tend not only to see diseases differently (the epistemological character); they also produce representations of the same disease that may or may not be complementary (the ontological character). An example of this is demonstrated in paper 3, where I describe how radiologists and cytologists produced different measurements (cytology samples and radiology pictures) and understandings of the same object – a cancer lump. This object changed both in content (through different medical exams) and in relations (through different collaborative constellations).

Whatever you might choose to call an object that is at the center of relations rests its important ability in stabilizing and mediating a network of relationships between human actors. Objects make themselves count by being flexible. They involve themselves in social interaction if they have an influence upon the relationships understood as a network. And when they cross boundaries, they are

important facilitators of stabilizing the cross-boundary relationship, spinning a network between relevant actors.

3.2.3 Boundary objects

What then about objects and integration? As showed in the section of social relationships, is it useful to bear in mind that there are different structures of integration. Not necessarily because these are retraceable in practice, but to show that relationships are not a question of on/off but a continuum of integration. The cross-boundary relationship has previously been defined as a more integrated one. And as shown in paper 3 and 1 may objects be useful mediators of an integrated relationship across the boundary. However, the literature on objects and relations often seem to neglect this aspect, with a notion of actors/objects either making a difference or not making a difference (on or off). Nevertheless, important exceptions of suggesting differences in objectualized relations is shown in the original article on boundary objects (Star & Griesemer, 1989) and more recently by research on boundary objects' importance for knowledge sharing (Carlile, 1997, 2002, 2004). I will in the next two sections draw upon these works to show how objects mediate human relationships in different ways in terms of integration. First, a brief look at the history of the concept and how it has developed.

Boundary object is a concept that is very similar to Latour's immutable mobiles, but has developed in a different path since its conception in Star and Griesemer's now seminal paper "*Institutional Ecology, 'Translations' and Boundary Objects: Amateurs and Professionals in Berkeley's Museum of Vertebrate Zoology, 1907-39*" (Star & Griesemer, 1989). A boundary object is an object that is shared and

shareable across different problem solving contexts. It is plastic enough to fit into different contexts (mobile, as Latour would say), yet stable enough to establish a shared context that "*…sits in the middle…*" (Star & Griesemer, 1989). It crosses boundaries and is flexibly interpretable (idem). The authors originally distinguish between boundary objects as either *repositories, standardized forms, coincident boundaries* or *ideal type*. Repositories are ordered piles of objects that are indexed in a standardized fashion (e.g. a library). Standardized forms are methods of common communication across dispersed work groups. Coincident boundaries are common objects that have the same boundaries but different internal contents (e.g. different maps of a country). Ideal type are models, objects or diagrams that serve as means to communicate symbolically (a "*...good enough road map for all parties... ...abstracted from all domains...*") (Star & Griesemer, 1989), pp. 410.

The concept (or at least siblings of it) has since its conception been used in a variety of contexts and with different success (Nieman, 2002). The following have all been put forward as boundary objects: technological platforms shared between software developers (Robinson, Rip, & Mangemetin, 2007); pharmaceutical procedures shared between physicians, nurses and patients (Patel, Branch, & Arocha, 2002); management models providing a common set of concepts that helps making sense of complex projects (Engwall, Kling, & Werr, 2005); and sharable externalizations that serve to communicate and coordinate the perspectives of various constituencies within collaborative design (Fischer, Giaccardi, Eden, Sugimoto, & Ye, 2005). Some reason for the concept's widespread development is inevitably found in its intuitive appeal, namely that an object looks different from different angles. (When speaking of a physical object, this is easy to understand; when speaking of an abstract object, it is less straight forward. See also my discussion of the reality of

meanings in the discussion of methodological issues.)

Unlike the concept of immutable mobiles, the concept of boundary object suggests that objects enable different forms of collaboration (and therefore relationships). Through its distinction between its different forms, it is possible to understand better that objects mediate diverse forms of relationships across a boundary. In other words that a cross-boundary relationship can only be mediated by certain kinds of boundary objects. While there has been little attention to these distinctions lately, I will in the next section look at what these differences entail for the cross-boundary relationship.

3.2.4 Objects and cross-boundary collaboration

One author that has developed the concept of boundary object further is Paul R. Carlile with the Sloan School of Management, MIT. In the paper "*A Pragmatic View of Knowledge and Boundaries. Boundary Objects in New Product Development*" (Carlile, 2002) he applies it to New Product Development, and especially dives into the contention in organizations' need to have specialized knowledge despite that this fosters knowledge boundaries that hinder knowledge creation. More specifically, he argues that innovative problem solving *within* functions actually hinder problem solving *across* functions[13]. He contends that the cross-boundary challenge is not just about communication, but about individuals from each function being willing to alter their own knowledge and transform and influence the knowledge of other functions.

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[13] He uses the word function to denote the work of a specific discipline, which in this thesis may be associated with the different professions.

Carlile argues that the use of boundary objects is important for such transformations. He draws directly on Star's distinctions, regrouping them into *repositories, standardized forms and methods, and maps of boundaries and objects/models*. Upon these, he identifies some characteristics of efficient boundary objects, developing a hierarchy between these in three levels. The hierarchy presents different forms of knowledge boundaries and associated boundary objects. He sees *repositories* as the simplest level of boundary objects, involving what he calls a *syntactic boundary approach* (drawing on the communication model of Shannon and Weaver (1949)). This involves a shared and stable syntax that ensures accurate communication across the boundary, supplying thus a common reference point of data. A *semantic boundary* approach recognizes that information will often be interpreted differently, regardless of a stable and shared syntax. The problem then shifts from just representing information to learn about the sources that create the semantic differences (here drawing on Nonaka & Takeuchi (1995)). *Standardized forms and methods* form a shared format for solving problems across different functions, as they make defining differences more shareable and less problematic. The *pragmatic boundary approach* takes as a starting position that knowledge is localized, embedded and invested in practice (drawing on Bordieu (1977) and Peirce (1898/1992)). Successful crossing of this boundary involves a shared transformation of knowledge. This entails an altering of existing knowledge and validating it within each function and collectively across functions. O*bjects, models and maps* represent the dependencies and boundaries that exist between groups and functions at this level.

Carlile is important in showing that also objectualized relationships differ in strength. They not only cross boundaries, but they do that in various ways. Different kinds of objects may therefore also entail differences of integration in a relationship

across a professional boundary. This argument brings us closer in understanding the cross-boundary relationship. It depends on how objects are used, but also on characteristics with the objects themselves. Only certain kinds of objects may enable the collaborative integration argued to be important in the cross-boundary relationship. An intuitively easy example of this can be read from paper 1 and 2. I will here use Internet knowledge as an object that connects across boundaries. Some of the patients in paper 2 were perceived as informed yet unable to involve themselves. They used Internet to learn of their illness and therefore also as a mean of relating with the health professionals, but these patients' implication of this knowledge was not perceived as a benefit to their treatment. This led the health professionals to block these patients' abilities of involving themselves. The 'expert' patient on the other hand used Internet knowledge to construct a more integrated relationship with the health professionals; a relationship with mutual influence and therefore a cross-boundary relationship. Object usage is therefore an important asset of the cross-boundary relationship. Further, it may be argued that the potential of Internet knowledge to enable these kind of relationships has developed over some amount of time. In 1999 there was hardly a concept like internet-patients; now it is readily understood by most health professionals. This shows that also object characteristics are important in mediating relationships, and that some may enable a cross-boundary relationships others won't.

I will return to this argument in section 3.3. First a brief sum-up of the limitations of our knowledge objectualized relationships.

3.2.5 The limitations of the objects approach

Objects that "sit in the middle" may have a function of developing, enable or stabilize collaboration across contexts. And some types of objects are more adaptable to do this than others. Objects mediate social relationships across boundaries, in that they enable a network of relationships between different actors.

There is however a serious challenge with the focus on objects as enablers of a cross-boundary relationship. Objects that work as boundary objects in one setting may become boundary blockers in other settings (Carlile, 2002). As will be shown in my paper 3, objects may just as well be used as blockers. There is further no such thing as *the* best boundary object. This may have something to do with *how* boundary objects "sit in the middle", or, in other words, how they influence on *social interaction* and therefore also integration. There has so far been little emphasis on this aspect of objects and collaboration. The performative turn is a step in this direction, but the aspect of the social has arguably not been the locus of attention within these theories[14].

Further, the apparent easiness of understanding the boundary object concept may be what blurs what I view as most important about the concept. It is not very provoking to suggest that objects entail different meanings depending on standpoint and context. All objects may in this way entail different meanings, but this does not necessarily make them boundary objects. Despite the widespread development of the concept, there has apparently been an ignorance of what a good or bad boundary object is. Even Law and Singleton, in their seminal paper "*Object lessons*" (2005),

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[14] The work of Karin Cnorr Cetina is an important exception here, although she emphasizes objects as knowledge entities (epistemic objects) with a focus on knowledge sharing rather than integration of social relationships.

seem to neglect this issue, despite a very thorough deep-dive into objects and human relations. Too many authors of today seem content to describe an object as a boundary object, without paying attention to its qualitative measures (i.e. how well they enable integration across boundaries).

3.3 Discussion – the similarity of the object approach and social relationships approach

To describe the cross-boundary relationship, I have mainly drawn on theories regarding social relationships and boundary objects. The cross-boundary relationship can be depicted as an integrated social relationship mediated by boundary objects. This discussion section is intended to demonstrate important similarities on a general level regarding these two theoretical perspectives. The intention is to relieve on the limitations of both approaches. As will be argued is this possible by viewing these stances as complementary.

I will in this section show that despite their differences, theories on boundary objects and social relationships intersect in important areas. Firstly, they offer a similar view on different kinds of relationships, of which particularly one kind approaches the notion of a cross-boundary relationship. Secondly, they agree on important aspects within this kind of relationship – change and meaning. In this section I will argue that the way objects cross boundaries are of importance for relationships to become more integrated. I will do this by employing the workflow modeling of integration and compare it to how objects may travel between actors.

3.3.1 Objects, social relationships and differences in integration

While objects' importance for collaboration has received some attention in healthcare lately (see for instance Melby (2007), Mol (2002; 2002), Singleton (2005)), political documents on cross-boundary collaboration tend to emphasize the team-aspect of such practice (Shaw et al., 2007). This approach, mainly focusing on integration of social relationships (Sjøvold, 2006), has proven valuable in a number of other contexts, (for instance industries converting to team-based organization (Mohrman, Cohen, & Mohrman, 1995), but as shown in the previous chapter has met some resistance in healthcare contexts. One important reason, as will be laid out more thoroughly in this chapter, may be that this perspective entails a challenge to the professional boundary. Theories on boundary objects approach this matter differently, in that the boundaries are not a problem in themselves. Quite the contrary, may they be the reason why a collaborative system holds. This area of research is however not very well explored when it comes to how objects may enable more or lesser integration in the relationships. We know that objects have the potential of mediating human relationships, but we know little about how they enable (or disable) integration.

I showed in section 3.1.1 how integration of social relationships can be modeled, drawing on Thompson's workflow interdependencies, Sjøvold's group functions and the differences of shared spaces in the concepts of multi-, inter,- and transdisciplinary. The hierarchy that Carlile develops, shown in section 3.2.4, is arguably similar to Thompsons' way of decomposing tasks into subtasks and analyzing the relations between them (which will be explained in more detail below). And Thompsons' labels may, as argued previously, be translated into different social structures of collaboration between different disciplines such as multi, inter and trans-

disciplinary. These in turn bear resemblance to diverse forms of group functions and social relationships. In other words may Thompson's interdependencies be associated with differences in integration of social relationships and differences in how boundary objects enable integration. I have conceptualized this in table 3.2. The reason for drawing this comparison, and that will be explored more thoroughly later, is that the movements of different workflows are important to understand how cross-boundary integration with objects may be attainable.

The table is intended to show that there is some resemblance between the various concepts, however not directly. The different types of boundary objects need to be understood as *enablers* of the associated social structures. *Repositories* enable collaboration with pooled interdependence between the actors, with little or no social interaction needed. As for instance in a library, where the only connection between two individuals is that they have borrowed the same book, but where the book has in the meantime been left on the shelf for two weeks. *Standardized forms* allow for unambiguous communication between the actors, and enable therefore a sequential form of interaction. This requires, as opposed to *repositories*, a connection point that links the two individuals. The objects may be ordered and piled as within a library, but they have always a sender and a receiver (as for instance email, a standardized form of electronic communication). The two next levels are more abstract and it is difficult to impose a concise division. The important aspect of *objects, models and maps (OMM),* is that they not only allow for different user interpretation but aspire changes. It may be argued that not all OMM enable the transformation of knowledge, as this is inevitably dependent on also other elements than the objects themselves. When they do however, they enable also the most integrated form of social interaction, with dissolving of social roles and joint transformation between the

actors.

Table 3.1: The relations between boundary objects and social relationships

Carlile's boundary objects	Thompson's workflow interdependencies	Jantsch's Collaboration across disciplines	Sjøvold's characteristics of social relationships in groups
Repositories	Pooled		Non-social
Standardized forms and methods	Sequential	Multi-disciplinary	Weak social relationships, strong role structure
Objects, models and maps (OMM)	Reciprocal	Inter-disciplinary	Looser role structure, but strong leadership
OMM that enable transformation of knowledge.	Intensive	Trans-disciplinary	Transformative relationships, dissolving of role structures.

The important argument that may be inferred from this setup, is that objects that cross boundaries enable differences in integration in much the same way as the social relationships tradition. They mediate relationships in different ways, and they achieve in this way different kinds of integration across the boundary. The important argument is that this depends on *how* the objects travel, or in other words how they cross the boundaries. This is emphasized with Thompson's notion of workflow interdependencies, which can be understood as different travel patterns of objects across the boundary. OMM objects may enable integration across the boundary, but as Carlile himself notes, may this be just as well a matter of how the objects are used as how they look like. Therefore, the movements of objects across the boundary are of

uttermost importance. A sequential movement may not enable integration, while a more intense and complex movement may enable integration and thus a cross-boundary relationship. Next, I will explain why these movements enable integration across the boundary.

3.3.2 Objects, social relationships and movement

This potential of OMM objects to enable integration in the relationships is important and distinguishes these kinds of boundary objects from others. The divide between OMM and the other types of boundary objects (which I will call non-OMM) needs some further explaining and is what I will investigate in this section. I will develop this argument with the help of some metaphors from the world of sports. In particular I will describe collaboration with OMM-objects with the metaphor of soccer, and collaboration with non-OMM-objects with the metaphor of relay race. I will explain more thoroughly why these special movements of OMM-objects enable integration.

Invoking examples from ball games, and soccer in particular, seems to have been a popular practice in organization studies (Weick, 2001b). Soccer has also received some attention in describing how objects attain meaning (see Serres (1982/1995) and Middleton & Brown (2005))[15] . In addition, Nonaka & Takeuchi (1995) use the differences between relay race and rugby to describe two different forms of collaboration. The difference that I will draw attention to is the different use of objects in these two sports. The argument goes as follows: In a soccer game, the

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[15] The ball in itself is nothing, but garners meaning through passing from player to player.

object (the ball) moves from player to player in a very different way than the object in a relay race (the stick). In soccer, it is often difficult to tell or pinpoint which single kick or interaction with the ball that leads to a goal (Middleton & Brown, 2005). A number of different movements lead to the important event of scoring, and the movements need to be understood in relation with each other. The ball moves back and forth between players, and the players move and position themselves to where the ball is even when they do not actually interact with it. The ball creates a network of relations between the players, where the transactions between them (passing the ball) are of utmost importance for the outcome. Not so with the stick in the relay race. The transition face is here of a rather minor importance for the outcome of the process. One could for instance imagine a relay race, where each runner lay down the stick upon finishing his stage, and that the next runner picks it up when he is ready to do his part of the job. The outcome then results from simply adding up each running time, removing the idle time when the stick lays on the ground. The total time would arguably not be much different from a relay race with a more fluent transition face.

The movements themselves are important for how these objects enable differences in integration in the relationships. In the ballgame for instance, the ball is nearly always in movement. This movement creates a relationship between all players, because they need to relate to the ball even when they do not interact with it. OMM objects, therefore, enable relationships that change continuously. This is not a sequential change, where one movement enables other movements. Rather, it is a movement that emerges[16] from the totality of smaller movements. It is not a ballgame

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[16] Emergence is here intended as a kind of attribute not reducible to smaller characteristics. Emil Durkheim introduced this idea to the social sciences, using H_2O as an example. Water has attributes that one cannot deduce from neither Hydrogen nor Oxygen. Durkheim argued that also social entities could have emergent properties.

with players going solo; it is a collective effort not reducible to single players. The ball, as an OMM object, is at the center of these movements. It is so not only because it is round and made of leather, but because all players connect to each other through the ball. When the ball moves, so do the players. Players move with the ball and without, offering an ongoing movement of themselves and the ball. Thus, OMM objects move in many directions. This is the important attribute; this is what enables joint transformation and integration between the actors; this is how objects enable integrated relationships across boundaries. It is not a process where one part determines the outcome of the next part. It is a process that is ongoing, and which is not reducible to smaller parts. It is an integrated process that reflects the integration of the relationships between the actors.

The important difference is then that in the soccer game, the wholeness of the task is not easily separable in smaller subtasks. This wholeness is due to a network of integrated relationships between the actors. In relay race, the subtasks may be as important as the wholeness. They are easily separable, and thus entail relationships that are not integrated but segregated. Objects that cross boundaries back and forth between all actors may therefore enable more integration than objects that move in a more sequential fashion. This is due to objects' abilities in creating a network of relationships, which create a wholeness out of the performed actions.

However, performance of objects would not have been important were it not for the context surrounding the play. In other words, complex movements of the ball would not have networked the players were it not for the field, the goals, the rules etc. This brings us to what motivates these movements, or in other words the meaning that actors interpret from these movements.

3.3.3 Objects, social relationships – meaning and change

People act in certain manners based on both past experiences and future expectations. This is however not to say that actions are always a result of conscious decisions; rather they are just as much the result of environmental factors (Snook, 2001) and our inability to understand our actions until after they have been performed (Weick, 1979). This argument is an important part of understanding how objects have agency, and that actions are often succeeded by unintended consequences (Latour, 2005; Law & Singleton, 2005)[17]. For the sake of meaning, this entails that actions are just as much a matter of interpretation as it is a matter of decision (Snook, 2001). In this section I will argue that these processes, when associated with the cross-boundary relationship, are based on meaning and joint transformations.

It is important to understand that a process of reaching an integrated relationship depends on how actors are able to interpret meaning from this process. Meaning is of essence in collaborative contexts and important for relationships to persist (Hare, 2003). This is not a controversial statement, but it becomes bluntly harder when trying to define what this meaning consists of and how it is produced. The arguments so far suggest that meaning in a cross-boundary relationship has something to do with objects that move, but also that it depends on a social context (section 3.1.3). Meaning is for representatives of the social relationships strand about social interaction (Hare, 2003; Weick, 1995); while for the object strand it is inevitably tied to interaction with objects (LaTour, 1993; Law, 2000). However, if we add one of Latour's imperatives for ANT (Latour, 1999) – *action makes the actor* –

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[17] They follow here the theoretical position of a processual view on reality. Process theorists consider change ontologically prior to social structure (Carlsen, 2005). Robert Chia (2002), an important advocate of this perspective in organization studies, advocates that "…*reality is always heterogenenous and becoming…*" (in Carlsen (2005))

we see that this in many ways has a resemblance to Weick's notion of retrospective interpretation (Weick, 1995). Meaning does not precede actions or events, but emerge within a network of enacted entities. The actor term of ANT has little to do with subjective interpretation, but is a result of the surrounding network. Weick focuses arguably more on the subjective interpretation part, but agrees that situational factors are imperative for this interpretation (Snook, 2001). For instance, in a friendly fire accident over Irak, Snook used the sense-making perspective to argue how the shoot-down of friendly aircraft was not the result of a conscious decision by the pilots, but a complex constellation of surrounding factors. In other words, says Snook, that this event can only be understood if involving also material constraints, surrounding contexts, enemies etc. These would in the ANT vocabulary be denoted as actors, and the whole situation as an enacted network.

A network of relationships then holds because objects move between actors, but also because these actors interpret meanings from these movements. This meaning is then not only a basis for the movements (that the actors make the objects move); it emerges from interpreting these movements in relation with other actors in the network. The cross-boundary relationship can therefore be understood as a network of relationships, built up by different actors. This kind of network can be inferred from figure 1.2., added with the importance of meaning interpretation in the relationships.

3.4 Conclusion – a theoretical basis for understanding cross-boundary relationships

The previous section's rather theoretical discussion shows the potential in understanding a collaborative relationship across a professional boundary as both

social and mediated by objects. A cross-boundary relationship is a relationship that achieves social integration with the use of boundary objects.

There is, despite some diverse angles, some similarity between how researchers from both sides interpret integrated relationships[18] (be it mediated by objects or not). It is possible to argue that they speak of some of the same effects of integrated relationships: 1) Meaning emerge from a totality, and 2) changes encompass the whole relationship (they are not local but general). My theoretical layout in this section shows that relationships mediated through objects, or in other words collaboration with boundary objects, may enable some of the same effects that more integrated social relationships do.

This is an important insight, because when objects do this work of integration, the professional boundaries are not challenged in the same way. In other words, it may be a more fruitful approach towards collaboration across boundaries in health care. When professional boundaries are allowed to be a part of the collaboration, instead of being a case of obliteration, we may see a more integrated form of collaboration. Differences then enable collaboration, instead of impeding it. This argument has been emphasized in research previously by Mol (2002) and Weick (2001a), but received little attention. Mol has for instance shown that ontological differences of medical objects are what enable cross-boundary collaboration in healthcare. And as shown in my paper 3, is the concept of loosely coupled system a fruitful perspective to employ in such contexts. Both studies emphasize that the boundaries themselves are important enablers of cross-boundary relationships.

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[18] Latour and Law do not distinguish or rate relationships in networks; actor networks are (seemingly) either sustained/stabilized or not. Arguably, these networks then exemplify sustainable social relationships.

This is not to say, however, that the social context is not important. As shown previously, is sociality important for understanding oneself in a professional context. This interpretation is not possible by relating to objects only, but needs to be understood also as a matter of social context. The merged subjectivitity shown in section 3.1.3, encompassing important aspects of a social relationship such as trust, respect and honesty, is all in all a social matter. Objects may have agency depending on their characteristics, but there are inevitably important elements of a human relationship that are only human and cannot be induced by object properties alone.

I suggest therefore that in a cross-boundary relationship the object and the social may be seen as enabling each other, to achieve an integrated relationship. This interplay between objects and sociality is demonstrated in figure 3.2. It is intended to show that in a cross-boundary relationship sociality and boundary objects enable each other through a process that allows for integration across the boundary. With the concept of sociality, I intend aspects as formerly addressed in the notion of *intersubjectivity*[19] – trust, honesty, and self-respect in a context of social support. The concept of boundary objects is intended to encompass the previously mentioned nature of OMM-objects (Objects, Models, Maps), which allow for intensive workflows across the boundary.

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[19] It is interesting to note that the concept of *intersubjectivity* has been important also in some of Latour's arguments. However, Latour rephrases this notion into *interobjectivity* (Latour, 1996).

