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Annika Lindh Falk, Nick Hopwood, and Madeleine Abrandt Dahlgren

Unfolding Practices: A Sociomaterial View of Interprofessional Collaboration in Health Care

Abstract: Knowledge sharing is an essential part of interprofessional practice and will be even more important in the future in regard to the opportunities and challenges in practices for delivering safe and effective healthcare. The aim of this ethnographic study was to explore how professional knowledge can be shared in an interprofessional team at a spinal cord injury rehabilitation unit. A sociomaterial perspective on practice was used to analyse the data, and by theorizing upon this, we captured different aspects of interprofessional collaboration in health care. The findings illuminate how knowledge emerges and is shared between professionals, and how it passes along as chain of actions between professionals, in various ways. The findings offer a novel perspective on how interprofessional collaboration as a practice, involving ongoing learning, unfolds. This reveals the mechanisms by which different forms of expertise are mobilized between professions as health care work.

Keywords: Ethnography, interprofessional collaboration, practice theory, professional knowledge, sociomaterial, team work

Annika Lindh Falk, Department of Medical and Health Sciences, Linköping University, Sweden

Nick Hopwood, University of Technology, Sydney, Australia

Madeleine Abrandt Department of Medical and Health Sciences, Linköping University, Sweden

Contact:
Annika Lindh Falk, Department of Medical and Health Sciences, Linköping University, Sweden
annika.lindh.falk@liu.se

This paper presents findings from an ethnographic study at a spinal cord injury rehabilitation unit. The study has a specific focus on the crucial role of knowledge work in interprofessional practice. What it means to be a health care professional, and the qualities of health care professionalism are changing. One important aspect of this relates to interprofessional collaboration. Contemporary professionals are generally not expected to work in isolated silos, but with others. In health care, professionals need to be comfortable and skilled in working together as well. For many years, interprofessional collaboration has been emphasized as crucial and a strong force in ensuring sustainable, high-quality health care practice that responds to complex patient needs in contemporary health services (Batalden & Davidoff, 2007; Howarth, Holland, & Grant, 2006; McPherson, Headrick, & Moss, 2001; Reeves, Tassone, Parker, Wagner, & Simmons, 2012; Wilcock, Janes, & Chambers, 2009). The term *collaboration* conveys the idea of sharing and implies collective action oriented towards a common goal (D'Amour & Oandasan, 2005). According to Barr, Koppel, Reeves, Hammick, and Freeth (2005), interprofessional collaboration can be explained as an ongoing work, often between people from diverse professional backgrounds who work together at the same workplace, to solve problems and provide services.

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Our specific interest concerns collaborative professional knowledge in health

care. Previous empirical studies in health care regarding interprofessional collaboration and the knowledge contribution in a team have used different approaches to describing a variety of factors that are necessary for professionals to work effectively together. Sargeant, Loney, and Murphy (2008) found in a focus group study, different aspects regarding working effectively in a team. These aspects were, understanding and respecting team members' roles, and the "know-how" of team members to share and communicate with the other members of the team. These findings have the focus on the cognitive and affective competencies as factors in successful teamwork. Kvarnström (2008) has highlighted the importance of both organisational and individuals' values and support to the team as factors for successful interprofessional collaboration and knowledge contribution. McDonald et al. (2009) found in their study that the competency to have knowledge about the professional roles of others was an important factor in achieving successful interprofessional collaboration. Engeström (1999) and Edwards (2012) have over the years, researched about professional and interprofessional work and learning using cultural-historical activity theory. Engeström has formulated an "expansive" view of learning which is useful for understanding the uptake of knowledge creation in organisations (Engeström, 2001).

The idea that we embrace in this study about interprofessional collaboration is that the valuable knowledge that professionals bring to bear can be even more developed and shared in order to provide appropriate care and avoid isolated and fragmented approaches to health care work. That is in line with Fenwick and Nerland´s (2014) argument that differences in the ways that individual professionals construe and use professional knowledge are of interest when looking at interprofessional collaboration.

So, there are several attempts to define and deepen the view of interprofessional collaboration and knowledge contribution in health care and to specify what interprofessional collaboration should involve, using different approaches. Based on the literature review, there seems though still a lack of empirical data describing *how* interprofessional collaboration actually works in health care practice with a special interest in collaborative professional knowledge.

We have used an ethnographic research approach to get close to and observe the practice as it unfolds at a spinal cord injury rehabilitation unit. In this research project, we are interested in *how* knowledge can be shared among professionals when they collaborate in health care. Thus we respond to the need for the exploration of interprofessional collaboration in terms of collaborative professional knowledge and professional learning. We draw on some of the aspects of sociomaterial perspective on practice and learning that have not previously been taken up, to illuminate the question of how knowledge sharing can take place in and through an interprofessional practice.

Theoretical approach

Sociomaterial perspectives have been taken up in a range of contexts to explore links between practice, knowledge and learning. The perspectives tend to examine the whole system by tracing interactions among human as well as non-human parts of the system. A range of conceptions and methodologies can be described as sociomaterial, with slightly different foci, some more sociocultural and some more material-focused (see examples in Edwards, Daniels, Gallagher, Leadbetter, & Warmington, 2009; Engeström, 2001; Lave & Wenger, 1991; Schatzki, 2002). One common viewpoint is that material as well as social forces are mutually involved in everyday activities. More concretely, sociomaterial researchers are interested in both interactions between people (the social) as well as the objects that are significant in these interactions (the material). Different sociomaterial perspectives are used to foreground key aspects of professional learning. These perspectives are also relevant

to the present study because they emphasize relationships and focus on practice as it unfolds. Professional knowledge and knowledge strategies are complex and are changing in the area of professional practice and work because of shifts in arrangements and responsibilities between professionals (Fenwick, Nerland, & Jensen, 2012). To dig in a little bit deeper into one of the sociomaterial perspectives, Kemmis (2009) has argued that a practice is embodied and situated, referring to what a particular person does at a particular time and place. A practice is constituted of what individuals do, in physical and material space ("doings"), what people think and say in and about practice in words and discourses ("sayings") and finally the relation between people - people and people-objects ("relatings") that hang together in a distinctive project. The project of practice is what people say when they tell someone what they are doing while they are engaged in the practice. The project of practice includes the intention that motivates the practice, the actions (sayings, doings and relatings) undertaken in the conduct of the practice, and the ends the actor aims to achieve through the practice. Conceived this way, a practice requires people to engage in multiple activities spread over time or space, and the social and material dimensions cannot be separated. The material dimension refers to tools, technologies, bodies and objects.

Schatzki (2002) has stated that practices are organised by practical understandings (how to perform a