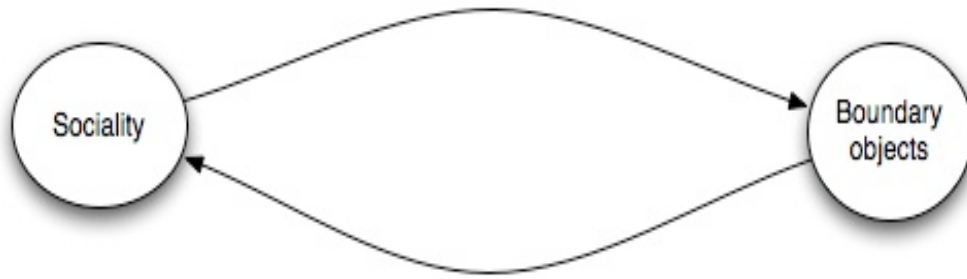**Figure 3.2: The interplay between sociality and boundary objects in the cross-boundary relationship**

How then this is performed in a professional context will be elaborated in the discussion part. I will there draw further upon the important bases for cross-boundary integration identified in this section - movement, meaning and change – and focus on how the professional boundary enters into play.

4 Scientific reasoning and methodological considerations

In this section I discuss some aspects around science and research to provide a backdrop to the methods used in the thesis. I will first present the methodological considerations of the papers, and then a discussion of weaknesses and strengths of the studies. I will then discuss the thesis' scientific basis in light of some theories on philosophy of science. The intention is to offer a basis for a discussion on how it is possible to state something about boundaries and relationships – entities that exist only in relation to other entities and not in themselves.

4.1 Methodological considerations in the papers

As I present the scientific considerations for these papers, I refer, for more methodological matters, to the papers themselves; in these I present the more technical and procedural steps behind my data collections. In this section I want rather to present the more "informal" story behind the papers. An overview of the material is presented in table 4.1

Table 4.1: Overview of empirical material

Paper	Methodology	Data material
Paper 1 and 2	Open-ended semi-structured interviews, focus group discussions	12 interviews, two focus group discussions (1 hour each)
Paper 3	Close-ended semi-structured interviews and observation	15 interviews Approx 40 hours of observation
Paper 4	SPGR questionnaire	220 respondents

4.1.1 Paper 1 and 2

Both papers are based on the same study. During my first semester of the PhD program, I wanted to investigate the concept of "*Expert Patients*". I conducted some informal interviews with health professionals on the subject, and they all encouraged me and said that this was an important and interesting subject. My intention with using the concept was to investigate what happens when the patient knows more than his caretaker. I sought to get an answer on this by interviewing relevant personnel in a unit where the head physician had exclaimed the presence of at least two expert patients. The aim was to research stories of their meetings and the health professionals` perceptions of Expert Patients, how they related to patients with expert knowledge, questions of power and authority, and, maybe most important, how they managed to build and sustain relationships with these patients. My assumption regarding these patients was built on both scientific and lay stories of patients that could challenge doctors and nurses on medical grounds. The main research question was:

How do health professionals relate to Expert Patients?

I ran into a number of problems - both practically and empirically. Firstly, it turned out that the doctors and nurses at the unit had not previously used the expression "expert patients". Every interview proceeded for at least 1/2 hour before the interviewees admitted that the expression was unfamiliar to them. Secondly, I found, as I dug into the concept, that the expression was nowhere near a definition with the clarity and distinctiveness that could make it usable in scientific investigation. Among other things, the notion of patient expertise was by some health personell understood as the patients' subjective experience of coping with an illness. They would probably not agree with my intention behind the concept at all (see for instance Tyreman (2005)). Further, the concept was already applied in patient educational efforts as an NHS initiative (see for instance Donaldson (2003)). And last but not least - the concept of expert and/or expertise turned out to be difficult to formalize and apply to a lay person (see for instance Wilson (1999)).

Luckily, the interviewees did not have these oppositions against the concept, and, maybe just as fortunate, they did not present any institutionalized perception of it (i.e. that the expression was built and developed over time at the unit).

I was therefore left with stories of all kinds of patients. As it turned out, throwing the concept into an interview situation made the professionals reflect on many different patient stories and their position among these. As neither they nor I (I because I was looking for their perception and would not impose my thoughts on them; they because of their unfamiliarity with the concept) exclaimed any explicit perception of an Expert Patient, the professionals would often need to incorporate the other patients in the unit as well - to justify their perception of the concept. They would for instance say that "this patient X is an expert because he reads his own

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blood samples - not so with patient Y that needs our help with everything". This turned out to be an interesting sample for researching into how health professionals relate to *different* kinds of patients, and thus formed the basis for my Paper 2. I readjusted my initial research question as follows:

How do health professionals' perception of patient knowledge and involvement influence on shared decision-making?

Despite the many stories of different patients, there was however one patient that stood out from the crowd, and of which every doctor and nurse offered a story. This patient was unique in this study because the professionals had a coherent perception of why they would see him as an expert. They all described their perception of an important happening in his trajectory (the foreign treatment, ref. Paper 1). This made the foundation for Paper 1. For this data set, I formed the following research question:

How do health professionals make sense of patient expertise?

This study thus offered some insights into how health professionals interpret their relationships with patients. To gain more insight into how health professionals relate to each other in a more practical setting, I developed a different design.

4.1.2 Paper 3

In this paper, I adopted a rather different approach. For this study, I laid out

the more practical venture of assisting the development of a more efficient interdisciplinary work at a hospital unit. This was done together with my supervisor and a Master student, Erlend Fiskerud. The Master student started out within my second semester of the PhD, and obviously had to finish his work before me. I participated in some of his meetings with the professionals at the unit, and at his presentation of findings. After these meetings, I continued his work at the unit, supporting my supervisor in seeking for more efficient cross-boundary collaboration at the unit.

More specifically, we wanted the health professionals at the unit to design a more efficient patient throughput. This would be achieved by gathering them in meetings, letting them argue and discuss about how to form a logistic structure that could be more efficient. In addition, we let the different professionals complete the SPGR formula (explained in more detail in the next section). Our intention was to see if there was any sign of developments in the relationships between them.

My intention on following the unit extended, however, further than these meetings. I was particularly interested in their interactions in normal work situations, as well as in the meetings organized by us. I thus followed them in the one natural setting where all professionals worked together. This was called "*The Collaboration meeting*", and was an arena where they reunited to cooperate (in their own words). These meetings were arranged each Monday, and I followed these meetings for approximately 1 year.

The study was initially planned with a practical end, which I developed into the more theoretical research question:

How do objects in health care either mediate or sever cross-boundary relationships?

4.1.3 Paper 4

The previous studies offered insight into both how health professionals interpret their relationships with different actors, and how they construct these relationships through collaborative practice. The studies offered knowledge on how boundaries change as the result of interpretation and action. What they could not help me explain was the more general view on professional boundaries as an a priori entity, and whether there was something resembling a general structure, forming prior to collaborative activities. As mentioned previously, professional boundaries are the outcome of socialization processes. Yet, health professionals work with patients and other professionals all the time. Why then do the boundaries linger? Why are they upheld? What make them persist when challenged? In other words, what is causing an apparent stability in professional boundaries? The former studies described some of the processes around boundary developments focusing more on the how's, but maybe to a lesser extent could explain the why's. I also felt a need to focus on the boundaries themselves.

This was judged to be a quantitative question. The paper is the result of a data collection performed by my fellow PhD student, Jan Tore Lium. During a larger study on health professionals' perception of EHR (Electronic Health Record), he conducted SPGR tests on several hospitals in Norway. SPGR formulas were distributed to health personnel as part of a larger study on EHR. SPGR is a model for analyzing interacting patterns within a social system. The results offer knowledge on how a large number of

doctors, nurses and administrators perceive their working reality, culture, structure and fellow co-workers. The material was collected on the basis of the following research question:

Are professional boundaries upheld by professional culture or organizational structure?

4.2 Strengths and weaknesses

In the thesis I have used both a quantitative approach, interviews and observations. All these techniques have their strengths and weaknesses. How do they relate to and complement each other?

Both Paper 1 and 2 are based on an interview study. Some researchers claim that there is a growing mistrust towards interview studies in organizational studies (e.g. Czarniawska (1998). The main problem seems to be that according to some seminal papers in organization theory (like for instance Brown and Duguid's paper on Xerox machine repairers (Brown & Duguid, 1991)), actors act differently from what they say they do. There is thus a difference between theory espoused and theory in use (Argyris & Schön, 1996). It is therefore very important to be cautious about what interviews may offer knowledge on. For instance, an interview study on managers' strategic decisions should result in knowledge on "*How managers account for their strategic decisions*", where only an observational study may give answers to the question "*How managers perform strategic decisions*". The important thing is therefore to study peoples` perception of things by performing interviews, and to study their actions through observations. Another issue regarding interview studies in

organizational studies is the metaphysical question of what an organization is. Some researchers, like Latour, state for instance "…*action makes the actor*…" and to study relations by "…*follow[ing] the actor*…" (LaTour, 1993), thus emphasizing actions as the constitutive elements of an organization, and the (only) important element to study.

However, I believe that interviews may serve as more than just individual interpretations, and that observational studies may not account for all kinds of relationship studies. As John Law points out (1994), nothing ever happens right where and when the researcher is observing. And important happenings are often made into such through accounts (Czarniawska, 1998). In some of my arguments, I also employ Weick's notion of retrospective sensemaking. Researchers adhering to observational studies might object to this by saying that the actors' perception of what went on may not even have happened. They may say that it may just as well be fantasy, and that interviews are nothing more than representational data. Representational data are however important in organizational studies because they are an important part of organizing, and therefore play operational functions (Czarniawska, 1998). In addition, adopting the perspective of critical realism, the important issue is to study what has causal efficacy (Fleetwood, 2005). If stories or accounts matter, then they should be studied as important even if they may not reflect actual events. I believe thus that both interviewing and observing are important. They may complement each other, and ought in turn to be complemented by many other techniques (Czarniawska, 1998).

Interviews and observational studies may thus together be an important contribution to my knowledge of professional boundaries. But what about quantitative methods? Some may object to the mix of quantitative and qualitative data, stating that quantitative research is based on the ontological assumption that the social world is

discretely and logically ordered (Kvale, 1996), while the qualitative builds on interpretation and hermeneutics. The dichotomization between these methods are quite distinct, as *quality* refers to the essential character of something while *quantity* refers to the amount of something. Attempts in social science of bridging the gap have so far been unsuccessful (ibid). The question is then how these two strands may say something about the same phenomenon. I believe that using both can be understood as a form of *methodological triangulation* that might benefit my data collection. Experiences from multiple sources of evidence are important (Yin, 1994). Rather than stating different things about different phenomena, my interpretation of the findings may accumulate in different findings on the same phenomenon. Using several and different methods may be a valuable tool in offering multiple sources and references, and thus important in revealing more knowledge. I see this as an advantage rather than a weakness. This rests however upon my ability of seeing the sources in the same context and find the commonalities.

4.3 Differences and commonalities across the studies

There are potentially two further critical assumptions in this thesis that need to be addressed: 1) I investigate both nursing and medicine practices, as well as relationships with both patients and other health professionals, and 2) I use both quantitative and qualitative methods. How is it possible to generalize arguments across these differences? I will start out discussing how my arguments may be seen as primarily descriptive, but that they may have value for normative propositions. I will then discuss how knowledge can accumulate across the different methods and study objects. The main argument I present is that although the studies I draw upon are

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different, they all seek to describe health professionals' relationship with actors external to the professional boundary. This is also illustrated in figure 1.1 and 1.2.

A normative statement affirms how things ought to be, through a qualitative or quantitative assessment. In contrast, a descriptive statement is a description of reality without any judgment criteria. The knowledge deriving from this thesis is essentially of a descriptive character. It *describes* how health professionals collaborate across boundaries, and not *how they should* work. I have not established any criteria for assessing how they work, nor have I studied this in the different papers. All papers aim to describe the different cross-boundary relationships, rather than doing any analysis of cross-boundary collaboration and for instance efficiency. Through the qualitative analyses, I have established health professionals' perception of relationships (interviews) and also described how they develop these relationships in practical work situations (observations).

However, this does not mean that the descriptive statements and arguments of the thesis cannot be developed into normative. The descriptive statements may lay a basis for further research with a normative angle. This would then involve a development of criteria under which different forms of cross-boundary relationships function. For instance if more integrated cross-boundary relationships enable more efficient work practices. It is important to emphasize that this kind of work is not done in this thesis, and that any normative statements as such may not be scientifically valid. However, it is relevant to point out that I use an important normative assumption of the cross-boundary relationship – namely that more integrated relationships allow for more coherent services (for patients) and more learning and adaptation to complex contexts for professionals. This normative assumption is not tested per se, and I can therefore not make any normative argument

out of my empirical investigations (this is neither the point). The descriptions I offer may however be useful in building normative assessments, and because of the normative assumption I use may this not be far-fetched.

A road towards making any normative claims is to assess the generalizability of the data. In philosophy of science, one normally distinguishes between a singular proposition, existential proposition and universal proposition. A singular proposition would be "*one swan is white*", an existential "*some swans are white*" and a universal "*all swans are white*". Universal propositions therefore assume the character of also being normative (K. Johannessen, 1992). If all swans are white, then a black bird cannot be a swan. This famous example of swans is part of Popper's falsification argument (Popper, 1959), where he contends the positivist assumption of universalist statements. This contention is a just claim towards the positivist argument of verification; the positivist project has not succeeded in claiming rules or propositions for universalist arguments (K. Johannessen, 1992). My intention with this thesis is neither to claim any such propositions; in other words it is not knowledge that impose standards, rules or axioms on the cross-boundary relationship. It is a description of the phenomena studied, which offer valuable insight on understanding the cross-boundary relationship. This understanding may be valuable in also other contexts, but I do not claim that it is of a universal character.

It is further important to assess how my scientific propositions can generalize across qualitative and quantitative studies. The argument of propositions' generalizability is generally understood to be important in quantitative research. This is often likened with the term reliability, which entails to which extent it is possible to replicate a study with the same results. 'Authenticity' rather than reliability is often the issue in qualitative research (Silverman, 2001), which entail for my qualitative

studies that a valid interpretation of the data may be more important than an exact replication with the same findings. Reliability may be achieved in qualitative interview studies with for instance fixed-choice answers and inter-rater reliability checks (ibid), but as I see it this comes at the expense of a diminished explorative approach. In my qualitative studies, it was important for me to understand the breadth of a field that at the beginning was little explored. Thus, rather than achieving replicable results, it was important to not leave out important issues that I could not know of in advance. Further, as is exemplified with the study of the expert patient, I have investigated phenomena that are marginal. Rather than doing a research study on the 'normality' of these phenomena, I have explored the elements that constitute them. It was more important for me to understand and describe the different elements in the expert patient relationship, and not any quantitative assessment of the distribution of such patients. The quantitative measurement was however judged as important in understanding the prevalence of professional boundaries, as assessed in paper 4. In this study, we wanted to say something of the representativeness of a well-known entity – the professional boundary. As Arber (1993) points out: "…*if the population characteristics are known, the degree of representativeness of a sample can be checked…*". This quantitative assessment is further intended to say something of the potential for cross-boundary relationships to develop, based on a representative sample of Norwegian hospitals. As such it offers knowledge on the potential in the general population of Norwegian hospitals, which is important both to understand the relevance of this thesis and to understand professional boundaries in this population.

An important question is then how studies that are seemingly of different character can say something of the same phenomenon. The essence of this thesis is to describe how health professionals construct relationships across their professional

boundaries, with an emphasis on integration in these. The question is in other words to what extent my studies offer insight on this kind of relationship and how they complement each other. I have already sought to explain some of the reasoning behind doing both qualitative and quantitative assessments of this phenomenon. In essence, I have used qualitative studies to build insights that go deeper in understanding the cross-boundary relationship, while the quantitative study offer knowledge on the representativeness of professional boundaries in the relevant population. I have also stated that a generalizability of the results has not been a goal per se, it has rather been to investigate deeply into phenomena that are little understood in advance. That said, there are methods to achieve generalizability inferring from one case to a larger population. Hammersley (1992) suggests that it is possible to obtain information about relevant aspects of the population of cases and compare with the single case. He argues that such a comparison with a larger sample may allow for some sense of representativeness of the single case. For my study, this would imply a comparison between the single case studies of paper 1-3, compared with the larger sample of study 4. Although this would be possible, I have not conducted any such comparing.

The reason why I chose to not do this and build some sort of generalizability out of the totality of the data, is a wish to *describe* the phenomenon of cross-boundary relationships. I intend not to present general laws of this relationship, but build a deeper understanding and meaning of the phenomenon. This is as such not general knowledge, but deeper and specific knowledge drawn from the more intensive analyses that qualitative studies offer over quantitative. Reliability may therefore not be the most important criterion to assess the credibility of my findings. On the other hand is it of uttermost relevance to discuss the validity of the arguments drawn across

the different findings, and thus how the quantitative study fit with the qualitative studies. As already mentioned in the previous section, do the different studies form a comparative method called triangulation. This form of method, combining different methods and different kinds of data, has been suggested as particularly appropriate in claiming validity in qualitative research (Silverman, 2001). The method is however not without weaknesses, and some authors argue that rarely does the inaccuracy of one approach to the data complement the accuracies of another (Fielding & Fielding, 1986). The point of complementary data is crucial, and emphasized also by Yin as important (1994). I will therefore next explain how the different methods and data may complement each other in offering valid knowledge on the cross-boundary relationship.

I wish first of to recall attention to figure 1.1 and figure 1.2. These figures depict the overall picture of what I see as essential for cross-boundary relationships in health care – namely health professionals' relationship with patients, with each other and with objects. I believe that although these relationships per se are quite different, they offer important knowledge on how health professionals relate across the professional boundary. It is important to stress that the health professional is always at the center of the different studies, and as such the important commonality between them. Further, it is often the case as shown in figure 1.2 that the overall picture is a complex mix where all the relationships mix together, and actors and objects mediate relationships between each other. I believe further that these differences are best studied with different methods, or in other words that some methods are more appropriate with one kind of relationship but not the other and vice versa. To study how health professionals relate to their professional boundaries in a collaborative context, I found it appropriate to use observational studies added with interviews. To

understand how health professionals' perceive relationships at a deeper level, it was appropriate to use in-depth interviews. To understand relationships at a general level, it was appropriate to use quantitative analysis. Together, the studies offer a composite although not exhaustive view on how health professionals build and sustain relationships across their professional boundaries. The studies do not necessarily merge together to form a unified picture, but rather complement each other. Seen together, they form a better understanding of a totality than they do alone. This is shown in figure 4.1. I here try to illustrate that each study are per se different, but in their commonalities offer a combined view on the cross-boundary relationship.
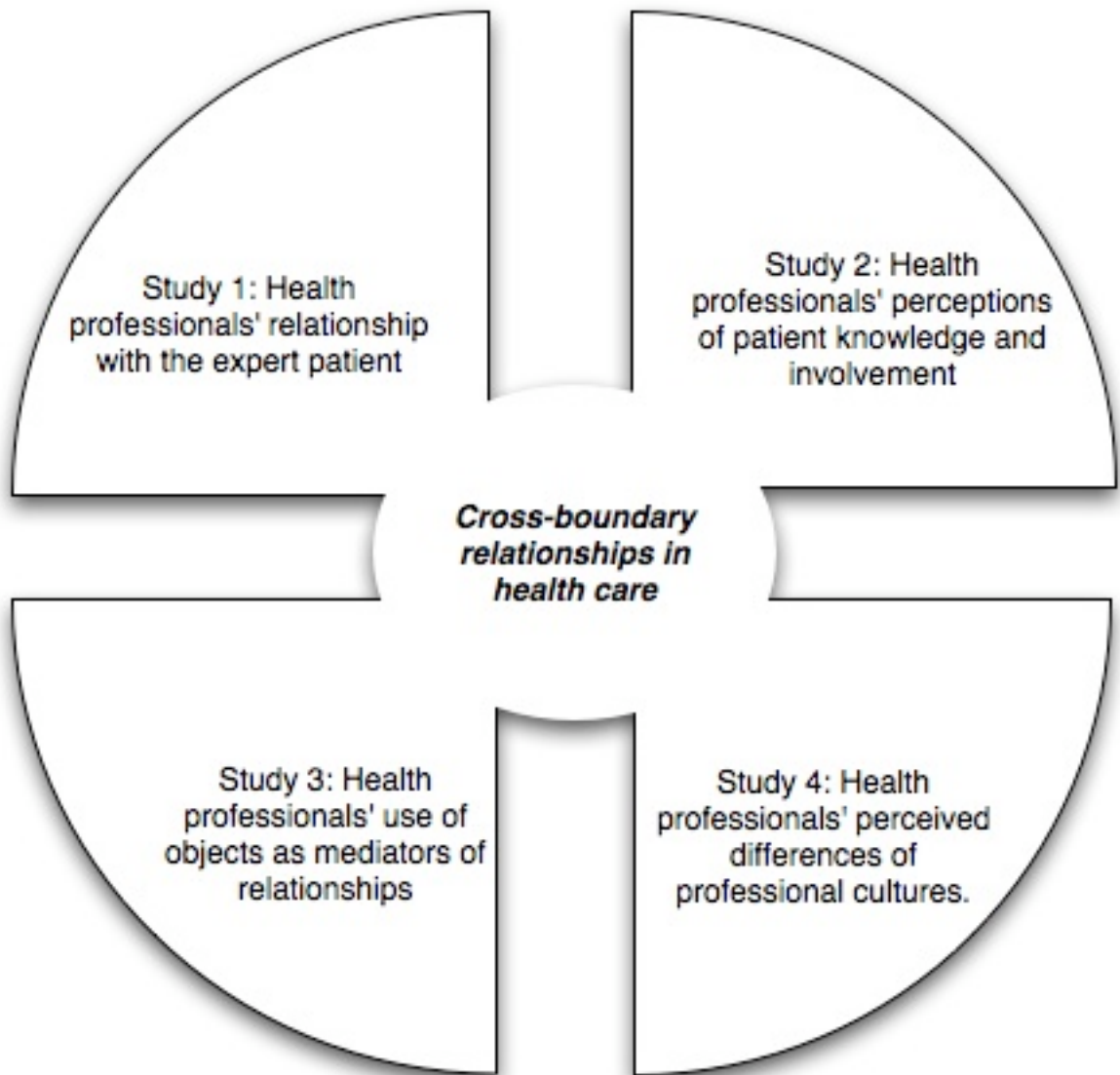
Figure 4.1: Relationships between studies and research subject of thesis

The reader will probably notice that I pay less attention to the external actor here, i.e. the one on the other side of the professional boundary. In building this kind of argument, I therefore draw similarities between patients and 'external' health professionals that are not necessarily there. This is a weakness that I acknowledge, but that may be of lesser importance in this context. I believe that all studies offer knowledge on how health professionals build relationships across their professional

boundary, be it with patients or other professionals. As also mentioned previously, I have emphasized the relationship itself, paying less attention to the entities that connect with each other. There are probably generic differences between a patient-physician and physician-physician relationship that are not addressed here. However, the theoretical perspective I employ entails also lesser attention to these roles. As addressed in section 3.1.3 is the interactionist perspective I use to understand the cross-boundary relationship one where relationships are between humans and not between roles.

4.4 Science and philosophy

In this section, I will employ a philosophical perspective to understand the methodological basis of the thesis. The reason is to offer a more general view on how it is possible to study scientifically an entity that is hard to pinpoint – a relationship. I will discuss this drawing on theories from philosophy of science. I will therefore next look into some of the foundations for my scientific reasoning, by taking a small investigation of what scientific knowledge consists of.

One easy and intuitive approach to the question of "what separates science from other epistemologies" is the so-called *naturalistic* perspective. This perspective commonly rejects subjective experience, feelings, intentions, and political and economical interests (J.-A. Johannessen & Olaisen, 2006) The empiricist version, one important naturalistic strand, claims that scientific knowledge is special because it depends on systematic observation and measurement (Yearley, 2004). It emphasizes the role of sensory perception in the formation of ideas. For methodology's sake, it claims that all hypotheses and theories must be tested against observations of the

natural world. It contends thus a priori reasoning, intuition or revelation. The 19th and 20th centuries have seen many elaborations of this strand, as for instance naive empiricism, logic empiricism, and extreme empiricism. The early 20th century saw the rise of various strands of positivism that, in short, may be said to have enhanced empiricism with its stringent claims of mathematical logic (e.g. the Vienna circle, Frege, Wittgenstein). Following this perspective, any claims about the truth involve the systematic and reductionist investigation of sensory experience. It often involves large collections of data, and especially the positivists prefer a closeness to their data that blurs the distinction between ontology (the data) and epistemology (their understandings of the data) (J.-A. Johannessen & Olaisen, 2006).

Science is however more than just sensory experiences. Firstly, the use of scientific observation has no value in itself, simply because scientific knowledge always involve some element of interpretation. A trained geologist sees many things in a piece of rock that others don't. And scientific observation is something else than just taking images in. Observed images are biased by a pre-understanding before observation, and are also interpreted afterwards. Science is necessarily based on observation, but cannot be exhaustively justified by this alone. Human reasoning is an important element, if not the most important, in all research. The empiricists have historically put more focus on the observations themselves, rather than the reasoning (Yearley, 2004). The so-called neo-positivism, or logical empiricism, has received lesser attention after Kuhn's "The Structure of Scientific Revolution", but some claim that it still is "…*tacit philosophy for many scientists*…" (Bunge, 1996).

In social science, the naturalistic approach entails that objects or entities determine human actions and perceptions. Determinism is closely related to the naturalistic approach to science, often compared with theories adhering to

technological determinism. Schön argues for instance that technical rationality is the heritage of positivism (Schön, 1983). The basic assumption in technological determinism is the belief in applied science and technology as a benefit for the well-being of mankind[20]. The "opposite" of determinism is often denoted as constructionism, and is mainly described as a reaction to the positivist school (J.-A. Johannessen & Olaisen, 2006). One perspective within this strand that has received some attention the last couple of decades is *social constructionism*. This perspective caught attention in social science research through the book of Berger & Luckman (1966) - "*The Social construction of reality*" - where they argue that all knowledge derives from and is the result of social interactions. Further, they contend that many of our actions and beliefs are institutionalized, meaning that these are the result of prior actions and beliefs that are now taken for granted and not receiving conscious attention. The underlying reason or motive is therefore tacit.

Constructionism and determinism may be understood as forming a continuum, with different strengths. Constructionism has for instance later been developed into so-called weak and strong social constructionism, where the first allow for an underlying ontological reality (there are some objective facts) while the latter rejects this and sees everything as a social construction (approaching the far end of the continuum). The theories I invoke in this thesis are on the constructionist side of the continuum, which in short entails that human actions and perceptions are enabled, not determined. However, I also believe that there are some facts or entities that exist without having to be "constructed" by human intelligence. This point is an important foundation for the scientific foundation of this thesis, because I investigate something

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[20] The Atom Bomb over Hiroshima and Nagasaki finishing WWII is, from this perspective, an example of this.

that we may not see, may not experience consciously, and may not even be aware of –

relationships. Further, I also draw attention to boundary objects, which I argue have

influences based on their inherent characteristics, i.e. are not socially constructed.

This then draws attention to how I may state something about entities that do not exist

per se, but yet affect other entities. I will explain this more precisely in the next

section, focusing on what exists and how this existence influences us.

4.5 On what there is – epistemology and ontology

The American philosopher Willard Quine (1948, p. 21) sums up the

difficulties of stating anything about something in the following phrase:

"...'What is there? It can be answered, moreover, in a word--'Everything'--

and everyone will accept this answer as true. However, this is merely to say

that there is what there is. There remains room for disagreement over cases;

and so the issue has stayed alive down the centuries…"

Berger & Luckman (although far from being the first) obviously touch into

something important when they point at the existence of non-material entities. They

point for instance at social norms as important for the development of social

interaction. But norms do arguably not exist or occupy room in the Euclidean space.

The same is arguably true for cross-boundary relationships. This makes it difficult to

claim their existence, and poses some scientific problems in stating them as part of a

reality. Besides the previously mentioned strong constructionism, it is fairly

acknowledged in science today that there is a reality that we may state something

about. The epistemology behind objects that occupy Euclidean space is well-developed, but there is less agreement among scientists on how to say something about the social. Frege showed for instance, with his example of meaning and reference, that people referring to the same object do not necessarily understand it in the same way. Venus (the planet) may for instance be described as both "the morning star" and "the evening star" depending on context. They have the same reference, but different meanings. How could we then say something about these meanings? Are they as real as the planet itself? Professional boundaries, one important subject of this thesis, are neither identifiable in any Cartesian system. They are as such not observable in the empiricist way. This does not, however, mean that they do not exist or that they are not possible to study. But, as will be laid out below, it entails an explanation of how such entities come into being and how we may learn about them. It means a discussion of ontology's relation with epistemology.

The way we think the world is (ontology) influences what we think can be known about it (epistemology) (Fleetwood, 2005). The distinction between epistemology and ontology is, however, not always clear cut, and some would even say that dividing these two is an artificial separation. Latour (2005) paraphrases Kant's famous separation of "*ding an sich*" and "*ding für mich*" into the following: "*…The things in themselves, how are they? They are very well fine, thank you…*". Weick (2001a), in turn, states that causal relationships don't exist, they are inferred by human cognition. They address here the problem that the things we observe are always influenced by us observing them. One example that is often used to illustrate this is Heisenberg's *uncertainty principle*[21], which in short states that our observing of

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[21] Some believe this is a principle of *measurement* and not observation. I use this example for illustrative purposes only, not wishing to dive into this contention.

wave-particles pushes them into a different state. What we see of a particle is thus both the physical object but also our influence upon it. Drawing this notion into the social sciences, we are not able to perceive actions in themselves, only their traces[22]. As with studying particles, we may deduce where the particles have been, but not where they are. We understand action only after it is performed, and further that this understanding influence upon the action itself. The ontology is in other words influenced by the epistemology. This resembles the claims of the strong constructionists - that our knowledge of the particle has no direct relationship with the particle itself. The argument is however also based on empirical observation - that the particle is inevitably observable. Our knowledge of this object and the object's properties are thus both influencing each other. The important issue is therefore not if the epistemology determines the ontology or vice versa, but the relationship between them. Consequently, separating these two, if only for analytical purposes, is difficult.

This does not mean that things do not exist independent of our observations. Steve Fleetwood, drawing on *critical realism*, states the following (2005):

- **Entities can exist independently of identification**: Things may exist without someone observing, knowing and constructing it. Thus, what I study in this thesis may have existed even before I started my investigation. Even if they were tacit or, in other words, not explicit to my subjects.

- **There is no theory-neutral observation**: No unmediated access to the world is possible, it is always colored by something - be it politics, theories, etc. My

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[22] A more famous example of the observer effect in the social sciences is "The Hawthorne Effect", and for medicine one could add placebo. In essence, one might say that these cover the unobservable elements of human perception. Most sciences regard these effects as errors or biases that should be diminished. The essential insight from Latour and colleagues, is to reverse this argument and advocate that these effects should be studied as important.

research rests upon existing theories and the possibility of conducting investigations on this particular subject.

- **Reality**: For critical realists, an entity is real if it has causal efficacy; has an effect on behavior; makes a difference. Professional boundaries may or may not be real, but the idea of such boundaries is real if they make a difference to people's actions.

It is useful to stress that these arguments do not oppose the previously mentioned theories. They go for instance well together with the so-called *empiricist* strand, but under the name of *ontological relativity*. This line of thinking builds on the premise that things may exist despite our incapacity as human beings in obtaining sensory experience of them. Electromagnetic waves do for instance exist, but we cannot see, feel or hear them. The important thing is then how such unobservable phenomena may explain our observations. One might state that the important issue is how phenomena emerge to us, and not how they exist independent of our observations. This is an important basis for my studying of the cross-boundary relationship. I have in essence chosen a qualitative approach, based on the assumption that a solely quantitative assessment may offer poorer knowledge on the phenomenon. A quantitative approach would assess results according to statistical logics (and thus independent of me as a researcher), while the qualitative approach acknowledges the researcher's influence on the phenomenon being studied.

Quine (1951) concluded his "*Two Dogmas of Empiricism*" as follows:

"...As an empiricist I continue to think of the conceptual scheme of science as a tool, ultimately, for predicting future experience in the light of past experience.

Physical objects are conceptually imported into the situation as convenient intermediaries not by definition in terms of experience, but simply as irreducible posits comparable, epistemologically, to the gods of Homer. For my part I do, qua lay physicist, believe in physical objects and not in Homer's gods; and I consider it a scientific error to believe otherwise. But in point of epistemological footing, the physical objects and the gods differ only in degree and not in kind. Both sorts of entities enter our conceptions only as cultural posits. The myth of Physical objects is epistemologically superior to most in that it has proved more efficacious than other myths as a device for working a manageable structure into the flux of experience..."

What Quine says here is, to put it simply, that we can neither prove the existence nor inexistence of Greek gods. We might state, ontologically speaking, that Zeus does not exist. We must however, in terms of epistemology, consider how entities become real through their emergence and influence upon things that we may observe. From this angle, Greek gods are as real as the Gravity Force[23]. We may, rationally and ontologically speaking, state that the first do not exist but the latter does; but our knowledge of these objects depends on how they are associated with observable entities. One might say that even if Zeus does not exist, the idea of Zeus may be as real as a physical object. The important thing is if the idea has any influence on other entities, or in other words causal efficacy.

The suggestion that entities are real if they have causal efficacy is an important tenet of the scientific foundation of my thesis. And even more important for

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[23] You cannot observe the Gravity Force, only its influence upon objects.

the scientific investigation, is the notion that if an entity has causal efficacy, it makes a difference. The difference that an actor makes, or in other words its causal efficacy, entails some connection between itself and other entities. These entities or actors have in turn causal efficacy (or else they wouldn't be a part of the relation). This also makes it important to understand the relationships between the entities and how these come into being. Latour (2005) pp. 60 gives an example of a puppeteer and his puppets, and asks rhetorically *"Who's pulling the strings?"* Both puppets and puppeteer, he answers, suggesting that not only the puppeteer is what makes things happen. The puppets and the strings are also moving the fingers. But they need to be understood in relation to each other. The relationships I study in this thesis may thus be as real as a physical object, but only if understood in relation to what they refer to.

4.6 Ethical considerations

The PhD project was in its initial phase reported to the "Personvernombudet for forskning (NSD)" – a regional office for taking care of personal rights. All studies were in addition performed in accordance with the Regional Committee of Ethics. The committee was particularly interested in the part of my thesis involving patients and patient data. As I initially also wanted to interview patients, this involved a quite thorough application to the committee. However, during this process, the patient's unfortunate death made this no longer relevant. An oral confirmation was given to go ahead with my interviewing of the staff at this unit (the haematological out-clinic), although the interviews involved health professionals' perceptions of patients. All participants were given written invitations to participate in the studies, and I signed a confirmation of anonymity.

One salient ethical dilemma is the one of anonymity. For at least three of my articles, it was of relevance what kind of patients and what kind of professions were involved. In paper 1 and 2 it was for instance of importance whether a patient had a lethal condition or not. In addition, it was important for me to scrutinize the different professions' tools in Paper 3, and thus identifying them slightly. One could argue that it is possible to at least deduce the group of people involved, and as such that the objective of anonymity is not withstood. It is however not possible to retrace the individuals behind the data. The data is also transcribed while removing all elements that could retrace the subjects. A question is then if it is possible for the group itself to identity the different statements and retracing them to individuals. This is an empirical question, which I tried out on some of the nurses at the haematological unit after the study was finished. To my comfort, they could not pinpoint the statements in relation to different persons. I need also to add that the patients in all studies were always completely anonymized and never mentioned by name.

Besides these issues, I think that I maintained an objective of ethical conduct during my research. The informants were always invited to read my transcripts, and encouraged to leave or stop the interviews if feeling uncomfortable. One of the doctors wanted to read his transcript. Upon reading, he felt that some of the data concerning one of the patients should not be published, and I erased this section from the set. Following the group of different health professionals (for my Paper 3), we were open towards them on what we saw and how we interpreted their actions.

The data set for Paper 4 is randomized and anonymized and should as such withstand objectives of ethical conduct.

5 The papers

In this section I will present the papers briefly, and give an introduction to the findings. I have here developed some of my findings and interpretations a bit further than presented in the papers. For more elaboration and basics, I refer to the papers themselves presented in part II. An overview of the papers is presented in table 5.1.

Table 5.1: Overview of the papers

Paper title	Journal	Methodology	Status
Making sense of the active patient	Social theory and health	Qualitative – interviews and focus groups	Scheduled for publication des 2008.
Health professionals' perceptions of patient knowledge and involvement	Oncology Nursing Forum	Qualitative – interviews and focus groups	Scheduled for publication mar 2009
Interdisciplinary collaboration as a loosely coupled system – Integrating and blocking professional boundaries with objects	Journal of Interprofessional care	Qualitative – interviews and observational studies	Presented at 4th Norwegian workshop of Health Sociology, 2008. Under review
Interdisciplinary teamwork in hospitals – the effect of professional culture and organizational artifacts	Journal of Interprofessional care	Quantitative	Preliminary version presented at Nordic Workshop on Health Management and Organization, Copenhagen Business School, December 2006 Under review

5.1 Paper 1: Making sense of patient expertise

This paper regards a story of a special patient that, according to the interviewed doctors and nurses at his unit, attained treatments and resources that other patients did not. The paper is about the health professionals' perception of him, and how they perceived their treatment of him. Although the story regards the patient, it is thus about the professionals' perception of their relationship with this patient. Buy using the concept of sensemaking, it is discussed how the doctors and nurses attributed several and different elements to this relationship. More than anything, they perceived him as informed, in control and supported by external parties. As is argued, these elements emerged and supported each other, to sustain and develop this special patient role.

The main finding in this paper, is how these elements should be understood together and not by themselves. It is argued that the active patient identity resists understanding and is not something that can be understood by analyzing characteristics of active patients. Rather, it is a relationship that evolves depending on factors important for the social parts of the relationship. Contrary to what previous research emphasize as important, as for instance knowledge, empowerment and alliances with 3rd party actors, it is shown that the development of an integrated relationship between the patient and his caretakers may have been the important enabling factor of his identity as an active patient. As shown in the paper, the health professionals could not make sense of particular actions and interactions with this patient, when trying to relate them to his knowledge, involvement and alliances. They adopted various sense-making techniques to interpret this patient.

An alternative framework for interpretation of the findings is Actor Network Theory. The relationship between the patient, his caretakers, internet, 3rd party actors

and consumerism may be understood as a network with the patient successfully developing a more or less stable heterogeneous network, with himself as the focal actor. This network consisted then of the following actors: Consumerist approaches as an important macro actor in health care; Internet technology as an important information source; and 3rd party actors as important allies. All these actors were enrolled successfully in the network by the patient. Important for my arguing here, is however *not* the fact that this patient had access to Internet and leading health experts. The fact that he enrolled *different* actors as to form a heterogeneous network is argued to be the essential interpretation of this patient role. This patient reached an impressive level of agency and autonomy because he drew on different forces that supported each other. As argued in the paper, this enabled a form of support that the single network actors per se could not offer.

Conclusion: This network relationship emerged within the context of social interaction. The emergence of this network was made possible because of an integrated relationship between the patient and his caretakers. Due to this, it was possible for all social actors to transform their roles together - which made this patient unique compared to the other patients at the unit. The important lesson is however also the network's importance for the development of a social context. By considering and involving the external actors it was possible for the patient and his caretakers to develop a normal relationship into a more integrated one. It was thus a process between the development of a network as well as developing a sustainable relationship. These two developments were probably enhancing and influencing each other dialectically.

5.2 Paper 2: Health professionals' perceptions of patient knowledge and involvement as basis for decision-making. A qualitative study of the view of health professionals in a Norwegian haematology unit

The aim of this study was to investigate how health professionals' perceptions of patient knowledge and involvement influence the decision-making process for treatment. A qualitative, exploratory approach based on semi-structured interviews was conducted with 10 haematology health professionals in Norway. The professionals in this study perceived that they had a stable basic relationship with patients and at the same time were flexible towards patients with different levels of knowledge and involvement. The health professionals' perceptions of patients with different level of knowledge and involvement were grouped into four patient types: The passive, the withdrawn, the uncooperative and the 'expert' patient. These perceptions formed the basis of relationships involving shared decision-making or non-shared decision-making. The patients that were perceived as having medical knowledge were also perceived as capable of being involved in decision-making. The conclusion drawn in the paper, points to that patients' ability to master medical knowledge is important for how health professionals allow them to involve themselves in decision-making. Health professionals' tendency to see relationships with patients as basically asymmetric and stable may inhibit the possibility for other patients to involve themselves in decision-making.

The findings in this paper may also be interpreted as a question of how the professional role of health professionals is affected by different patient roles. The

findings indicate how a complex patient role resonates in a perceived complexity in the professional role. By a complex patient role, I intend a vast diversity in how different patients relate to their caretakers. The professionals in this study were both being flexible and stable in their role as professional practitioners. To be more precise; they perceived their own role as being flexible because they legitimized this with a perception of the professional role as stable and immutable. One possible reason may be that health professionals cope with external demands by searching for sense and meaning in the professional role as a stable and non-changing element.

Conclusion: Health professionals' relationships with patients are mediated by perceptions of patient knowledge and involvement. This may be an important reason for their abilities to show remarkable flexibilities in their meetings with different patients. However, this has to be understood as a result of efforts in creating meaning from these encounters. Their perceptions of cure practices are proven as quite flexible, with their perceptions of care practices as quite stable. It may also be understood in the way that health professionals adjust their accountable practices, and are able to do this by retaining a stable professional identity. This may be a way of coping with the external demands of flexibility and relating to a complex patient role.

5.3 Paper 3: Multidisciplinary collaboration as a loosely coupled system: integrating and blocking professional boundaries with objects

In this paper, I apply the concept of loosely coupled systems to describe multidisciplinary collaboration in healthcare. It is further argued that tools employed in collaborative activities may be regarded as object components of such a system.

Drawing on ethnographical studies and interviews of a group of health professionals from different disciplines collaborating on breast cancer, it is argued that differences in use of such objects may either inhibit or encourage cross-boundary collaboration. One important reason is how the meanings of these objects vary or not within collaborative interaction. Meaning variation allows for more integration across boundaries, while meaning immutability may block the same boundaries. This finding is important for multidisciplinary contexts, adding new knowledge to the important quest in integrating relationships across professional boundaries.

The study involved following a unit of collaborating health professionals at a breast cancer unit. This unit treated cancer with the shared work of three different professions/disciplines[24]. My results from this study show that integrated relationships are not necessarily stable nor necessarily efforts of long and sustainable work (as for instance with team-building). Relationships may rather drift from integrated to non-integrated and back again. This may be rooted in the nature of interdisciplinary work seen as a loosely coupled system. Thus social changes towards more integrated relationships are in this case hardly stable, but tend to regress towards the state of loosely coupling.

The important finding in this paper is how objects influence on such processes. Drawing on the concept of loosely coupled system, it is argued that objects involved in collaborative interaction influence on the relationships between professionals. This depends on how professionals associate different objects with different meanings. When meanings are shared with the use of boundary objects, more integrated relationships emerge. When, on the other hand, meanings are tied to

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[24] Surgery, cytology and radiology. In the paper, these three are put forward as disciplines but may also be presented as distinct professions.

the professional boundary, relationships are stabilized in segregation.

Conclusion: It is shown in this paper the importance of paying attention to how objects either mediate or block relationships in a collaborative context with professional boundaries. Objects that are employed to stabilize meanings do not mediate relationships in these settings. They therefore inhibit integration across boundaries. On the other hand, when objects are used as enablers of meaning variation, it is possible for more integrated relationships to emerge.

5.4 Paper 4: Interdisciplinary teamwork in hospitals - the effect of professional cultures and organizational artifacts

This paper seeks to address, through the use of quantitative methods, how health professionals view and understand their tasks and how they perceive their reality. We sought here to understand the boundaries between different health professionals, with the perspective that these emerge from how actors perceive their work. In this paper, we mainly wanted to research the potential for developing inter-professional teams in healthcare, through an investigation of the potential differences between the hospital professions and how they are expressed.

The positive effects of organizing work around interdisciplinary teams, has for a long time been accepted in other industries. Lately the potential of interdisciplinary teams in the health-sector has received increasing interest, and some very promising results are reported. There seems however to be several challenges in implementing interdisciplinary teams in hospitals. From the literature it seems like the lack of

success is mainly due to highly specialized professions. Some authors even claim that the different health care professions not only differ by their specialized tasks, but also by having distinct different cultures. Since culture defines its members' perception of the world and their problems at hand, such differences in professional cultures may effectively hinder interdisciplinary teamwork.

The results from our study, using the method of SPGR (presented in section 3.4.3), reveal that different health professionals may not view the world as differently as previously thought. Our findings indicate that doctors, nurses and mercantile have a quite similar view on tasks and perception of reality in the hospital context.

Conclusion: Professional boundaries may not be deeply rooted in the actors' culture. It is rather likely that these are due to procedural differences. The practical consequence of our findings is that it should be fairly easy to implement interdisciplinary teams in hospitals, given that some structural changes are performed and that the professional ownership to specific tasks is removed. Some suggestions to how this could be done are presented.

6 Discussion – the cross-boundary relationship and the professional boundary

The cross-boundary relationship has been put forward as a matter of integration. This integration is based on actors' interpretation of meaning and change in the relationship, where social relationships and boundary objects are important. In this section I will develop further insight on what the cross-boundary relationship is, with a special emphasis on the professional boundary. I will develop an argument based on the theoretical framework presented in chapter 3 and the findings from the papers. Building on these, I advocate here the professional boundary as an important part of the cross-boundary relationship.

An overview of the relationship between empirical findings and theoretical framework is presented in table 6.1. It is relevant to emphasize here that only the first study scrutinizes what I have described as a cross-boundary relationship. The other studies offer important insights on both what a cross-boundary relationship is and what it is not (paper 2); the process of reaching or not reaching a cross-boundary relationship (paper 3); the importance of understanding the professional boundary (paper 4). Thus, while not all studies can be said to study the cross-boundary relationship per se, they offer important insights together in understanding the different elements of the construction of this kind of relationship.

Table 6.1: Relationship between studies and theoretical framework

Paper/Study object	Main empirical finding	Relationship with theoretical framework
Paper 1: The expert patient. Studying the relationship between an extraordinary patient and his caretakers.	Health professionals and patient had developed a relationship based on mutual influence.	Exemplifies a cross-boundary relationship. This relationship can be described as an integrated social relationship, enabled by a network of diverse actors/objects.
Paper 2: Health professionals' perceptions of patient knowledge and involvement and consequences for joint decision-making.	Health professionals allowed for different kinds of patient influence in decision-making, based on perceptions of patient knowledge and involvement.	Exemplifies the importance of understanding how health professionals' relationships across boundaries are mediated. Perceptions of knowledge and involvement can here be understood as mediators.
Paper 3: Health professionals' use of objects in collaborative contexts.	Health professionals used physical objects to either block or mediate integration in relationships across their professional boundaries.	Exemplifies physical objects' importance in developing a cross-boundary relationship.
Paper 4: Differences in nurses' and doctors' perception of own professional culture.	The professional boundary may be more about organizational artifacts than basic assumptions of own profession.	Exemplifies objects' potential, in the form of artifacts and structures, in either softening or strengthening the professional boundary.

The chapter is further organized as follows: First I will demonstrate why the professional boundary itself is an important part of a cross-boundary relationship. The important essence is the boundary's importance for meaning construction. I will then show how what I will call cross-boundary sociality is reached by using boundary objects, which emerge from this very meaning. The conclusion I draw from these arguments, is that a cross-boundary relationship is enabled by the professional

boundary and not hindered as suggested by previous research.

6.1 Actors and objects – and their relationships

The theoretical layout in chapter 3 has offered an insight into the so-called objectualization of relationships. What then are the objects in this study? This is not an easy question – as exemplified by these editors' of a special issue on objects in organizational studies: (Yrjö Engeström and Frank Blackler, Organization (2005):

"...they [the papers in the issue] powerfully illustrate the intimacy of relations between the material and the social, the centrality of artifacts to both thought and actions, and the complex relationships between objects and values. Other issues too, such as the ambiguous nature of objects, the difficulty in defining them and inevitably, problems associated with their study, recur repeatedly throughout the collection…"

Despite this alleged difficulty, there is a need to discuss more thoroughly the objects and actors I have presented in this study. However, following both the theoretical layout and the epistemological/ontological perspectives I have presented, I will describe this more in terms of the relationships between these entities rather than conceptualizing the entities themselves. It is of course possible to differentiate between what is material and what is human, but in a processual view even this distinction may become blurred (see for instance Latour's concept of hybrid (LaTour, 1993)). I have in this thesis tried to point out that objects make a difference for human

relationships depending on how they are involved in interaction. I have argued that this involvement is a matter of how objects travel or move across the professional boundary. As I will argue, is this movement not only influencing the relationship between social actors. It is itself a relationship. Objects do not only mediate a relationship. They also change it.

Let's then look closer at the actors[25] in this thesis and how they have related to each other. The human players have been: patients, haematology health professionals, radiologists, cytologists and surgeons. The haematology professionals built relationships with the patients, while the radiologists, cytologists and surgeons built relationships with each other. Recall figure 3.1, where I depicted different forms of relationships between actors – multi, inter and trans-disciplinary (based on Jantsch (1980)). This was to illustrate the different levels of integration of social relationships. The cross-boundary relationship would in these terms approach the trans-disciplinary social relationship. The objects in this study have further been important in enabling or disabling different levels of integration. The objects were: the Internet, the diagnostic scheme, radiology pictures, and cytology cell samples. The Internet was an important enabler for the 'expert' patient in paper 1 and 2, in keeping contact with other health professionals and access to medical information; both played important roles in his encounters with his caretakers. And the radiology pictures, cytology cell samples, and diagnostic scheme were all argued to be important in different forms of at the breast cancer unit. All these objects were involved in collaboration between either patients or health professionals, but maybe more importantly were they always an enabler of the cross-boundary relationship. The picture is however not yet

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[25] Actors in the ANT sense – ref chapter 3.2.2.

complete. Besides the social and the material actors, I have argued that a third kind of actor influenced on the relationships. Patient knowledge and involvement can be put forward as an influential actor in health professionals' perceptions of patients, as argued in paper 2. And maybe more important is how the professional boundary itself has influenced the different relationships. The most direct example was shown with the radiologist in paper 3. She supported her professional boundary (kept the others from understanding) by referring to the radiology picture and stating implicitly to the others to keep away. It may be argued then that the professional boundary had an importance for how the others could interpret this action. The exact same performance by a layman would obviously not have resulted in the same silence from the other health professionals.

One important insight that can be inferred from this argument is that the professional boundaries are themselves important actors in an inter-professional relationship. They have causal efficacy, or in other words that they make a difference. This is an important insight in constructing the cross-boundary relationship, because the more integrated kind of social relationships (as the trans-disciplinary) assume a break-down of boundaries. As I have shown in this thesis, is this understanding not necessarily true when it comes to professional actors, because they see meaning in these boundaries. Obliteration is then at best only a temporary solution, at worst an impetus to rebuild and fortify. The cross-boundary relationship is therefore about integration *across* the boundary, and not a relationship *without* the boundary.

6.2 The professional boundary – a basis for meaning

The important point is that the professional boundary is essential in the

creation of meaning in a cross-boundary relationship. Without it, meaning is for health professionals lost. And as will be clarified in this section – when meaning is lost, people turn to actions that produce meaning. For health professionals, this entails a regained focus on structures and division – a fortification of the professional boundary.

First of, I will emphasize that this entails a focus on structuring and not structure(s). Structuring may be understood as the constitutive relations between meaning and structure (Weick, 2001a), where meaning entails agency and social construction and structure entails frameworks and contextual constraints (Ranson, Hinings, & Greenwood, 1980). For my arguments' purpose then, structuring may be associated with a fortification of the professional boundary. Weick (2001a) notes further that the relationship between structure and structuring has something to do with actions that produce structure and actions that produce meaning. A challenge to the professional boundary is therefore a challenge to the meaning of the relationships. As Weick (ibid) notes in the following passage, will actors then seek to rebuild meaning:

> *"When social ties deteriorate, people try harder to make their own individual sense of what is happening, both socially and in the world. These operations increase meaning, and they increase the tendency to reshape structure consistent with heightened meaning"*

Making sense of what is happening *individually* is the important consequence I want to follow here. When meaning is challenged, the relationships are in turn

challenged, impoverishing the social ties between the actors. This induces a focus on actions that produce structure, which for health professionals entail an inwardly focus. Health professionals see meaning in structure and division between their own profession and others, and will therefore, when this meaning is challenged, seek to maintain this structure.

This may result in a focus on objects that represent one's own discipline. This entails a fortification of the boundaries between the actors. This was exemplified in paper 3, with the health professionals blocking boundaries with objects. For the different health professionals, meaning was seemingly lost when they met something unexpected in their collaboration (as for instance discussing maltreatment of a patient). This led them to focusing on actions that for them produced more meaning, which entailed a focus on their own profession. This focus on own profession was symbolized by each of them retaining a focus on their own representations of data. They thus also produced more structure within the interaction pattern, because they enhanced the boundary between themselves and other professions. Such structuring may also be inferred from health professionals' different perceptions of patient knowledge and involvement, as seen in paper 2. It was clearly important for the professionals to either legitimize or disprove patient knowledge by referring to the patient's information source. If an Internet printout was the (sole) source, then this could be used as an excuse to dismiss the patient's efforts in involving himself. By referring to this source as an object, an object that for the health professionals entailed lesser patient involvement, the health professionals thus blocked the development of a more integrated relationship.

On the other hand, when the professional boundary was implicitly used as a basis for the construction of relationships, as seen with the expert patient in paper 2,

meaning became an inherent part of the social interaction and therefore not something that needed to be rebuilt. The essential insight from this paper is precisely the notion that the professionals did not feel a professional challenge from this patient, and therefore that they did not have to reproduce meaning by focusing on more structure in the relationship. When people do not have to reconstruct structure in their relationship, meaning is assumed implicitly in the relationship.

My argument is therefore that when health professionals interpret the professional boundary as challenged, they interpret it as something that needs to be rebuilt. They interpret it in other words as something that is lost. Relationships may still exist, but because of interactions' attention to the boundary they will develop only as segregated and interactions will only work through sequential workflows. On the other hand, may we assume that in the cross-boundary relationship the professional boundary is interpreted as not challenged. It is therefore not something that the health professional needs to pay attention to. The boundary itself is therefore a sound basis for the relationship, because actors can turn away from their individual focus. The boundary is then what enables more integration. An important reason may be the essentiality of the professional boundary for the professional practitioner, as addressed in chapter 2.

I find it important to emphasize here the process perspective that follows this line of arguing. My argument in this section cannot be understood as a static picture, but needs to be understood as something in movement. Boundaries do not exist per se, they come into being. My argument is also one of interpretation. Important for the becoming of boundaries in these relationships is how actors interpret them. Paradoxically, one may therefore state that in a cross-boundary relationship where boundaries are interpreted as obliterated relationships *become more segregated*. In a

cross-boundary relationship where boundaries are interpreted as an important part of the interaction (although implicit), relationships *become more integrated*.

Objects are an important part of this becoming. I will address how in the next section.

6.3 Cross-boundary sociality with boundary objects

Objects that are used to enhance the professional boundary cause further separation between professionals. When, on the other hand, such objects are free to travel, they may form a basis for integration across the boundary. Important here is not so much a physical movement, as how objects carry meanings across the boundary and thus how these are allowed to *develop*. I will in this section scrutinize this development, and how it may be understood in confluence with social ties. In a cross-boundary relationship, developing and changing meanings are an indication of stronger social ties, while stabilized meanings indicate weaker social ties. An important reason, as will be argued, is that stabilized meanings impede the potential to develop the relationships. On the other hand may social ties enable developments, because social interaction allows for meanings to change and develop. And as will be argued next, this may be attainable using boundary objects that do not challenge the boundaries. When these move across the boundary back and forth they enable social interaction, which is important for the cross-boundary relationship to develop.

In paper 3, the professional boundary was an important actor in making the relationships either change or stabilize. More precisely, may it be inferred from the findings how objects were important in either allowing or disallowing meanings to change. This is seen in how the radiology pictures were used as fire-objects; i.e.

objects that when they attain meaning at the same time exclude other meanings (Law & Singleton, 2005). The meaning of the radiology pictures was in this interaction arena locked and guarded by the radiologist, who connected the pictures with her professional boundaries. The pictures were enacted as a presentation of radiology meanings, which kept other understandings at large. Meaning was in other words tied up with the professional boundary, maintaining structure and division between the professionals. On the other hand is it probable that the meaning of the information brought in to the hospital by the patient in paper 1 (the expert patient) could change together with the social actors. Internet information was not something that belonged to either the patient or the health professionals, because also the professionals would seek up the same information as the patient. Its meanings were therefore not locked with the patient, but would form a basis for discussions and negotiations, being open to interpretation. It formed a basis for the cross-boundary relationship.

Therefore, in a sustainable cross-boundary relationship, meaning changes. Stabilized meanings are detrimental for a loosely coupled system (Koff et al., 1994; Weick, 2001a), as a system of health professionals can be put forward as (ref chapter 2). Stability of meanings is likely to entail a closed boundary, or in other words that meanings are tied to one actor (either social or material). On the other hand, when meanings are allowed to develop, it is probable that boundaries are more easily crossed. Meanings are then not tied to only one actor, but enable the involvement of more actors. It enables sharing, which is important for integrated relationships to develop (see section 3.1.2). This is not so much dependent on material characteristics of the objects as the interaction process itself. For instance *how* the radiologist used the pictures in social interaction with the other health professionals, and *how* Internet information was presented by the 'expert' patient forming a basis for discussion,

negotiation and diplomatic approaches by his caretakers. In the first case, an object was used to close the boundary, because the meaning of the object was stabilized; in the latter case, an object was used to enable boundary-crossing because its meanings were multiple.

This multiplicity of meanings is then a basis for *changes* in the cross-boundary relationship. Professional actors do not change or transform if they do not see or manage to construct a meaning out of this transformation. As with the professionals in the study of the expert patient, were meanings constantly on the move. They could do this, because the professional boundaries were not challenged and the actors would not turn to meaning-producing actions. As shown in the paper, is this a probable cause for why the professionals would allow for quite abnormal patient behavior. They had in other words, changed together with the patient. Important in this process was how objects enabled social interaction. The patient described in this paper, would often bring print-outs from either the Internet, e-mails from his allied health professionals or even scientific papers. These objects were an important part of many of the discussions and negotiations the health professionals would lead with this patient. They had to relate to these as much as they had to relate to him, and the patient would in turn need to relate to the professionals' opinions of the papers he introduced. Different meanings of these papers were in other words important. These meanings were never stabilized, but on the contrary moving back and forth across the boundary between the patient and the doctors[26]. As one doctor stated – he would not

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[26] Meanings obviously do not "move" in the same way as material objects. It is useful here to think of the football metaphor I used in section 3.3.2. By movements, I intend the kind of interaction where the football is constantly passed between the players (and not kept with the best player, going alone for the target). Meanings move here metaphorically in the same way – one moment it is the patient who defines the meaning of the object; the next moment it is the doctor who defines his meaning.

immediately use the patient's understandings of different findings (which on beforehand he didn't know), but needed to understand them from his own point of view. At the same time was it important for the professionals to employ diplomatic approaches (in their words), suggesting that the patient's understandings of the objects were not omitted but taken into account.

The object in the expert patient story may have been more of a mediator than a carrier of meaning. The diagnostic formula in paper 3 is an example of how objects literally carry meanings across the boundaries. As argued in the paper, was this formula an important enabler of integration between the professionals, and thus a part of approaching a cross-boundary relationship between them (they would not reach the kind of integration with mutual influence and changing together). This paper was carried by the patient through different offices, with the different professionals' opinions of the possible cancer lump. It then united these meanings, and functioned as such as a boundary object. However, and argued as important in the paper – was the physical reunion of these meanings on the paper only a small part of making this object function as an enabler of more integrated relationships. The important factor was that the professionals used this paper as focal point for discussions and arguments of their diagnoses. And because the paper was a carrier of every professionals' opinions, it enabled discussions where meanings could flow back and forth. The professionals had a need to see and discuss their findings face-to-face, which may have been caused by the confined space of a paper to express opinions. The important matter is however that the face-to-face discussions approached a way of social interacting that was enabled by the scheme as a focal actor. It became a shared point that rested in the middle.

These objects both mediated and carried meanings, however not without

influence. The most prominent example is how patient knowledge in relation to Internet print-outs was interpreted in paper 1 and 2. Patient knowledge, either translated into or originating from Internet, was heavily colored by the fact that it was "Internet" knowledge. The fact that this piece of information originated at the Internet influenced on the health professionals' perceptions of the patients' abilities to involve themselves in a negative way. On the other hand, would scientific papers and conference reports (as the expert patient could bring), offer a more serious flavor to patients opinions, even if these per se were not different than the ones based on Internet information. These information pieces influenced thus in a positive way on the integration between the health professionals and the patient. This influence of object properties on social interaction and thus social relationships has been put forward as an important part of how integrated relationships develop. When objects and social interaction *enable each other*, they tend to form a network of relations, where all actors influence in making a more integrated relationship between the social actors (Heldal, 2008). This kind of network relationships was suggested as important for the cross-boundary relationship in chapter 3.

6.4   Conclusion

The cross-boundary relationship is about integration. It is a relationship with mutual influence between all actors that results from a process where meaning, change *and the professional boundary* enable integration. In this context, boundaries thus enable integration and not separation. The reason why the professional boundary is an important actor of the cross-boundary relationship, is that when professionals interpret this boundary as something that is lost, they will seek to rebuild it. This

causes relationships to become lesser integrated, and thus away from the cross-boundary relationship. On the other hand, when professionals interpret the professional boundary as an implicit part of the interaction can they turn to interactions that produce more integration in the relationship. This process is important towards building the cross-boundary relationship. Such an interaction can be a process of meanings flowing back and forth, carried, mediated and influenced by objects. A cross-boundary relationship is a relationship where objects and social interaction enable integration, and where the professional boundary at the same time is not challenged.

Figure 6.1 demonstrates this idea. It shows a boundary object that flows back and forth across the boundary, enabling shifts in meaning, intensive workflows, shared interpretations – a sound basis for the cross-boundary relationship. Important is also the idea encompassed in the object – it enables social interaction and it functions as a boundary object. Because of its emphasis on the social, I have nominated it as a social boundary object. As a social boundary object, it enables the important influences of stronger social ties, out of which may emerge integration and thus a cross-boundary relationship. And finally, is the boundary itself an important actor. It is what enables this interaction, because it enables a meaningful relationship. When the health professional interprets it as a firm basis, relationships can integrate cross it. It is a cross-boundary relationship.
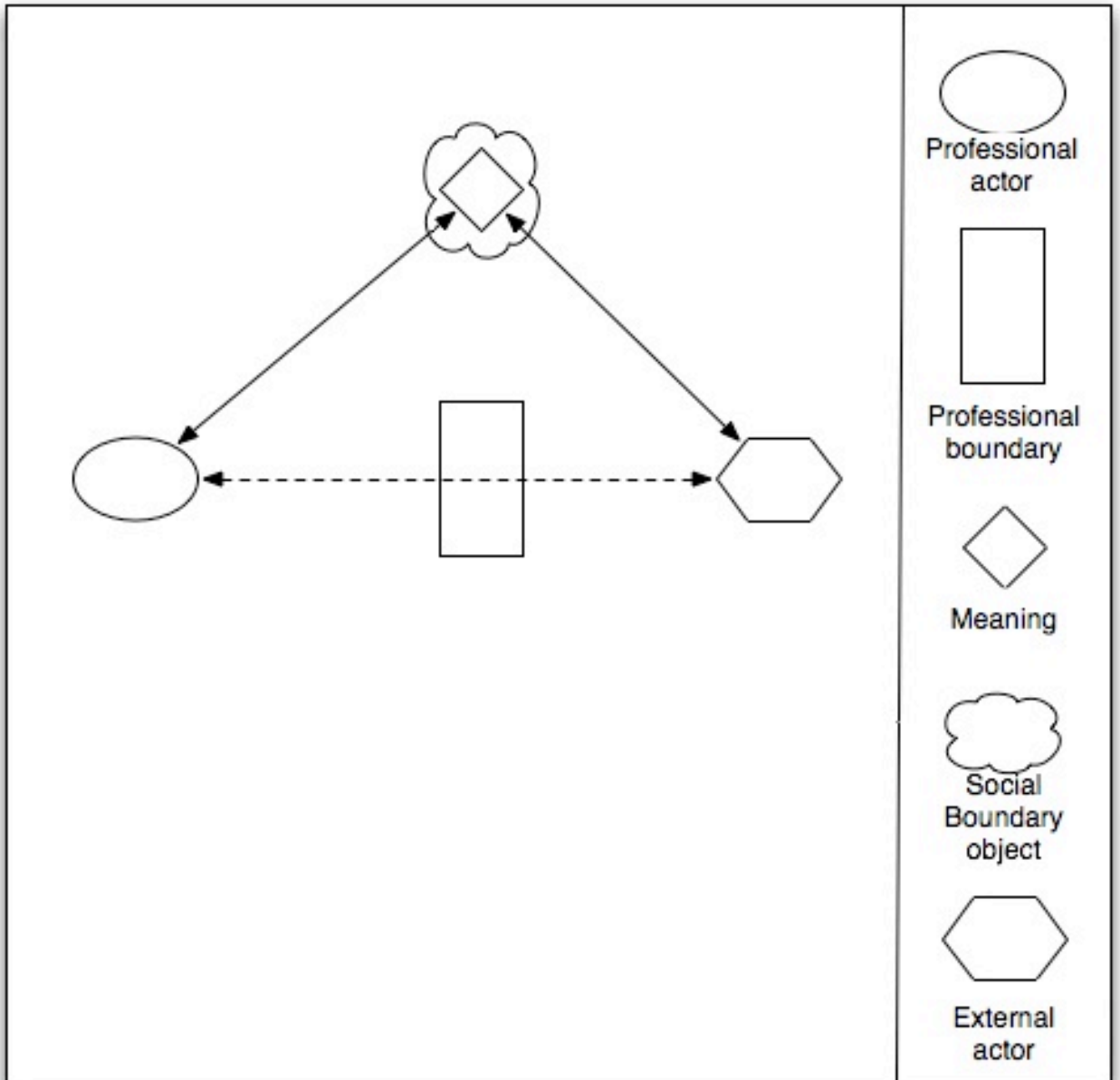
Figure 6.1: The cross-boundary relationship

6.5 Implications for theory

First and foremost, I have demonstrated in this thesis the value of seeing

connections across a professional boundary as a relationship. What I have called a

cross-boundary relationship entails collaboration and integration. This is quite

different than previous authors' focus on boundary work (T. F. Gieryn, 1994), professional jurisdiction over tasks and knowledge (Abbott, 1988; Eliot Freidson, 1986), professional autonomy (E. Freidson, 1994; Timmermans & Berg, 2003), playing games in order to suppress accountability (McGivern & Ferlie, 2007) and fortification of boundaries when working with other professionals (Shaw et al., 2007). A growing body of research focuses on interprofessionalism, e.g. D'Amour (2005; 2005), but as of yet this knowledge is only at a conceptual level. My arguments in this thesis add to existing knowledge in showing a way of modeling cross-boundary integration in practical situations. As demonstrated, do health professionals have the potential to collaborate quite cohesively across their professional boundary. It is important then to recognize this as an integrated relationship, and not see this as a contention in pushing or moving boundaries. Professional boundaries may be important for demarcation purposes, but as demonstrated here can they be understood as enablers of collaboration and not only separation. The concept of a cross-boundary relationship encompasses this idea of integrative collaboration across the professional boundary.

This relationship is not straightforward to understand, and may be more complex than other kinds of relationships. Some research has pointed to that in cross-boundary collaboration, be it a loosely coupled system (i.e. (Weick, 2001a), collaboration between different cultures (i.e. (Dahl & Habert, 1992)), or different communities of practice (Wenger, 1998), it is important to use actors, objects or system components to mediate the relationships. When speaking of human actors, it has been common to refer to such mediators as interpreters, ambassadors or negotiators (Dahl & Habert, 1992; Hislop, 2005); for objects the more common term is boundary objects (Law & Singleton, 2005; Star & Griesemer, 1989). I have in this

thesis demonstrated how objects may play such a role. This is not because human mediators will not have an affect in health care. The basic reason is that the kind of relationships one sees in healthcare is often of a very private character (e.g. physician-patient relationship), and that involved actors should be kept to a minimum[27]. Maybe more important in my view is that objects do part of human relationships either intently or not. Further, which is also shown in the findings, may objects as parts of such relationships block relationships if they are not consciously attended to. In collaborative contexts with a high degree of complexity is it even probable that objects may be used as boundary blockers and not crossers.

The implications for theory may therefore be regarded as two-fold, in that I not only show the value of focusing on relationships across the professional boundary but that I also develop a way of modeling this relationship. In this modeling, I show how insights from two theoretical strands rarely combined can offer a fruitful perspective. For the object approach, is it fruitful to add notions of sociality; for the social approach is it fruitful to add notions of objectualized relationships. I see it as more important, however, how the two concepts of meaning and change, form a basis for an integrated cross-boundary relationship. I have in my arguments focused lesser on the objects themselves, and more on how they are performed. This is one of the important insights by incorporating Thompson's workflows, the basic argument of section 3.3.3, and also in line with "the performative turn" as described in section 3.2.2. Objects mediate relationships based just as much on how they are used as how they are shaped. Thus, if objects are used in *intensive* workflows, flowing back and

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[27] It is interesting to note that nurses often assume this role of being a mediator between patient and physician. This proposition is not treated here, but was one of the findings in my first study. Important however is also to note that nurses are seemingly not acknowledged as having this role by the physicians, and that they (the nurses) rather advocate their own perspectives.

forth (see table 3.1), they are likely to enable the integrated relationships that OMM objects enable even if they not necessarily are recognized as such. This argument would however be of poor value, if not meaning and change were at the basis for these movements. Meaning and change may in turn be thought of as primarily a social matter, in that objects themselves may only influence on these matters when employed in interaction. Change and meaning is something that we infer through social interaction, which in turn draws attention to the sociality of the relationships. Social interaction has arguably not been important for the scientists of the objects strand, but as I have argued here is important for how objects "..*come to sit in the middle…*". Change and meaning have been of more or less importance for the two theoretical strands, but as seen when combining them is together essential. The cross-boundary relationship is thus based on *both* social interaction and objects.

7 Conclusion

Managers and patients push for more insight in professional practices in health care, which leads to resistance with the health professionals. This tension should be resolved to offer more coherent services for patients and more efficient cross-boundary collaboration. In this thesis I see this as a matter of how relationships cross the professional boundary. My primary research question has been:

How do health professional practitioners build and sustain relationships across their professional boundaries?

My answer to this question is concluded as follows: A viable and sustainable relationship across the professional boundary is a relationship that is tightly integrated across the boundary. I coin such a relationship *a cross-boundary relationship*. The cross-boundary relationship emerges when health professionals are able to see interactions across the boundary as meaningful, mutually influence and share decisions across the boundary, and finally interpret the boundary itself as an implicit part of the relationship. This knowledge may be of importance in several cross-boundary collaborative venues in health care. The arguments in the thesis build upon insights from studies of collaboration between health professionals of diverse disciplines, diverse professions and patients, and should be applicable in these contexts.

Understanding the cross-boundary relationship may also be of value for health care managers. It may help in understanding collaboration with the professional

health care practitioner, and it may help on how to build insight in professional practices. This is important in order to make health care more efficient. It may also be important in order to relieve on the tension between managers and practitioners. Managers and professionals can collaborate jointly together in offering a better health service. This may rest on their abilities in constructing relationships across the professional boundaries, or in other words how they are able to build cross-boundary relationships.

I wish finally to suggest some areas of further research on this topic. Putting health professionals together in teams seems to be a popular practice these days (see for instance the NHS initiative "*HR in the NHS plan, 2004*" and the Strategy Plan 2006-2010 of Regional Office of Health, Middle-Norway), and continuous research is needed into how one should proceed with this. The healthcare sector has arguably some special tenets that make teamwork and cross-boundary collaboration here special. My thesis offers some preliminary insights and suggestions, which should be put to test under scientific surveillance. There is further a need for an understanding of how to balance managerialism with professionalism. It is no doubt that movements today push towards standardization, accountability and transparency, but not all organizational activities are suitable to undergo such scrutiny. There should therefore be a concern into how these movements influence on elements such as organizational learning, culture and leadership. The debate on whether external parties should have more insight and control or not is probably closed – we should now concern our investigations into how this should best be implemented.

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Part II – the papers

Paper 1

Making sense of the active patient

Accepted for publication in Social theory and health

Making sense of patient expertise

Abstract

Although health personnel today have to relate to a complexity of different patients and patient roles, patients have tended to be viewed as either active or passive. In this paper, we investigate how one unique patient was able to defy advices from his treating doctors and nurses, yet maintaining a viable relationship with them. We argue that this patient's ability to draw on heterogeneous resources may have enabled his unusual trajectory. On the basis of interviews with relevant health personnel and the concept of sensemaking, we elaborate on how relationships between health personnel and patients emerge from a complex network of ICT, power and 3rd party actors. We conclude that the active patient is an emergent relationship, rather than a singular entity of knowledge and power.

Keywords: Healthcare, informed patients, social identity, sensemaking

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Introduction

Health professionals need more than ever to relate to a considerably complex healthcare context, with a number of patients taking a so-called "active" and "informed" patient role. Some researchers point to the growth in health-related information and consequently, Internet-informed patients (Hardey (1999); others point to a development of the patient as a consumer (Lupton (1997) in the late-modernity. Potter (2005) points to the general growth in 3rd party payers and the exponential growth of chronic disease as being the most characteristic of early 21st century physician-patient relationship. These three approaches are but elements of what is arguably a complex and intricate network of several influences in healthcare. Patients are influenced by this complexity, having to get involved more explicitly in their own treatment. How do health professionals interpret, or make sense of, their relationships with such patients?

In this paper we investigate the active patient role from a perspective of sense-making (Weick, 1993, 2001b; Weick, Sutcliffe, & Obstfeld, 2005). We draw on a case study of an active patient and in particular one important event in which this patient turned against his caretakers' advice and got treatment abroad. Our intention is to investigate how the clinicians responsible for this patient could interpret this event as meaningful. We focus particularly on three aspects that, according to the health professionals, made the patient able to overthrow their authority; that he was highly informed, highly involved in own treatment and had 3rd party health professionals as allied. We show that the clinicians could not have interpreted meaning from these single aspects per se, but rather from a perception of the events in relation with each other. We argue that this relation is built within a context of social interaction and a sustainable relationship.

Previous descriptions of the active patient role have mainly focused on single aspects or traits of these patients. We contend that this role needs to be understood as an emergent network of several and different aspects, rather than characteristics of the patient. Patients *become* active; it is not something they are. This depends thus on their

relationships with caretakers and how these interpret important events in this relationship.

Background

In this section we will first provide a brief overview of the different approaches to describing active patients. Despite the many attempts, we argue that they do not offer substantial insight because of their uni-dimensionality and static descriptions. We wish to emphasize a process perspective on the active patient, thus emphasizing development as well as the relationship between patient and caretaker. Acknowledging that an active patient is somewhat of an anomaly, we apply the theoretical perspective of sensemaking to understand how health professionals approach and understand patients that differ from normal expectations.

The active patient

Although there seems to be a general agreement that a growing number of patients adopt an active approach to their own treatment (Fox, Ward, & O'Rourke, 2005), there is little agreement on what an active patient is. Some focus on patient knowledge or expertise (Donaldson (2003), Wilson (1999), Ziebland (2004)); others on dependency aspects, patient autonomy and empowerment (Lupton (1997), Henwood et al. (2003), Kennedy and Rogers (2002)); others again on the impact of the Internet (Broom (2005a, 2005b) and Hardey (1999, 2002). Third party actors are important, as these show growing prevalence in healthcare relationships (Potter & McKinlay, 2005). It is generally acknowledged that patients get involved on the basis of knowledge (Lupton, 1997), but an increasing number of studies show that there is no direct link between being informed and being involved (Heldal, forthcoming). More important, health professionals do not necessarily perceive informed patients as

more empowered or involved in their own treatment (Broom, 2005a). New characterizations of the patients have been proposed, i.e. 'autonomous' (Coulter, 2002), 'resourceful' (Gray, 2003), 'involved' (Hjorthdal, 2004), and even 'expert' (Donaldson, 2003); demonstrating both that these are various types of patients and that the comprehension of the phenomenon points to different aspects.

The active patient, as such, is thus hard to grasp, hard to define and difficult to pinpoint. This might be because these patients are so different from the "normal" conception of the patient; as someone in need of help (Wilson, 1999) and most certainly diverting from Parsons' 'sick role' (Parsons, 1951). Previous discourse has been surprisingly uni-dimensional, involving patients that are either informed or not informed; involved or not involved; passive or active. Some researchers, on the other hand, like Broom (2005a, 2005b), have focused on health professionals' perceptions of these patients. This may be more productive, because it entails a focus on the relationship between patient and caretaker and how this is developed. This implies an emphasis on how and why patients *become* active, rather than expecting that this is just something they *are*. In this paper our aim is to comprehend how health professionals relate to various aspects in their everyday encounters with patients, as they become active. In other words, we develop an understanding of how health personnel make sense of patients that are becoming informed, getting more thoroughly involved, involving 3rd party actors, and starting to use the Internet. The perspective of *sensemaking* is therefore our theoretical point of departure.

Sensemaking

The concept of sensemaking is often employed in the studies of accidents, crises and mishaps. The perspective is in other words often used to understand how actors or groups of actors try to make sense of things they don't understand, events that challenge

their preconceptions, human actions that seem to make no meaning, and so forth. It has for instance been used to explain a 'friendly fire' incident over Iraq (Snook, 2001); a forest fire with unexplainable human losses, The Mann Gulch disaster (Weick, 2001b); an air disaster that could easily have been avoided, the Tenerife Air disaster (Weick, 2001c); and the *Challenger* space shuttle disaster (Starbuck & Milliken, 1988). Even if the case we want to investigate is not a crisis or disaster, it may be understood as a case in which meaning is submerged and difficult to establish. Clinicians cannot within their professional orientation immediately make sense of a patient that wants to decide treatment procedures; in other words a layman taking on with professional power and knowledge.

Sensemaking is often put forward as a framework, or heuristic of seven properties for "making sense" of organizational "shocks" (Weick, 1995). These involve (1) identity construction; sensemaking as (2) retrospective, (3) enactive, (4) social, and (5) ongoing; reliant on (6) extracted cues; and driven by (7) plausibility. Each of these aspects is viewed as integrally linked but separable only for the purpose of exploration and explanation. It is not entirely clear which of them, if any, is to be viewed as more dominant (O'Connell, 2003). In our investigation of a patient-therapist-relation, we wish to emphasise the social and interactive parts of this heuristic. A relationship between a patient and a caretaker would in this sense be described as an interaction between *people* rather than roles. This implies a process in which professionals have to interpret and handle the unique situation that confronts them, rather than meeting a set of expectations tied to their own specific role. The relations are formed, and performed, in a social space, with individuals testing and developing their perceived roles. Testing and developing the relationships are dependent on the individual's interpretation of the situation. This involves to point out to oneself that the action has this or that meaning or character (Blumer, 1969).

It is also important that interpretation does not precede action. Meaning emerges from how we look back on events that have occurred. Plausible stories animate and gain their validity from subsequent activity (Weick et al., 2005). This notion of making things

clear *retrospectively* is arguably the most unconventional aspect of Weick's notion of sensemaking. The common usage of a term like *"to make sense of"* implies the reach of an understanding, or the making clear(er) that which was not clear (O'Connell, 2003). This would in a social context mount to a notion of shared knowledge and agreement, forming a basis for interaction (and thus the relationship). Sensemaking entails however the imposition of understanding events that have already occurred. It is therefore more about interpretation, than about decision and choice (Weick et al., 2005). Snook (2001) argues for instance that in the friendly fire incident between two F-15 pilots over Iraq, a natural question was *"why did the pilots decide to shoot down two friendly helicopters, killing 26 people?"* This question moves the responsibility away from potent situational factors onto the shoulders of the decision-maker. Snook contends however:

> *"…Framing the individual-level puzzle as a question of meaning rather than deciding shifts the emphasis away from individual decision makers toward a point somewhere "out there" where* context and individual action overlap…"
> *[our emphasis]* (2001:pp 206)

Sensemaking involves thus the ongoing *retrospective* development of plausible images that rationalize what people are doing. It may be regarded as a process of organizing, in which people enact order and identity in the social context of other actors (Sitkin, Sutcliffe, & Barrios-Cholin, 1992). Organizing is here intended as the process of making the world intelligible, or in other words to view individual actions in relation to context. A relationship between an active patient and a caretaker is therefore not necessarily easily understood intuitively. It depends on a development, where events that seem unlikely before they happen are interpreted as plausible after they have occurred. It is not about decision, but about interpretation and sense.

This sense is enacted back into the world to make it more orderly (Weick et al., 2005). Health professionals may thus not make immediate sense of their interactions

with active patients, but rather through an ongoing process, by which efforts are built on hindsight interpretations of this relationship. In this perspective, construction of meaning entails a focus on structuring and not on structure(s). Structuring may be understood as the constitutive relations between meaning and structure (Weick, 2001a), in which meaning entails agency and social construction and structure entails frameworks and contextual constraints (Ranson, Hinings, & Greenwood, 1980). Weick (2001a) argues:

> *"When social ties deteriorate, people try harder to make their own individual sense of what is happening, both socially and in the world. These operations increase meaning, and they increase the tendency to reshape structure consistent with heightened meaning"*

Seen from the angle of sense-making, poor social ties in this interaction will probably increase actions that produce structure, for example framework and contextual constraints, pointing to the opposite of an autonomous and empowered patient. Weick contends in his seminal paper "*The collapse of Sensemaking in Organizations: The Mann Gulch Disaster*" (Weick, 1993) that strong social ties are developed into a sustainable social relationship. This would imply that the active patient role in many ways builds on the premises of a sustainable relationship with one or several health professionals, in which all actors are able to interpret and enact meaning into their social interaction. Meaning manifests itself in a social relationship as *trust, self-respect* and *honesty*. Actors in sustainable social relationships have a basic trust in each other and their different points of view, the self-respect to believe in own knowledge and contribution, and the honesty to act or perform in accordance with these views (in order that personal views are made explicit). Weick emphasizes further the importance of a social context for these properties to emerge. If the individual seeks to maintain trust, self-respect and honesty, it is compromised without social support. Drawing on Wiley's (1988) concept of *intersubjectivity*, Weick advocates that this social support consists of

(1) the interchange and synthesis of meaning between two or more communicating selves and (2) the self or subject getting transformed during interaction "such that a joint or merged subjectivity develops" (Weick, 2001b) pp. 268. This joint change and transformation may together be an important element in the construction of the active patient role.

The active patient role in many ways defies the traditional structure of a lay-professional relationship between a patient and his caretaker. The idea of an *informed patient* challenges the classic conception of the health professional as an expert provider of knowledge (Hardey, 1999), not to mention the oxymoronic character of the term "expert patients" that makes no sense (Wilson, 1999). Our understanding of this role from the perspective of sensemaking, emphasizes the importance of a sustainable relationship for this role to develop. Such a relationship depends on joint meaning constructions and is a matter of interpretation, not decisions. Health professionals interpret events occurring in this relationship, or they will turn to actions that reproduce structures that confine the liberty of the patient and making him/her less active. How then do health professionals construct this meaning? How do they interpret an event that defies their professional authority? How do they interpret an event that challenges their preconception of themselves as expert providers of knowledge?

Research Methods

During a larger study on how health professionals understand their relationships with patients, we identified one unique patient history, in which a patient had developed an extraordinary active and involved approach to his own treatment. We call this patient Mr. Hansen (not his real name). He was some years ago diagnosed with Myeloma. His involvement in his own treatment was unique because he managed to get medical treatment that was not offered to other patients with similar diagnosis. He got both financial and medical support for a surgical operation in another country, which went against normal routines and procedures at the unit. In this article we apply the sense-

making perspective to understand how it was possible for this particular patient to get access to medical treatment otherwise not offered. Why would the clinicians let him go against their advice? Why did the situation not obstruct the patient-provider relationship? What did the clinicians think? How could this situation make sense to them?

The interviews

The article is based on 10 interviews. Two initial interviews; one with the head of the clinic and one with a nurse were conducted as a pilot. This formed the basis for conducting in-depth interviews with the rest of the staff at a haematological out-patient clinic, consisting of five physicians and five nurses. The unit treats approximately 700 patients a year, mostly patients with malign cancers like myeloma and leukaemia. All the nurses and specialists in the unit had worked at the-out patient clinic for several years, and treated Mr. Hansen from the start of his patient trajectory. The consultation rate of each patient could vary from daily to once each year. The staff members were interviewed in an educational room adjacent to the unit. The interviews were open-ended and semi-structured, and lasted approximately 1-2 hours. All staff members were interviewed once, with follow-up interviews of some clinicians later. Two nurses and one specialist were approached after the initial round to explain some of their statements. The objective of the interviews was as described by Kvale (1996), to obtain a phenomenological understanding of the interviewees' thoughts on the subject, thus drawing on the interpretative traditions within qualitative research (Broom, 2005a). This involved exploring the subjective experiences of the respondents, focusing, among others, on the professionals' perceptions of Mr. Hansen as a patient and their understanding of how and why he was offered a treatment that was not only exclusive to him but also against their advice. The important issue in this study was the participants' representations of what occurred, and not to investigate their practical actions.

The analysis

The interview data was analysed according to what Kvale (1996) terms 'ad hoc meaning generation'. This entails to apply different methods of analyzing and understanding the written text obtained from the interviews. First, data was structured by the first author in themes and clusters which formed a basis for a tree structure, and generation of hypotheses that laid foundation for further analysis of the texts. After this initial process, chosen excerpts of the transcripts were presented to a group of specialists and nurses who commented on how they perceived the data. Finally, preliminary findings were presented to the interviewed health professionals and discussed in a 1-hour focus group interview, adding some clarity and shape to the results.

Sensemaking occurs when a flow of organizational circumstances is turned into words and salient categories. It is the primary site where meanings materialize that inform and constrain identity and action (Weick et al., 2005). The professionals' retrospective understandings as emerging in the interviews, gave us important insights regarding these.

Results - The health professionals' perception of Mr. Hansen and why they perceived him as active

The health professionals would in their explanations of the treatment abroad point to Mr. Hansen's 'medical' knowledge, involvement and external alliances. These elements made them perceive him as 'active' and extraordinary; and also powerful enough to achieve a treatment they opposed. We were therefore particularly interested in the clinicians' perceptions of these characteristics. It was however evident that the health professionals also viewed Mr. Hansen as an ordinary patient. It should be noted that the professionals did not argue whether the treatment of Mr. Hansen was medically beneficent or not. Mr. Hansen had a normal illness trajectory (from a clinical point of view) and died from his disease. The clinicians' retrospective interpretation is therefore not based on perceptions of whether the treatment was right or wrong.

Medical knowledge

The doctors and nurses at the unit met in Mr. Hansen a patient that had a very advanced knowledge of his own disease, treatment procedures and current research. He attended medical conferences, read books and medical articles, and had discussions with medical scientists. They thus had to relate to a patient that sometimes knew more than them and who was able to challenge their role as medical experts in their own field.

> Specialist: *"I would say that this patient has reached a very high level of expertise. Very high."*

> Specialist: "*He attended first row discussions with other specialists at medical conferences.*"

Mr. Hansen had no medical degree or medical experience, and he was not regarded as an expert in medicine as such by the health professionals. But his competence, as described by the professionals, was developed to a level much higher than previously described in the literature on informed patients. This is evident in this doctor's perception of Mr. Hansen constructing his own treatment path, from his knowledge of several treatment routines:

> Specialist: *"He is extreme. After he got ill, he has spent most of his time in studying his disease. How his disease is treated in different ways and what is right…"*

> Interviewer: *"Do you think this is beneficial, medically speaking?"*

> Specialist: *"Yes, I can imagine that he has allowed himself to do things, construct his own treatment, without basing it on good [sic] clinical studies,*

without knowing that it is necessarily right…"

Both doctors and nurses had a professional interest in discussing with Mr. Hansen and none felt that they were expected to have the same amount of information as him. Rather, they found it reasonable that a patient spending a lot of his time and resources on information gathering would end up knowing more than them. They were, however, all explicit on the fact that it was a professional challenge, because they were supposed to be the experts. There seemed also to be some confusion about how to interpret the medical information that Mr. Hansen mediated from other information sources. They acknowledged him as having relevant information and being a referent to leading experts. But some of the clinicians' statements show a need to distance themselves from this information, and in some sense either make it their own or reject it. They apparently needed to justify why they wouldn't immediately embrace his sometimes unfamiliar information:

Specialist: *"… he is often way ahead of you, but sometimes on a level where even general medical knowledge is not well evidenced. And even if it is good information [sic], I am sceptical to the fact that it is the patient himself that communicates it, being very emotionally influenced on what kind of treatment is beneficial…"*

Hence, while the sources of information are trusted, the patient as a mediator is in fact not. As argued by the medical specialist, it is the patient's emotionally influenced mediation and personal contextualisation of the information that reduces the information's clinical value. An important question is whether it is the contextualisation (is the information relevant for treating this patient?) or the personal influencing (how well do the patient refer medical research?) of the information.. We will return to this question in the final discussion.

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Following his own medical advices

Despite some reflected reluctance of accepting all of Mr. Hansen's medical information, the health professionals expressed that he, in some sense, controlled his treatment. Mr. Hansen held strong opinions about his treatment, and was apparently able of taking reflexive actions. This was most salient in the event where he received treatment outside the unit.

> Specialist: *"... in a way* [Mr. Hansen] *treated himself in other ways than would have been our advice as professionals - for a long time. And I followed his will. In the beginning we were sceptical, but I have concluded in retrospect that some of his points were good"*

> Specialist*: "… very few patients go against our advice, very few… …I can only think of him [Mr. Hansen] as the only patient who has in a way managed his own treatment…"*

As recounted, Mr. Hansen had determinedly continued to work for his cause and managed to get governmental support for financing the medical treatment abroad, which is not normally provided by the Norwegian health services. His behaviour reflects in these regards the stereotypical image of a consumerist patient. Lupton (1997) advocates the consumerist patients as rational actors, who wants to optimise their own interests. This optimization of interests includes a conscious decision to choose the solution that is thought to be the best. Mr. Hansen's ability of consciously directing the treatment was interpreted by one specialist in the following way:

> Interviewer*: "You say that he does this and that in his own treatment. Is it still you who treat him?"*

> Specialist*: "Well, it is difficult to tell - who treats him. You might say that we*

treat him, but that he is guiding and offering very explicit signals on what he

wants and doesn't want…"

The specialists felt that Mr. Hansen got suitable treatment, even when choosing treatment in another country. Mainly, it appears that Mr. Hansen presented his views on what sort of treatment he needed and the professionals after some discussion followed his advice. However, his ability to influence treatment options and decisions raised some challenges. One of the nurses was for instance indignant by the fact that Mr. Hansen received treatment solutions that they could not offer to other patients. On the other hand, she was also very impressed by his ability to stand up against the system. Further, one of the younger specialists initially reflected a positive attitude towards letting patients influence their own treatment, but expressed later in the interview that this was about participation and not about control. Mr. Hansen seemed to take some sort of control, although this was not necessarily reflected in the physicians' attitude:

"…even if they are experts… …they don't have the total and complete insight. You need to help them, you need to control them. They cannot control treatment and medical examinations alone. This is completely wrong!"

To be able to understand the position of this physician, we need to modify in which way the 'expert patient' is 'expert', either as 'less an expert' than the clinicians (since they want to control him) or 'expert in other areas' than the clinicians (since the expertise cannot be used to control treatment). We will return to this in the discussion.

External relations
As previously mentioned, Mr. Hansen had developed correspondence with leading medical scientists in the field of Myeloma. Apparently, the health professionals in the unit saw this as an element in making him more powerful. This was especially

noted in his ability to access treatment otherwise not offered. Some clinicians saw this as a kind of supporting network, which not only made Mr. Hansen capable of attaining uncommon medical treatment; it also made them regard him with some kind of respect, as a patient with unique resources:

Nurse [talking of Mr. Hansen's foreign treatment]: "*…it is obvious that this is a kind of expertise, in some sense. Having the powers and the resources, the network in pulling this through…*"

The increased access to previously esoteric medical information is by some commentators thought to challenge medical dominance (Broom, 2005a). As exemplified below, this was to some extent also the case with Mr. Hansen. In his case however, medical knowledge was also regarded as beneficial because the professionals could use him as an information source. One of the specialists mentioned how he used to ask Mr. Hansen for conference proceedings to look at studies that were not yet published. Some of the nurses had apparently approached him informally to discuss medical issues and to learn from him. This was not described as a challenge to clinical control, but rather as some kind of learning episodes that only this particular patient made available for the surrounding personnel.

Specialist: "*He often knows more than us about certain things, those new treatments that are only tested in small places, small clinics etc. He talks with the performers! He knows something about it, so I often ask him about his opinions of these cases.*"

Nurse: "*He is very interesting to discuss with!*"

Hence, at the same time as the clinicians point out that he is not an expert like them; they

appreciate his involvement in current relevant research. Although the clinicians do not trust all his judgements, he is of value as a source of information.

Also an ordinary patient

As formerly mentioned, Mr. Hansen seemed to challenge the normal perception of the patient as someone 'in need of help'. A consumerist patient will adopt control in a healthcare market with several options, instead of being subdued by illness and the power of health professionals (Fox et al., 2005). Despite this, the professionals regarded certain aspects of Mr. Hansen's behaviour as that of an 'ordinary'[28] patient.

> Nurse: "[I] *think he is a bit like the other patients, who has such a disease. I think he was very sensitive, and besides having these special needs I think he was scared as well."*

First and foremost, they regarded Mr. Hansen's pursuit of medical knowledge as a kind of disease-coping mechanism, a way of dealing with the hard facts of a terminal diagnosis. As such, it was not regarded as a means of disregarding the clinicians' efforts. All patients should be allowed to approach their illness on their own terms. Secondly, he still needed comfort and care. All the professionals emphasised that they perceived that Mr. Hansen needed them. The fact that he continued the treatment in the same ward was judged as a sign of confidence. These aspects were used to define Mr. Hansen as having the same basic needs as other patients.

Apparently the nurses and doctors at the unit had figured out a way of relating to Mr. Hansen that did not dispute their roles as caretakers. The professionals gave the impression that Mr. Hansen was in control because they in fact allowed the situation, not because he had some coercive power to make clinicians do things they did not agree to. He did have an influence on the treatment, but it was always within the boundaries of what was regarded as acceptable by the health professionals. This was expressed as often leading to lengthy negotiations that, at the start of his treatment, could lead to

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[28] Ordinary in their words

conflicts. The health professionals believed that Mr. Hansen eventually developed an understanding that they were working in the interests of his health. The clinicians had, as reported in the interviews, developed a relationship that was working for both parties:

> Specialist: *"…In the beginning there were some conflicts, some quite sensitive conflicts. So we had to undertake a form of thorough diplomacy and extensive construction of trust - that in the end has worked out very well…"*

Establishing and maintaining trust between the patient and the clinicians in the ward has therefore been of major importance. To allow for a more-than-standard patient influence has been one mechanism to ensure the necessary level of trust between Mr. Hansen and the department.

Discussion

In this section we will discuss further the results presented. We discuss the most salient elements of Mr. Hansen's role as patient, as put forward by the health professionals: Knowledge, control and external alliances. In particular we discuss in what regards these factors may form an underlying basis for how the professionals could perceive the fact that Mr. Hansen was offered uncommon treatment as meaningful. Further, why didn't his non-conforming to the clinicians' advice lead to a change in their relationship? While maintaining our sense-making approach, we will emphasize that processes of meaning construction have enabled this outcome.

The characteristics of Mr. Hansen

Mr. Hansen was perceived as an unusually well-informed patient. Through his access to medical information, he was apparently able to challenge his caretakers within their own knowledge domains. This was put forward as a professional challenge, because the health professionals were supposed to be the experts. The health

professionals did not find this strange, however. Mr. Hansen was able to use all his time to investigate his own particular illness while the clinicians had to stay updated on a large number of diseases. The health professionals acknowledged Mr. Hansen's ability to discuss medical information with them, and even that he had better access to some types of information. Nevertheless they expressed some problems with this information being, as stated, blurred by the strong emotions of a patient. Clinicians emphasized that their own knowledge was based on clinical studies, while Mr. Hansen was not necessarily able to assess the quality of the studies he accessed through the literature. The fact that the professionals admitted Mr. Hansen knew more than them needed some justification. Accordingly, the health professionals' reluctance towards Mr. Hansen's medical information may be viewed as a way of maintaining the more classic structure in the relationship, in which the health professional is the expert provider of knowledge (Hardey, 2002). Processes of maintaining structures in relationships are further signs of seeking to enhance meanings of the interpretations of interactions (Weick, 1993). We suggest that the health professionals could not attribute meaning to a perception of Mr. Hansen's knowledge as *medically* more relevant than theirs. Their interpretations of interaction with Mr. Hansen are signs of the opposite; they construed meaning and sense in seeing their own expertise as more relevant.

Besides being highly informed, Mr. Hansen was also described as being in control, suggesting an ability to contend his own interests. He was seemingly informed to the extent of taking reflexive actions, thus exercising some sort of control over his own treatment. However, we cannot conclude from this that Mr. Hansen was free and independent, as he was at least in some parts dependent on others. And especially, he was in no sense independent of the performing power of the treating health professionals'. According to a sense-making perspective, the situation of an *expert patient* like Mr. Hansen is blurry. One of the specialists concluded in retrospect that Mr. Hansen's arguments were feasible. We point to the sense-making asset of retrospective interpretation: Although Mr. Hansen's arguments did not have to make sense at the time, they did now, in retrospect. However, this says little of why the clinician could

draw such a conclusion. No *objective information* (i.e. test results or similar) could corroborate this understanding, but rather the specialist's perception that his own arguments were better. The other specialist points however to how the treating clinicians were in charge even when Mr. Hansen gave explicit responses. One young doctor admitted some sense of influence or control from Mr. Hansen on which treatment options he was given, yet also pointed out how Hansen's influence was not 'according to the book'. We suggest that the clinicians' interpretations of the interaction between themselves and Mr. Hansen should be understood in relation to a need of enacting sense back into the (clinical) world. The professionals' statements point to an understanding of themselves as being in control, and that they performed and were responsible for all actions; while Mr. Hansen offered only responses – a much weaker proposition, which they then could either defer or relate to. The image of Mr. Hansen as maintaining control of the situation is therefore not a plausible representation of the health professionals' interpretation.

An important part of the health professionals' perception of Mr. Hansen, besides him being perceived as informed and in some control, was his ability to consult leading international medical researchers. These researchers evidently provided him with information that at least in some instances differed from the information his treating doctors and nurses could offer. And it wasn't just different; it also seemed to form a basis for Mr. Hansen's access to uncommon treatment. His contact with international researchers does not explain, however, how or why it was possible for Mr. Hansen to get treatment that exceeded financial regulations of the national healthcare system. Potter (2005) emphasises for instance how 3rd party actors draw the power *out* of the physician-patient relationship. And the sense-making perspective emphasises the importance of a social space for relationships to develop.

Besides the elements that made the health professionals regard Mr. Hansen as extraordinary, they also perceived him as normal. In other words, they felt that they had developed a relationship with this patient that allowed them to continue their normal work as nurses and physicians. The doctors regarded for instance their relationship as

built on an agreement in which Mr. Hansen regarded the professionals' knowledge and work as beneficial. However, the fact that Mr. Hansen got medical treatment that was not managed by the clinicians, suggests that they needed to adjust their roles as caretakers. In order to continue a relationship with Mr. Hansen, they would have to reinterpret their understanding of what was adequate and not. As revealed in the analysis, this reinterpretation would at least in some instance take the shape of negotiations and discussions with the patient. These would probably also have changed Mr. Hansen's initial standpoints, as the health professionals would not all at once accept the propositions he brought forward from his external relations.

This points towards a mature form of relationship, in which both actors willingly adjust their viewpoints to oblige the other. In such a transformative relationship, the actors are transformed by the constant and dialectical interaction (Northouse, 2004). Thus, through the alleged lengthy discussions and consultations, it is possible that a mutual understanding of identity was constructed. From the perspective of sense-making, identity is about whom the actors think they are and how this perception shapes what we enact and how we interpret situations. Communication and activity are essential elements in this process (Weick et al., 2005), which often takes place through interactive talk (Taylor & Every, 2000). Through this interactive sense-making, Mr. Hansen and the specialists apparently attained an agreement of their social identities. It is possible that this agreement for instance left disagreement of information as a factor of minor importance. This mutual understanding may even have laid a basis for a sharing of mental models, which is believed to result in improved coordination between collaborating actors (Standifer & Bluedorn, 2006).

This understanding of a relationship may therefore have been the important enabling element for the professionals to explain the situation of Mr. Hansen. Their statements exemplify how hard it is for them to explain a patient that makes decisions. As with Snook's friendly fire incident (2001), this is however more a matter of our approach in understanding this story. Mr. Hansen's active patient role was not a matter of decision, but of interpretation. He was in a sustainable relationship with his

caretakers, based on shared mental models and trust. This was a potent situational factor that may explain more of what occurred, rather than putting responsibilities on individual health professionals.

The expert patient – a sustainable relationship

A relationship based on shared mental models and trust may be the underlying basis of Mr. Hansen's unusual 'achievements' as a patient. If this relationship is the important issue – how may we then understand it? The meaning-producing interactions in this story were also based on elements external to the relationships between Mr. Hansen and clinicians themselves. While elements based on social interaction allowed for a continued relationship, the patient's uniqueness that offered him a special kind of power was apparently found elsewhere. Mr. Hansen apparently constructed a unique social identity based on three characteristics – being informed, being partly in control, and having support from enrolled 3rd party actors. However, as shown, these may not alone explain the health professionals' perception of Mr. Hansen as special and in actual control of his own treatment. The essential insight is that these three factors supported and enhanced each other to construct an image of Mr. Hansen as a variant of the expert patient that would make sense to clinicians, and for instance resulting in sending Mr. Hansen abroad.

These aspects *together* may have been the important basis for the kind of social support that, according to Weick (2001b) is important for sustainable relationships to develop. For instance, having support in alliances may have offered Mr. Hansen the mental strength to act or perform in accordance with his own views (honesty). Further, that the professionals approached Mr. Hansen to learn from his knowledge on research results indicates a kind of respect that probably influenced Mr. Hansen's self-confidence positively. And finally, agreements following discussions underline a basic trust in each other and the different points of view. All these elements intersect and

influence the situation. Mr. Hansen would not have been able to get in his position without his ability to communicate with and relate to various clinicians; his ability to in some way find the relevant medical information and thereby establish trust and interest from health professionals. Trust, honesty and self-respect have probably been manifest in Mr. Hansen's relationship with the professionals,

Drawing on Wiley, Weick (2001b) suggests further that trust, honesty and self-respect enables inter subjectivity, in the sense that people change together. The clinicians' perception of the relation with Mr. Hansen points to the kind of social support that Weick argues to be important, because they exemplify how mutual understandings were developed and changed together. The understandings of knowledge, involvement and 3rd party actors were apparently the result of ongoing processes, as the professionals referred to how these had developed over time. The nurse pointing to problems in accepting the difference between Mr. Hansen and the other patients illustrates this development. He was not a clear-cut case from the start, but, as one of the specialists expressed, their perceptions of this patient's situation had eventually moved towards stabilization. It was not a matter of total static agreement, but one with room for development involving all actors in the network. This implicates a process towards a joint synthesis of meanings. Unexplainable events did not interfere or ruin the relationship. The professionals were not able to explain from their point of view why Mr. Hansen was able to overthrow their authority. Their relationship with him, offering ongoing and mutual change processes, may on the other hand have formed a basis where changes were not abrupt.

The active patient role of Mr. Hansen was therefore not a stable entity, but something that developed over time. It was difficult to pinpoint exactly what made him "powerful". The more plausible understanding is that a basis of a sustainable relationship offered a joint understanding that enabled a possibility of making sense of unusual events and actions. This relationship then formed the active patient identity; not elements that can be retraced to Mr. Hansen's abilities in "medical" knowledge, involvement or consulting external parties.

Conclusion

In this paper, we have investigated health professionals' perceptions of a patient they regarded as extraordinary active. Our intention has been to understand how health professionals construct meaningful relationships with expert patients that draw on external information. Drawing on the Mr. Hansen case study, we argue that health professionals interpret such relationships in a holistic and emergent way, based on social interaction. The active patient is not a stable entity, but rather someone that has become and becomes active. It is an ongoing process, in which health professionals enact meaning into their relationship with such patients. The health professionals' interpretation of the phenomenon may be stable, in the way they seek to build a structure of what they do not understand. This may not be a problem, because this interpretation depends on social interaction that exceeds what is understandable in the situation as it unfolds. While previous research has tended to see single aspects with these patients as important, we suggest, on the basis of our analysis of the health professionals view on Mr. Hansen, that the expert patient may be made sense of for clinicians when this patient is constructed on a network of factors that each in itself do not challenge medical domination. The (successful) active patient is rather a set of relationships, in which meaning emerges retrospectively.

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Paper 2

Health professionals' perceptions of patient knowledge and involvement

Is not included due to copyright

Paper 3

Interdisciplinary collaboration as a loosely coupled system – Integrating and blocking professional boundaries with objects

Multidisciplinary collaboration as a loosely coupled system: integrating and blocking professional boundaries with objects

Abstract

In this paper, I apply the concept of loosely coupled systems to describe multidisciplinary collaboration in healthcare. It is further argued that tools employed in collaborative activities may be regarded as object components of such a system. Drawing on ethnographical studies and interviews of a group of health professionals from different disciplines collaborating on breast cancer, it is argued that differences in use of such objects may either inhibit or encourage cross-boundary collaboration. One important reason is how the meanings of these objects vary or not within collaborative interaction. Meaning variation allows for more integration across boundaries, while meaning immutability may block the same boundaries. This finding is important for multidisciplinary contexts, adding new knowledge to the important quest in integrating relationships across professional boundaries.

Keywords: Multidisciplinary collaboration, boundary objects, loosely coupled systems

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Multidisciplinary collaboration as a loosely coupled system: integrating and blocking professional boundaries with objects

Introduction

In this article, I assume that the benefits of multidisciplinary teamwork lie in a tighter coupling across professional boundaries. The more integrated relationships become, the higher the potential of learning and adapting to complex contexts (Sjøvold, 2006), and a more coherent service for clients (D'Amour, Ferrada-Videla, San Martin Rodriguez, & Beaulieu, 2005). However, developing collaborative practice among a group of healthcare professionals still represents a considerable challenge to political decision makers as well as to organizational managers (San Martín-Rodríguez, Beaulieu, D'Amour, & Ferrada-Videla, 2005). Professional allegiances and hierarchical relationships may impede collaborative working, and different knowledge bases make it difficult to share knowledge (Shaw, Heyman, Reynolds, Davies, & Godun, 2007). Health professionals may actually thrive with little integration, maintaining professional boundaries and high differentiation in collaborative contexts (D'Amour & Oandasan, 2005; Timmermans & Berg, 2003). Previous research suggests that health professionals from different disciplines working together fortify their professional boundaries instead of softening them (Shaw et al., 2007).

It is this problem of integration that I will address in this paper. How may relationships in multidisciplinary contexts become more integrated? Why are boundaries maintained in multidisciplinary collaboration? In this paper, I apply the concept of "loosely coupled system" to describe the boundary relationships between health professionals. This is a useful perspective, because phenomena related to loosely coupling in organizations is a question of integration (Weick, 2001a). Further, it has

proven helpful in describing how a system with autonomous actors survives in spite of strong boundaries between them (see for instance (D'Amour et al., 2005; Koff, Defriese, & Witzke, 1994). So far however, it has not been applied in empirical investigations on multidisciplinary healthcare contexts. Drawing on findings from ethnographical studies and interviews, I show how multidisciplinary collaboration in healthcare may be described as a loosely coupled system. One important reason that such systems do not become more integrated is when connections between components are severed (Weick, 2001a). It is argued in this paper that health professionals' use of tools and instruments may function as systemic components that block connections, and therefore become important impediments for more integrated relationships. This paper offers important insights into why integration across boundaries in healthcare has proven so difficult.

Theory

In this section, I will describe what a loosely coupled system is and what insights it may offer into integration across boundaries. Tighter coupling is in this perspective reached *only* when components mediate connections with other components in the system. I will then focus on how objects, such as tools or instruments used by health professionals, may play such a role. The basic reason is that objects may both block as well as mediate relationships across boundaries (Carlile, 2002). Therefore, objects may play an important role in why integration between health professionals is successful or not.

Loosely coupled systems and integration

The bulk of the literature pertaining to loosely coupled systems is written about educational organizations (Schuhmann, 2005), but Koff et al. (1994) and Weick (2001a) suggest that also multidisciplinary contexts may be described as loosely coupled. A loosely coupled system is a system where links between various components are

relatively "soft" (Weick, 2001a). It is a complex organization characterized by a degree of autonomy among its interdependent parts and isolation between strata (Corwin, 1981). In such a system, actors thrive when working with soft linkages between them. Its viability lies in the weak integration across the boundaries. Gamoran and Dreeben (1986) noted that in loosely coupled systems "*activities and decisions made at one level do not necessarily reverberate in clearly patterned ways elsewhere. Administrators do not directly govern activities that take place in the technical core*". Multidisciplinary collaboration in healthcare seen as a loosely coupled system is therefore not the outcome of easily integrated activities (D'Amour et al., 2005). Rather, it is the result of a system where boundaries enable collaboration. A loosely coupled system may thrive as lowly integrated, and with regards to health professionals even seek to maintain this because of boundaries of professional autonomy (Timmermans & Berg, 2003).

One way to achieve integration in a loosely coupled system is "…*through devices such as liaison roles…*" (Weick, 2001a). Weick (ibid) contends however also that what he calls *constant variables* may block relationships through them and therefore make the system more loosely coupled. This entails that connections between A and C through B will be severed if B is a constant. Weick explains (pp.398):

"…*Variables with restricted variation do not tighten systems; they loosen them. Only when variation is restored do interactions increase and systems become more tightly coupled…*"

This entails that health professional A will not integrate with health professional C if B is a constant. Next, I will look at how objects may function as components of such a relationship.

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Objects as variances and constancies

Interaction is an essential part of every system. A system is a set of interacting units with relationships among them (Miller, 1978). A growing body of research suggests that in a collaborative system with well-erected boundaries, objects are often used as such interacting units to mediate relationships (Hislop, 2005). In healthcare contexts, researchers even report that objects such as test results and medical samples are important enablers of cross-boundary collaboration (A. Mol, 2002; A.-M. Mol, 2002). Objects employed in cross-boundary interaction are therefore important components of multidisciplinary systems in healthcare when they are employed in collaborative activities. They may however both block and mediate relationships in such settings.

Objects that cross boundaries are often termed boundary objects. The important property of a boundary object is that it serves as a mean of translation. This translation may be understood as a way of connecting diverse social groups (Callon, 1986; Latour, 1987, 2005). Boundary objects are plastic enough to fit into different contexts, yet stable enough to establish a shared context that "…*sits in the middle…*" (Star & Griesemer, 1989). The plasticity of boundary objects may be understood as a potential of adopting various meanings in different settings. The important point is that such an object is a network of different meanings (Law & Singleton, 2005). A boundary object, as part of a loosely coupled system, is therefore a variance because it has variable meanings.

However, one important aspect with objects as interacting units of a system is that they may also be used to block boundaries. This is not necessarily due to characteristics of the object itself, but more to how it is employed in interaction. The same objects that have been known to enhance collaboration across boundaries, have in fact become boundary blockers in other settings (Carlile, 2002). One important characteristic of such boundary-blocking interaction is when the meaning of an object

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is maintained within one perspective (Nieman, 2002). In the perspective of a loosely coupled system, a boundary-blocking object may be translated to a component with restricted meaning variation and thus a constant.

Integration with objects in a loosely coupled system

Objects, as parts of a loosely coupled system, mediate connections if their meanings are allowed to change, but also block connections if meaning variation is restricted. The variance of a boundary object then mediates relationships between health professionals, while a boundary-blocking object severs relationships. The first then allows for more integration between the professionals, while the latter impedes such a tighter coupling. This point is illustrated in figure 1. The upper part of the figure illustrates a relationship where B mediates a connection between health professional A and C, because it is formable, varying and a boundary object. The lower part indicates a relationship where B has a stabilized meaning and therefore does not mediate the connection between health professional A and C. The upper part indicates then a system that has a potential of tighter coupling, while the lower part indicates a system where loosely coupling is maintained.
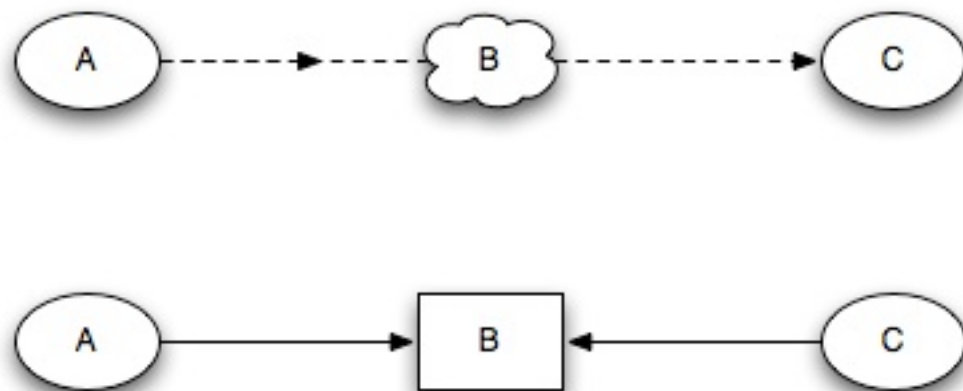
Figure 1: Connections between constant and varying variables

Aims of the study

In this paper, I investigate why integration across professional boundaries in healthcare has proven so difficult. Such collaboration understood as a loosely coupled system, may offer insights into why relationships are restricted from or enabled to become more integrated. One way of achieving tighter coupling in such systems may be the use of boundary objects. On the other hand may objects also function as boundary blockers. This study aims to, based on the notions of boundary objects and loosely coupled systems, to:

- Explain why multidisciplinary collaboration in healthcare is difficult, and

- Explain how integration in such ventures is attainable

My perspective of multidisciplinary collaboration as an interactive system entails a study based on understanding interaction. My focus is therefore on how such a system becomes integrated or not. This implies a lesser focus on causal inferences of issues such as status differences and professional autonomy, with more attention to how these emerge from interactions.

Methodology

Method

To investigate multidisciplinary collaboration in healthcare, I followed a breast cancer unit at a Norwegian hospital for 18 months. This very unit had, at the time of the study, for over 10 years emphasized multidisciplinary collaboration as an

important focus area. The data was collected through observational studies and interviews. In total, approximately 40 hours of observation and 15 interviews lasting from ½ - 1 hour were conducted. This was deemed necessary, as the interactive patterns were reoccurring and the interviews could offer no new knowledge. The observational studies were conducted with emphasis on seeing the actors in their natural setting. Field notes were taken focusing on a descriptive form, although with some elements of interpretation. I therefore described events as I saw them, but took some notes on my interpretation of these events. The interviews followed a closed semi-structural approach, with emphasis on the interviewees' phenomenological perception. Data were analyzed according to what Kvale (1996) calls ad-hoc meaning structure. This entails to analyze the texts in various ways, instead of following pre-decided and common routines.

Analysis

I sought two things in my analysis – signs of loose coupling in the collaborative system of the health professionals, and how they used objects in this system.

Weick (2001a) states that loose coupling exists if A affects B (1) suddenly (rather than continuously), (2) occasionally (rather than constantly), (3) negligibly (rather than significantly), (4) indirectly (rather than directly), and (5) eventually (rather than immediately). These adverbs provide a guideline of inquiry. It is not clear how many of these should be in place to call a system loosely coupled; by Weick's own use it appears as three suffice. For instance, he describes a relation between a Canadian and US organization, where the Canadian side of the firm affects the American side occasionally, negligibly, and often indirectly. The main point for Weick is that these adverbs exemplify the indeterminacy of relationships in loosely

coupled systems. In a loosely coupled system, it is not possible to infer causal

relationships like "*if A then B*" (Glassman, 1973). I therefore sought in my analysis

for relationships that showed signs of indeterminacy based on the five adverbs.

In the investigation of objects in this system, I sought for signs of variances

and constancies of meanings of objects that were used in collaborative settings. In the

collaborative settings of the health professionals, shared objects with different

meanings were interpreted as variances and therefore mediators of human

relationships. Objects with stabilized meanings were interpreted as constancies and

thus as potential blockers of relationships.

Results/Findings
In this section, I will first describe the collaborative system of the health

professionals. This is done mainly by describing their different interaction arenas, as

well as their different relationships. The main purpose is to understand better if and in

what way the health professionals were loosely coupled. I will then describe how they

used different tools in their collaboration. These tools are interpreted according to their

abilities to offer varying or constant meanings. The rationale is that objects with constant

meanings may be a sign of severed connections, and thus lesser potential of tighter

coupling; while objects with varying meanings may offer a higher potential for

integration.

The system
I will in this section describe the relationships between the health

professionals, through a description of their system of collaboration.

Treatment of breast cancer involved an assembly of resources from different

disciplines. The disciplines involved were cytologists, radiologists and surgeons. The unit had the espoused goal that patients who entered the clinic could leave the same day. However, the logistic structure left many bottle-necks in the throughput. Cytologists would for instance often need to wait for patients, while radiologists would be stuck with too many. The professionals did neither form a coherent group collaborating together. In diagnosing cases, there would always be a cytologist, radiologist and surgeon participating. However, it was seldom the same persons who attended and the same group rarely collaborated. This was both planned and not planned. The health professionals worked on shifts that followed a three-weekly turnover. Therefore, in the weekly meetings, different persons turned up. The surgeons would also sometimes be occupied with medical operations that were not scheduled, and would in these cases send another surgeon. And in some meetings oncologists would sit in and partake in the decision-making. They entered discussions only if patients' lumps turned out to be a case for cytostatika, but this could not be decided before the other professions had agreed on certain characteristics of the possible cancer lump such as size and edges.

The professionals collaborated and met each other in three different arenas. Firstly, their paths intersected once every second month in meetings to discuss their organizing (arena 1). The purpose of these meetings was to develop and enhance the work processes at the unit. Two days a week, they attended patients that were referred to them for diagnostic analysis (arena 2). The task here was to develop a diagnosis and treatment solution for the patients that were referred to the clinic by primary healthcare. The analysis was conducted with the help of a form, which consisted of 4 fields. One field was for the decision and notes of the radiologist, with two more for both cytologist and surgeon. Finally, the last field was left for the surgeon to sum up

all diagnoses in a final. Finally, once a week they reunited for a 1-hour, so-called, collaboration meeting, treating mostly special cases and screening patients (arena 3). The task here was to diagnose the screened patients[29], discuss difficult cases from the triple diagnosis and coordinate work in general. Each meeting was structured around the different patient-cases. The radiologist always started with presenting the x-ray pictures. These were exposed on a screen in front of all professionals. After she had explained what she was able to read from them, the cytologist did the same with her information. She read out cell samples handed out on paper, and presented pictures. The surgeon would then decide on further actions.

Arena 1 offered an important insight into how the professionals themselves would describe their system of collaboration, and was also itself a sign of how they collaborated. These meetings were rarely set in motion when planned, because some of the professionals showed up late and some needed to be paged. Upon meeting each other, each professional tended to focus solely on his/her own disciplinary problems within the process, expressing the complications connected to this task in regards to their own discipline. These discussions were often coupled with opinions of treatment, where the different professionals would put forward their view on the best way to discover cancer lumps. Many meetings would however proceed with a development towards a more shared perspective. This is demonstrated in the following passage, from the end part of one meeting:

Radiologist: *"...Let us now focus on how the patients perceive this day, and how we can together make it more efficient for them. They do not like waiting*

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[29] A governmental initiative of taking x-ray pictures of all women above the age of 55.

too! If somehow we could send patients directly to cytology...”

Cytologist: *“...But do we really need to do this all in one day?...”*

This exemplifies the shift of perspective the group often would have. Instead of keeping the emphasis on own discipline, the professionals here move their views to encompass the others as well. The radiologist's focus on the patient experience implies an emphasis on the coherency of their services. The cytologist also exemplifies a shared perspective, with her emphasis on *we* and the system as a whole. These shifts were however never stable, meaning that they would never last until the next meeting. They were also local, because they did not encompass the whole group. This was either because it was never the same persons who would attend or that some of the participants withdrew from the discussions.

The objects

In this section I will describe how different tools used by the health professionals formed units of the collaborative system. These will be described as objects of collaboration.

In arena 2 – the "triple diagnosis", the most prominent object of collaboration was the form used to mark diagnoses. The form was carried by the patient, who would first visit the radiologist office, venturing through the cytologist's before ending up in the surgeon's room. Within this diagnosing day, the different professionals were residing in three different offices attending each other. To see each other or speak, they would have to leave their offices and cross the hall. The document was put forward as a very important element in sharing knowledge. The radiologist made the following comments on this process:

Radiologist: "*We have this form [triple] that we use to communicate, and where we write down the most important issues. Often this suffices as a communication method... but I often feel that I need to speak to the surgeon, explaining more verbally what I mean... ...because it is difficult on the small place in this document. So well, I often speak with both the cytologist and the surgeon…*"

Interviewer: "*Do you need to get information also from the others?*"

Radiologist: "*Yes, I am interested in knowing, as the first to complete the form, what we are really communicating about. So, I first do the pictures and the investigation, and then it is always funny or interesting to find out what the others have found... ...I have a need for that, absolutely. Principally, one should manage to make a decision and believe in it, but... well, the point is also to know what the others have found. If there is such a need? Yes, absolutely, I need to talk them as well…* "

As the radiologist points out here, is the form intended for communication. However, it is important to notice that she also needs to see the others both to explain more thoroughly what she has written and to hear the others' explanations verbally.

In arena 3 – the "collaboration meeting", the most important objects of collaboration were the radiology pictures and cytology pictures/papers. The professionals used these to explain their own findings and interpretations to the others. The pictures were projected on the wall, while the professionals responsible for taking the tests explained to the others their interpretation of them. However, this

was sometimes causing more confusion than clarity. The following passage, where they try to agree on the size of a lump they have found, illustrates their difficulties:

Radiologist: *"Well, here I have shown the prevalence of calcium"* [pointing to her x-rays, showing that she suspects malignity]

Cytologist: *"The lump has an expansion of 1 cm, free edges"* [pointing to her cell pictures]

Radiologist*: "Yes, yes, that measure clearly does not match up with what WE see…"* [sighs and measures the lump on her pictures]

Cytologist: *"But we do cross-section, it never comes out correctly!"* [showing the cross-section at her picture]

Radiologist: *"But you surgeons, you are probably happy?"*

Surgeon: *"Well, as long as the edges are free.."*

The disagreement in this passage has arguably something to do with the results they presented in the meeting. Seemingly, they are not able to agree on the size of the lump because their methods of measuring it are different. The surgeon, after establishing that neither measures goes beyond any threshold, then focuses on what *he* sees as important - that the edges are free[30].

This emphasis on the information from the different presentations was even more apparent in one case where the health professionals discussed a patient that had

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[30] If the lumps are smaller than 1.1 cm, they do not treat it. Further, free edges are a sign of benignity.

been the victim of maltreatment. The professionals started discussing this case

approaching some of the questions they tried to answer in arena 1. The surgeon asked

the others "…*do we really approach patients the right way?*". However, this

discussion never reached the arena 1 level of opinions and meanings flowing back and

forth. The radiologist's suggestion was to "…*return to the data and see what they tell

us…*"; upon which she regained a focus on her radiology pictures. This focus on own

findings would often also exclude the others from insight. For instance, the radiologist

on one occasion complained about her pictures, feeling that she could not feasibly

enough justify that what she saw was a cancer lump. Without any interfering or

questions from the others, she exclaimed while pointing to the pictures *"...well, you

just have to trust me, I see a cancer lump here, even if you don't...".*

Discussion

   In this section I will first show why the collaborative system between the

professionals may be described as loosely coupled. I afterwards focus on how the

different objects enabled differences in integration of relationships between the

professionals.

The loosely coupled system

   When applying Weick's imperatives for loosely coupled systems, the

professionals' relationships show clear signs of being loosely coupled. Firstly,

connections were occurring occasionally rather than constantly. Despite that the

constellation of professional roles was always the same, the professionals would

collaborate with different persons in these roles from meeting to meeting. The

relationships were therefore connected on occasion and not stable. Secondly,

connections were occurring suddenly rather than continuously. The oncologists would for instance enter discussions on patient cases that could not be predicted on beforehand. The fact that the surgeons would attend depending on their availability, also implied a constellation that could not be predicted. They would therefore be included in the collaboration unexpectedly, and relationships with these persons were constructed on a sudden basis. Thirdly, connections were occurring eventually rather than immediately. The bottlenecks that could occur between cytologist and radiologist indicate a lag in the process between them that according to Weick is a connection that occurs eventually. The relationships between the professionals may therefore be described as occasional, sudden and eventual. These are signs of indetermination (Weick, 2001a) and therefore that their collaborative system was loosely coupled.

In addition, the changes in the system itself point to a loosely coupled constellation. Changes in such systems are swift but rarely stable (Weick, 2001b). The shift from an individual to a shared perspective in arena 1, can be understood as a sign of integration (Gundlach, Zivnuska, & Stoner, 2006). Further, this change was adopted quickly, because the cytologist would suddenly challenge the group's basic assumption of treating patients in one day. Her proposal indicates a kind of double loop reflection (see for instance (Argyris & Schön, 1996)), which, when commented on behalf of the group, is typical in more integrated relationships (Sjøvold, 2006). The main point is however that as long as this tighter coupling would not include the whole group, is it difficult to argue that it benefited the system as a whole. It was not clear from this specific event how the cytologist's comment influenced the others, if it influenced at all. It is clear, however, that this sign of integration between the professionals would not prolong itself into the next meetings. It was quick, unstable and local; an indication of the loose coupling between the professionals.

Objects' influence in the system

In this section I will discuss further how the health professionals used different objects in their collaboration, based on interpretations of interactions in arena 2 and 3.

Arena 2

In the second arena, the connection of findings marked on the form was important for the health professionals' collaboration, as they were related to each other through the form. This kind of sharing allowed the professionals to remain discipline-bound in their collaboration, and work in a way that may be labeled as sequential (Thompson, 1967). However, the professionals did also discuss some of their findings. And these discussions evolved around the different findings. The form became in this way a boundary object, because it both meant different things for the professionals and was being shared through discussions. A boundary object is plastic enough to fit into different contexts, but also stable enough to establish a common identity across these contexts (Star & Griesemer, 1989). The form was plastic, in that it entailed different meanings in various stages of the process. It belonged to each discipline at once, with various meanings.

It is also important how the professionals used the form to create a common social space. Their discussions around the form made it become a shared element of their interaction. The professionals reached in this way a shared social space with the form in the middle. This shared space can be interpreted as a sign of tighter coupling, because it involved social interaction. Social interaction is important in developing social relationships, which in turn are important in integration across boundaries (Hislop, 2005). The form therefore enabled more integration among the professionals. One important reason may be that the meaning of the form changed constantly, and

was therefore shared.

Arena 3

The objects of arena 3 were used differently than the form of arena 2. The radiology pictures became, as the cytology pictures, objects with only one meaning representing the different disciplines. It seemed for instance important to the radiologist to guard her own knowledge from insight. This was shown in the passage where she tells the other professionals to *not* understand the picture, but rather rely on her interpretation of it. A consequence was that she presented the information, but without allowing for questions and comments that could imply different opinions. The meaning of the picture was therefore stabilized, but not shared. One further example may be inferred from the situation where they are not able to agree on the size of the lump. As argued, may this have a background in the different results. But even more important, may have been how they used these. In a loosely coupled system are agreements of lesser importance when coordinate action is achieved (Weick, 2001a). When this disagreement did not influence the surgeon's decision and thus further actions, was it therefore not of significance. This had the consequence however that the radiology pictures came to belong to the radiologist and the cytology pictures/papers to the cytologist. The objects therefore represented different disciplines. Unlike the form in arena 2, these objects were stabilized with one meaning and not shared.

This may have made the context even more complex, because each object represented different meanings. In groups with lowly integrated relationships operating in complex contexts, people tend to withdraw into own comfort zones (Sjøvold, 2006). This implied for the health professionals a focus on own discipline

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and therefore maintaining separation. Thus, even if informational objects as the radiology pictures were intended to make things clearer, they also prevented the professionals from reaching more integrated forms of collaboration. One important reason may be that the meanings of the objects were not allowed to change. They became constant variables, and would therefore sever connections between the health professionals and maintain the loosely coupled system. The objects made in this way tighter coupling between the professionals impossible.

A loosely coupled system with objects as constant and varying variables

The difference between these two influences of objects in the loosely coupled system of the health professionals is illustrated in figure 2 (focusing on the radiologist). The upper part illustrates how the form connected the radiologist with the other professionals and thus allowed for tighter coupling. The lower part illustrates how the radiology pictures blocked the radiologist's relationship with the others, thus inhibiting tighter coupling. They all relate to the object, but because it is stabilized with the radiologist perspective it does not mediate the relationships. The form became a varying variable in the system, thus mediating relationships. The radiology pictures became a constant variable in the system, thus severing connections.
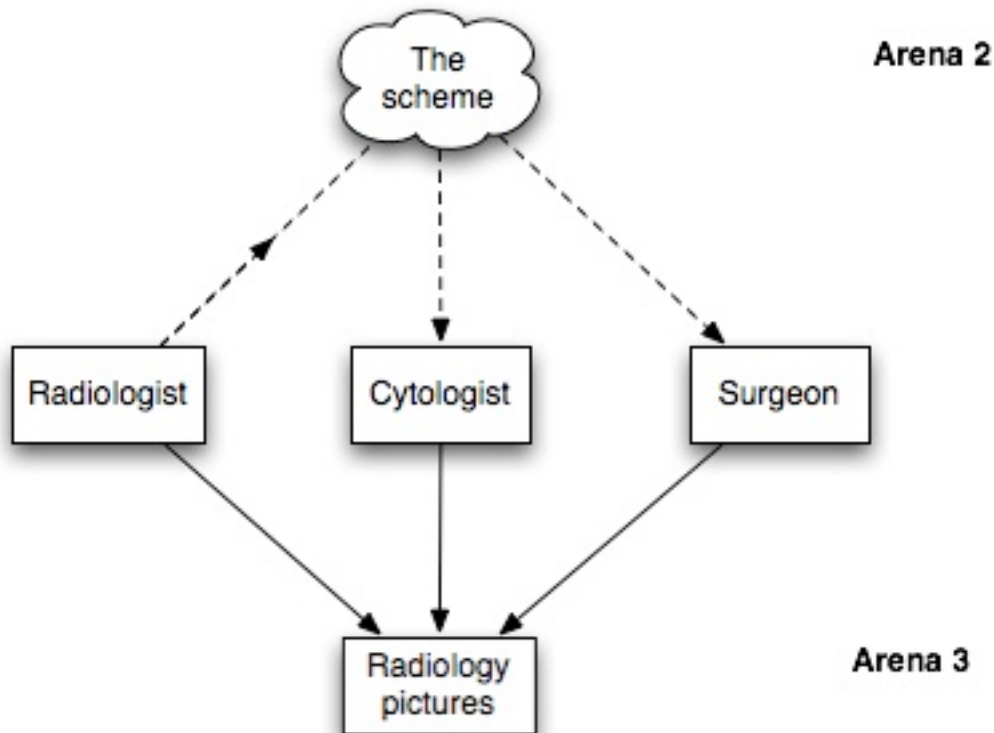
Figure 2: Mediating and severed connections of the loosely coupled system

Conclusion

The important basis for this paper has been that integration across professional

boundaries is important in order to achieve benefits of multidisciplinary collaboration.

I have here described how multidisciplinary collaboration may be viewed as a loosely

coupled system. One important consequence is that professional boundaries may

enable a viable system, but also that tighter coupling is not achievable if components

don't mediate connections. I have argued in that objects used in such collaboration are

also components of the system, and therefore should liaise relationships in the same

way as human actors if integration across boundaries is to be attained.

The finding suggested here may have important implications for how

multidisciplinary collaboration should be attended to. It is important to supervise how

health professionals use objects in collaborative settings. Used the wrong way, they

may inhibit tighter coupling and not reaching the benefits of such collaboration; used the right way, the may allow for tighter coupling and successful collaboration. Secondly, it adds an important insight into how health professionals should communicate with each other. Presenting data and findings may add clarity, but as shown in this paper may as well be used to make the context more complex and therefore difficult to relate to. This inhibits integration of relationships. Previous research suggests severe difficulties in introducing viable multidisciplinary collaboration in healthcare. My argument in this paper suggests that health professionals' use of tools in collaborative activities may be an important reason for this.

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Paper 4

Interdisciplinary teamwork in hospitals – the effect of professional culture and organizational artifacts

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Interdisciplinary teamwork in hospitals

- the effect of professional cultures and organizational artifacts.

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Abstract

Increasing challenges and changes are facing the health care sector and hospital organizations. Organizing in interdisciplinary teams is often suggested as a mean to meet these challenges. Establishing such teams is difficult in hospital organizations due to static borders between groups of professionals. Such differences may be caused by distinct different professional cultures, organizational structures or established professional behavior. Given the nature of organizational culture, creating interdisciplinary teams across cultural borders is a serious challenge compared to removing structural or behavior barriers. This study aims to investigate cultural differences between 169 physicians and nurses in six Norwegian hospitals. The Systematizing Person-Group Relations instrument was used to identify cultural

differences between these two groups. The results show that there were found tendency and significant differences between the two groups. Physicians experience their culture as more empathic and whit more enthusiastic and engaged colleagues than the nurses who describe the culture characterized by more caring, but also by more criticism and assertiveness. The nurses experience a lot more friction in collaboration than the physician colleagues. The differences found between the physicians and the nurses seem to be of a more structural character then cultural. This is promising for future work with interdisciplinary teams at hospitals.

Key words: interdisciplinary team, organizational culture, structural borders

Introduction

In this paper we investigate the potential for integrated cooperation between health-care professionals (interdisciplinary teamwork). There is reason to believe that more coherent teams also offer more coherent service for patients (D'Amour, 2005), but previous research suggests that there are important barriers to achieving such integrated cooperation among health-care professionals. In this paper we investigate differences in nurses' and physicians' perceptions of their work environment that could relate to these barriers. We are able to identify differences that support the assumption of boundaries that may impede integration among professionals, but we argue that these are not as influential as previously thought. The potential for creating efficient interdisciplinary teams is higher than assumed.

During the last ten years hospitals in Norway have been faced with increasing demands to change towards a more cost and time effective organization. Most of this change concerns organization and technology. This development coincides with increasing demands from society concerning both quantity and quality of hospital services, less tolerance for mistakes and more detailed political control. Many industries have successfully met such challenges by reducing organizational bureaucracy and converting to a more team-based work design (Mohrman et al., 1995). Team-based work design is efficient cooperation between people from different professions where every individual input is valued according to its contribution to task-solving, and not to the person's status or profession. We choose to label teams cooperating in this manner as interdisciplinary teams.

In spite of several successful introductions of interdisciplinary teams in hospitals that prove their efficiency (Shaw et.al. 2007), many authors report difficulties when introducing interdisciplinary teamwork in hospitals (Skjørshammer, 2001, Phillips et al., 2002, Sjøvold & Hegstad 2008). Several explanations have been suggested for this phenomenon; differences in education, history and professional connection (Rogers & Lingard, 2006, Rothstein, 2007); differences in status and degree of autonomy (Skjørshammer, 2001, Skjørshammer, 2003, Sjøvold & Hegstad 2008); differences in codes, beliefs, values, and ceremonies (Bloor & Dawson, 1994); different codes for constructing meaningful interpretations of persons, events, and objects commonly encountered in their professional world (Van Maanen & Barley 1984). Professional autonomy may have the effect of fortifying boundaries between professions (Brill, 1976, Ivey et al.1987, Satin, 1994), often resulting in stereotyping by one profession of another, and the existence of a collectively reproduced blame culture

(Shaw et.al. 2007). A single person's traits and behavior can change team dynamics (Williams & Sternberg, 1988, Stewart & Barrick, 2004). Even one overly zealous or domineering member in a group may significantly inhibit the quality of that group's performance (Williams & Sternberg, 1988). Due to status differences between health-care professions, such situations are more than likely to happen in health care (Aschenbrener & Siders, 1999, Skjørshammer, 2001, Skjørshammer, 2003, Rogers & Lingard, 2006, Leggat, 2007, Rothstein & Hannum., 2007, Sjøvold & Hegstad 2008). Professional specific approaches to the same health problem seems to be reinforced as the problem-solving is interpretative and typified by the need to constantly react to contingent and critical events and may also be more visible in situations where demands of changes are increasing (Timmermans & Berg, 2003, André, et al. 2008). Not only is interdisciplinary teamwork documented to be difficult, it is even documented that such cooperation enhances the boundaries between professionals (Shaw et.al. 2007).

According to Glouberman and Mintzberg (2001) hospital organizations are best described as consisting of various separated professional worlds; the "world" of cure is inhabited by physicians and the "world" of care by nurses. Members of the various "worlds" can differ in their perception of the same problem. The physicians enter the operating theater to do their job and disappear to their next case, while the nurses take part in both the cure and the follow-up care. One consequence is that nurses strive for a more holistic understanding of the patient and their health problems (Nortvedt, 2005; Steinsbekk & Launso, 2005). The nurses may also have a more local orientation characterized by strong loyalty to norms and regulations of their workplace, while the physicians seem to be more cosmopolitan characterized by less loyalty to their workplace, but highly committed to the knowledge and skills that distinguished their profession.

The Characteristics of inter-disciplinary teams

The scientific literature on interdisciplinary teams in health care offers some useful concepts to understand different levels of collaboration. In this literature one often distinguishes between the concepts of multi-, inter- and transdisciplinary collaboration (Jantsch, 1980, D'amour et al.2005). The concept of multidisciplinary collaboration signifies a task structure that is easily divided into separate subtasks and low interdependency between the different disciplines. Interdisciplinary work signifies that members with different backgrounds come together to work on shared tasks, with "*…a truly interactive effort and contribution from the disciplines involved…*" Here, the prefix "inter" refers to a common space, an element of cohesion, and a shared ownership. The transdisciplinary co-working

may be understood as a level where team members succumb to shared perception of tasks, dissolution of fixed roles and members that feel responsibility to the team as a whole rather than to individuals. Within a transdisciplinary team professional boundaries become blurred or vanish. The distinctions between multi-, inter-, and transdisciplinary are useful in order to understand that teams with members from different disciplines may collaborate in different ways. However, these concepts describe rather than explain the internal group dynamics, and it is difficult to retrace these distinctions in practice (McCallin, 2001). We will hereafter base our discussion on the Systematizing Person-Group Relation (SPGR) theory that distinguishes between immature and mature group performance (Sjøvold 1995, 2006, 2007).

In meeting different challenges groups tend to exert different predominant behavior (Bion, 1961, Tuchman and Jensen, 1977, McGrath, 1991, Chidambaram & Bostrom 1996, Jern and Hempel 1999, Poole and Hollingshead, 2004, Sjøvold 2006, 2007). The predominant behavior of a group at a/any given point in time is an expression of what function the group activates (Parsons, 1951, 1953). In SPGR theory group-functions are labeled: 'Control'; 'Nurture'; 'Opposition'; and 'Dependence'. The basic idea is that a group activates the function best suited to deal with the specific problem they face. If the problem at hand is instrumental, then the Control function is activated; if the problem is relational, the Nurture function is activated and so on. When the Control function is active, analytical, task-oriented or even autocratic behavior dominates; when the Nurture function is active, caring, empathic or even spontaneous behavior dominates; if the Opposition function is active, critical, assertive or even self-sufficient behavior dominates; and when Dependence is active, passive, conforming, and obedient behavior dominates. These functions represent poles in the basic dimensions of the SPGR model: C-N (Control –Nurture) and O-D (Opposition – Dependence).

A mature group is a group capable of rapidly activating the group function best suited to meet any challenge at hand. To achieve such flexibility all members of the group need to be capable of performing behavior that supports all of the four functions. In less mature groups members tend to take on roles according to their zone of comfort, and limit their behavior to support one basic function. In such groups one member may be the caring person (Nurture), another person the achiever (Control) and so on. However, in a flexible group, communication between members needs to be both distinct and rapid. Perceptions of the situation need to be shared, evaluated, decided and acted upon in a very short period of time. When all members are capable of recognizing and performing behaviors that support all four functions, this process is almost instant. The 'one person-one role' group will be less flexible, since each member perceives the situation and other member's actions as well through the eyes of his or her role. A lot of negotiation needs to be done before the group is able to act. A team confronted with a fairly simple task, that could be divided and individual contribution easily coordinated, will be effective even when operating on an immature level. Problems arise when complex tasks in unpredictable contexts confront immature team-performance. Group effectiveness is as such a highly flexible concept (McGrath 1991,

Hackman 1983, 1992, 2002). The degree of maturity in SPGR is expressed by a third dimension: S-W or Synergy to Withdrawal. Synergy appears in groups characterized by engagement and constructive goal-oriented teamwork. At a lower level of maturity where members still commit to their initial role preferences, they tend to restrict themselves from contributing to the common group work, which in turn results in passive behavior and resistance, i.e. withdrawal.

The most common teamwork referred to by health-care professionals is *coordinated* work performed by a surgery unit: health-care professionals performing their well drilled and specialized procedures clearly defined in a coordinated sequence. In such coordinated work, team members do what they already are best at under strong leadership and are as such teams that perform at an immature level. Although apparently efficient, this type of coordinated effort may inhibit communication between team members leading to errors, increased risk and reduced learning (Aschenbrener & Siders, 1999, Sexton et al.2000, Rogers & Lingard, 2006). At a mature level of operation, team members contribute on an equal base to find new and better solutions by challenging their own and others' skills and knowledge. A coordinated or immature team may get the best out of each member; the flow of ideas and challenging views in a cooperating or mature team adds a lot more organizational and individual learning (Mills, 1984, Sjøvold 2007).

Are barriers upheld by culture or structure?

Smooth collaboration in teams depends on a flexible role structure characterized by equal influence by team members or, according to our labels, mature groups. The concept of maturity is related to the nature of team dynamics and not effectiveness. Groups operating at a low level of maturity may be as effective as mature teams. Groups are effective if their level of maturity matches the complexity of the task and situation they confront. Low-maturity groups fail when confronted by complicated tasks demanding equal contributions from all its members in unpredictable situations, but are effective at well-recognized tasks in familiar situations.

Hospitals experience difficulties in creating mature interdisciplinary teams even though it would be important for the best of the patient that different professions cooperate with as the least amount of friction as possible. The hospital organization can be described as consisting of four different worlds divided by strong borders Glouberman and Mintzberg (2001). If this is the case such borders will without doubt be one reason for the difficulties of interdisciplinary cooperation in hospitals. To understand how these borders are upheld and how to break them will therefore be important knowledge when attempting to improve interdisciplinary teamwork in hospitals.

One may assume that borders between professions are upheld by either differences in interpretation of shared reality or by structural artifacts of the organization. In the case of the first assumption collaboration will suffer from misinterpretations, misunderstandings and misconceptions of "the others". In such cases we speak of culture differences and assume that each professional belongs to a distinct professional culture. In the case of the latter, professional borders are upheld by organizational characteristics or artifacts dividing people belonging to different professions. Such structural characteristics may entail differences in status, work practices, physical locations or specialized skills. We will further label such structural characteristics as organizational artifacts to distinguish them from the more fundamental assumptions embedded in organizational culture (Schein 1985, Bloor & Dawson, 1994, Adler 2007). If professional borders are upheld by culture differences, there is per definition a lot more challenging to break them than if they are upheld as organizational artifacts. The reason is that members of professional cultures interpret the problem at hand, the aspect of the situation and "the others'" capabilities so differently that they are not able to communicate effectively or value each other's actions. Due to ethnocentrism, cultural differences tend to be reinforced in the meeting with "strange" attitudes and procedures of another culture, or "the others". As humans we tend to see "our way" as the "correct" way. Barriers to interdisciplinary teamwork due to cultural differences are therefore a lot more severe than if they are upheld by organizational artifacts.

Professional cultures have emerged through solutions to internal or external problems that are perceived as (so) successful that they are accepted as general solutions to these problems and are as such inherited by new members of the profession. The more unconscious and taken-for-granted these solutions are among the members of a culture, the stronger the culture. A weak culture will be more adaptive than a strong culture since less of the professional actions are taken for granted. This means that strong cultures are beneficial and highly effective in meeting tasks within familiar contexts. Little time and effort are wasted in pre-decision discussions. Confronted by a problem, all members immediately know what the correct actions are to handle it successfully. Strong cultures are often synonymous with "winning cultures". However, even if it is effective in meeting familiar problems, it is implicit that strong cultures exert less learning ability. Too much is taken for granted which inhibits the will and ability to see and value alternative aspects of the problem or solution and an inability to learn from past experiences (Sexton et. al. 2000, Makary et al. 2006). Errors or mistakes will easily be attributed to "the others" and no change in behaviour will occur.

Organizational artifacts on the other hand are formal constellations that regulate cooperation within the organization. Organizational culture has long been observed as being reflected in the artifacts of an organization (Schein 1990). These are not unconscious or taken for granted, but quite open to discussion. Members are well aware of their existence and aware of how they some members benefit from others. Many organizational artifacts regulate differences in status and autonomy between members. The redistribution of power and benefits will always cause pain and are not easy to achieve. Changing or

removing barriers due to organizational artefacts are not easy, but a lot easier than changing cultures.

We have stated that to fulfil its intention interdisciplinary teams need to operate at a mature level. Both strong professional cultures and organizational artefacts may hinder such operations. Strong professional cultures represent a great challenge to interdisciplinary teamwork and mature operation since they effectively limit their member's ability to discover and learn new abilities. Openness and learning is the raison d'être for interdisciplinary teams. Organizational artifacts may as well be severe barriers for interdisciplinary teamwork, but they differ in quality since they are open for discussion and thereby negotiation.

Aims of this study

Several authors claim the need to empirically examine the effect of professional cultures (Timmermans & Berg, 2003, André B, et al. 2008) and the phenomenon that multidisciplinary interaction appears to re-invoke professional boundaries (Shaw et.al. 2007, Sjøvold & Hegstad 2008). Organizational behaviour and professionals' interpretation of their workplace are central aspects to investigate in this respect.

This study aims to extend the knowledge about cultural differences between health-care professionals in Norwegian hospitals and whether the major barriers to interdisciplinary teamwork are the effect of strong professional cultures or organizational artifacts.

Method

The design of this study was set up to investigate differences in professional cultures. Survey data were gathered from comparable units in six different Norwegian hospitals representing a spread in both size and geographic location.

Participants and design

Members from two professional groups, physician and nurses, were chosen in representative numbers from each hospital. A standardized instrument/questionnaire (SPGR) was used to gather the data. The total number of respondents is 169 of which 58 were physicians and 111 nurses. These numbers represent response rates of 68% for the physicians and 58% for the nurses. The distribution of respondents between hospitals was approximately as intended by our design.

The SPGR instrument

The Systematizing Person-Group Relations (SPGR) is an instrument designed for analyzing interaction patterns of behavior within social systems and has also been used in hospital settings in several studies in Norway. The SPGR instrument reflects the constructs of the SPGR theory and consists of four dimensions labeled Control-Nurture (C-N), Opposition-Dependence (O-D), Withdrawal-Synergy (W-S) and Influence-Passivity (I-P). The pairs of the first two dimensions represent what is defined as basic group *functions.* The pairs of the third dimension are indicators of a group's *maturity,* and the fourth dimension reflects the degree of influence or dominance in the group. The C-N dimension covers behavior-supporting structure, authority, and procedures to behavior that encourage care-taking, acceptance of differences, and willingness to listen to dissident opinions in the group. The O-D dimension covers behavior that opposes status quo and critical appraisals of "obvious" solutions to behavior that encourage acceptance, obedience, and actions that are in accordance with group decisions. The W-S dimension covers behavior where members withhold their resources and contributions to behavior-supporting engagement, empathy and cooperation.

We used the 24-item SPGR value scale (Sjøvold, 1995, 2002) for our purposes. Each item describes behavior in a set of three word or phrases:

Effective, self-confident, dares to take the
lead

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	Direct, controlling, demanding
	Caring, supportive, encouraging

The respondent is asked to rate according to whether the behaviors never or seldom occur (1), sometimes (2), or often or always occur (3) by the subject in question.

Procedure and analysis

The respondents were informed of the purpose and ethics of the study before the questionnaire was distributed. The respondents were all anonymous in relation to their professional belonging.

Table 1. The SPGR vectors

Vector	C 7.1.1	Typical behavior
Empathy	S	Showing empathy and interest in others
Caring	N	Taking care of others, attentive to relations
Acceptance	I	Passive, accepting
Creativity	N	Creative, spontaneous
Criticism	C	Critical, opposing
Resignation	V	Sad appearance, showing lack of self-confidence
Self-	V	Passive, reluctant to contribute
Assertivenes	C	Assertive, self-sufficient
Ruling	C	Controlling, autocratic, attentive to rules and procedures
Loyalty	I	Obedient, conforming
Task-	C	Analytical, task-oriented, conforming
Engagement	S	Engaged, inviting others to contribute

In this study we present our results along three SPGR dimensions and in more detail along twelve vectors in the SPGR-factor analytical space. These vectors are briefly described in Table 1. The vector code indicates which underlying dimension it belongs to; Control vectors are labeled C1 and C2 and so forth.

Results

We have summarized our findings in Table 2 and Figure 1. The orientation of three SPGR dimensions are illustrated in Figure 1. The poles Opposition and Withdrawal point to the non-cooperative area of the SPGR behavior space, while Synergy represents an optimal position for constructive and supportive cooperation. In Table 2 pairs of vectors represent each of the six poles in Figure 1; W1 and W2 represent the Withdrawal pole, S1 and S2 Synergy, etc.

From Table 2 we see that statistical significant differences are found in vector S1 Engagement and S2 Empathy where both are rated higher by the physicians than the nurses. Further there are significant differences on vector W1 Resignation, W2 Self-sacrificing, O1 Criticism and O2 Assertiveness where all are rated higher by the nurses. This table provides an overall picture of the physicians who experienced a smooth collaborate working climate in contrast to the nurses who experienced a lot more friction and difficulties in their daily work.

Table 2: Differences between physicians' and nurses' rating of their culture expressed along the twelve SPGR

vectors

Vector	Physi	N	
Empathy	7.60	7.	*
Caring	6.05	6.	**
Acceptance	5.48	5.	
Creativity	2.88	2.	
Criticism	1.43	1.	**
Resignation	2.00	2.	**
Self-	2.07	2.	**
Assertivenes	1.95	2.	*
Ruling	2.66	2.	
Loyalty	5.55	5.	
Task-	4.43	4.	
Engagement	7.60	7.	*

(value-range: 1-9)		**p<0.10*

The nurses also rate the vector N1 Caring significantly higher than the physicians and, although not statistically significant, they also rate vector C2 Ruling higher. This combination indicates that nurses emphasize a more holistic and caring role than physicians while at the same time they experience more formal restrictions and autocracy. These findings are in line with Glouberman and Mintzberg (2001) and their distinction between the "care" and "cure" worlds in hospitals.

When performing our analysis on the three SPGR dimensions as plotted in Figure 1, we find significant differences only in the non-cooperative area of the SPGR space on Withdrawal and Opposition (circled in Figure 1). The nurses experience less collaboration and more restrictions in their work than their physician colleagues. We can also see a difference in physicians who rate Synergy higher although this difference is not statistically significant. This finding indicates that physicians interpret the culture as more collaborative and supportive than the nurses who experience considerably more barriers and lack of enthusiasm.
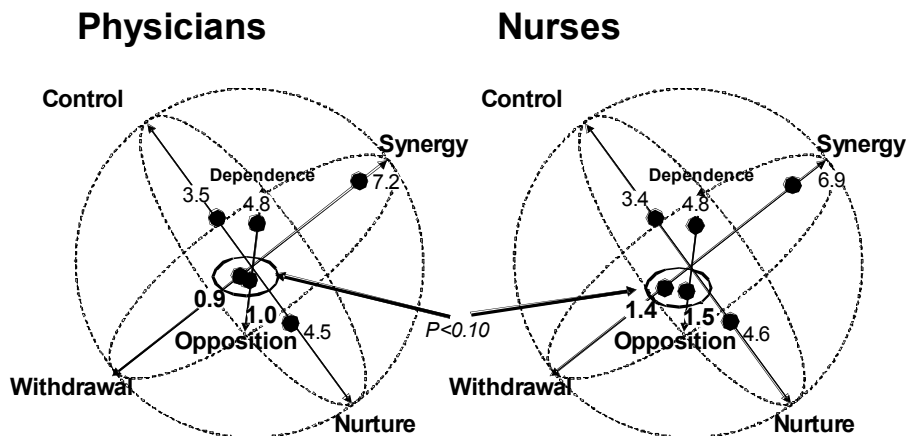
Figure 1: results along the three SPGR dimensions C-N, O-D and S-W.

Although our study identifies several differences between the two professions that may explain some observed difficulties in interdisciplinary cooperation in hospitals, the statistical differences we find are relatively weak. Our general finding is therefore that the identified differences in perception of culture are not sufficient to conclude that (the) professional culture represents severe barriers to interdisciplinary teamwork. We need to look to other causes, i.e. organizational artifacts.

Discussion

We have stated that smooth collaboration in teams depends on a flexible role structure characterized by equal influence by team members. Such groups are labeled as mature groups. Groups with a fixed role structure and unequal influence among its members operate on a low level of maturity. The concept of maturity is related to the nature of team dynamics and not effectiveness. Groups operating at a low level of maturity may be as effective as mature teams as long as their level of maturity matches the complexity of the task and situation they confront. However, the learning capacity and thereby the ability to successfully meet new and complicated tasks are less than in a mature team with its equal contribution from all members. By its very nature one should expect that interdisciplinary teams should perform at a high level of maturity.

Having investigated physicians and nurses from six different Norwegian hospitals, our results support the existence of differences between health-care professions.   However, we will argue that these

differences are too weak to support the assumption of distinct professional cultures. We further argue that these differences may better be explained by organizational artifacts.

Since organizational culture governs the way we relate to and think about events in our work situation, people belonging to different organizational professional cultures would perceive the same situation differently (Schein, 1985). One way of investigating cultural differences is therefore to let people from different cultures describe the same phenomenon using a valid and reliable instrument. In our study we used the SPGR instrument to measure professionals' perception of their workplace. We assume that both the quality and size of the SPGR measures may indicate culture differences when they ascend to certain levels. We further assume that in a hierarchical organization there will/could always be minor differences between professions due to formal or organizational artifacts. We will discuss our findings based on these assumptions.

Our general finding is that the nurses experience more friction in collaboration than the physicians. The physicians interpret the culture as more collaborative and supportive than the nurses who experience more barriers and lack of enthusiasm. These differences may be related to perception of professional autonomy. If you feel in control of your work situation, it is easier to handle changes and stressful situations and you experience less friction. Those with the most skilled jobs are in most control of their work tasks and are less influenced by stress (André et.al., 2008).

The status differences between the health-care professions are quite visible and have earlier been described as a source of conflicts and as an important barrier to interdisciplinary teamwork (Aschenbrener & Siders, 1999, Skjørshammer, 2001, Skjørshammer, 2003, Rogers & Lingard, 2006, Leggat, 2007, Rothstein & Hannum, 2007). A hierarchy of professions in health-care exists where physicians are more independent than the nurses and also perform tasks of a higher status (Skjørshammer, 2001, Sjøvold & Hegstad 2008). It is obvious that such differences explain the differences we have found, but it is hard to argue that this is a cultural difference in the sense we define «culture». While cultural differences are assumed and expressed in subtle ways, the physician's higher status and autonomy is obvious even to the insider. Physicians may use their higher level of status and thus power to coerce nurses to act differently than they otherwise would. This in turn implies withdrawal and negative emotions on the side of the nurses. In other words, our findings are better explained by asymmetric power relationships than by differences in perceiving a shared reality. Both parties are well aware of these differences and as such they represent organizational artifacts rather than cultural differences.

Despite the fact that such argumentation implies a one-dimensional perspective on power (Lukes, 1974), the notion that actors with lower levels of status feel negatively towards the ones with higher status

is relevant to interdisciplinary teamwork. Since physicians and nurses seemingly agree on these differences, physicians easily adopt the roles of leaders. Such clear and consistent role differentiation prevents interdisciplinary teams from evolving to a higher level of maturity. As explained earlier most teams in hospitals perform well-drilled and procedural work. Strictly speaking this means that most of the time they actually do not need to perform as high-maturity teams. It is only in those cases where things go wrong or the task or situation demand that all members of the team contribute on an equal basis, that the strict role structure hinders effective team performance. Team effectiveness is always related to the nature of the group task and the complexity of the situation. The lack of ability to perform at higher levels of maturity may be one reason why errors occur in hospitals' special units such as intensive care or surgery (Sexton et al. 2000, Makary et al. 2006).

Our findings also suggest that nurses focus considerably more caring behavior when describing the hospital culture while at the same time they seem to be exposed to more assertiveness and ruling than the physicians. This easily leads back to the suggested image of the hospital as various "worlds" where the world of "cure" is inhabited by physicians and the world of "care" by nurses (Glouberman and Mintzberg, 2001). While physicians strive for active problem-solving and isolated interventions, nurses strive for a more holistic understanding of the patient and his or her well-being. Again one may argue that if such worlds exist, they are the result of existing professional cultures. We will argue that existing status differences between professionals are a more plausible explanation for the existence of the "worlds". The fact that nurses and physicians are not valued equally in the hospital organization, and that a clear task-differentiation between the two groups exists, may well explain the existence of the different worlds described by Glouberman and Mintzberg (2001). If this is the case, the "worlds" are not caused by cultural differences, but are in themselves organizational artifacts. Again the insider is well aware of the phenomenon, is able to describe it, and accept it as unavoidable, although we might not conclude that the phenomenon is taken for granted in cultural terms.

The combination of finding explanations of our results within organizational artifacts rather than within culture, and that the statistical significance we have identified is weak, we would rather conclude that we find no severe differences between professional cultures in our study. That is not to say that the differences identified are less important. Daily experience with criticism and assertiveness may lead nurses to be less motivated to engage in interdisciplinary teamwork. In a well-functioning interdisciplinary team, members respect each other as equally important, share a compatible perception of the organizational reality and do not encounter any structural or social boundaries for cooperation (Sjøvold, 2007). If the perception of the different "worlds" is a reality among the health-care professions, one would expect that members across professions perform coordinated task-solving and that mature interdisciplinary cooperation is fairly unlikely (Glouberman and Mintzberg, 2001). However, since cultural differences imply different mental models that are not open for discussion, it is a lot easier to renegotiate established routines and status hierarchies, even if it can be difficult.

Our findings show that interdisciplinary teamwork in hospitals may be more easily achievable than previously thought. The structural boundaries between professional roles may continue to be strong, but this may bear little consequence for the development of effective interdisciplinary teamwork. Quite the contrary, different professional perspectives, different skills and different organizational experience will contribute to the benefit of interdisciplinary teamwork. In fact such differences are important aspects of effective interdisciplinary teamwork; members of the group are able to contribute with knowledge and experience that fills in other members' perspectives. To achieve such team performance it is mandatory that members' contributions, opinions and skills are valued equally by all members or, in terms of group dynamics, the team operates at a high level of maturity. It is only when professionals enter a group with the assumption that their professional perspective (their "world") is the only correct way of perceiving problems and solutions that professional differences represent restrictions to interdisciplinary teamwork. The raison d'êtré of interdisciplinary teams are to effectively meet complex and unpredictable tasks.

Talking with health-care personnel about team performance we experience that the operating room team with its specialized professional activities is presented as the optimal interdisciplinary team in their opinion. A group of professionals performing their specialized skills in sequence under strong supervision is per definition not interdisciplinary teamwork. This may point to the conclusion that the understanding of what interdisciplinary teamwork actually is, and what it takes to make it effective, is not there yet. This is surprising given that they are dealing with health problems that often are unexpected, with factors that are unknown and difficult to control and often deal with patients with complicated and uncertain prognoses. This lack of understanding may be crucial.

If errors or incorrect treatment are imminent, will other members of the team oppose or object? In an immature team they will not; in a mature team it is not only natural that they do, but that each member of the team asks the other(s) for advice in advance. The reason why professionals do not object in immature teams is that they feel that they and their contribution are not valued as equal due to artifacts such as formal status. Unfortunately many parallel incidences to this are reported in both health care and aviation (Sexton et al. 2000, Makary et al. 2006).

Although education of health-care personnel gives considerable attention to these factors to make them capable of meeting such challenges, it is within the frame of distinct professions. Several authors support this and claim that different codes for meaningful interpretations of health-care problems are effectively socialized into each professional culture (Van Maanen & Barley 1984: 300, D'Amour et al., 2005). If such socialization shapes strong professional cultures, research on professional culture is a very important issue. However, we are critical to the tendency to connect all professional differences to culture. This critique is not purely semantic since the challenge of changing culture is huge compared to changing

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organizational artifacts that are conscious and open to discussion.

Conclusion

Our sample in this study reflects the current status at most of the hospital units in Norway. Since health-care personnel have a long tradition of changing personnel within units and hospitals (Kivimaki, M. et al., 2007) we find it is reasonable to compare professionals from different units and hospitals on their perception of culture. Although there is a limited number of respondents in this and comparable studies, we dare to conclude that the professional differences we experience in hospitals are upheld more by organizational artifacts than cultural differences. However, further research is necessary to identify how barriers to effective interdisciplinary teamwork can be eliminated and the effect of professional stereotypes.

If our conclusion is correct it holds a lot of promise for successful introduction of interdisciplinary teamwork in hospitals. Breaking status differences and redistributing power is always painful, but we have reason to believe that these issues are no longer unconsciously accepted. We are convinced that the only way to meet future demands of flexibility, cost savings and reduced error rates in hospitals is by genuine interdisciplinary teamwork.

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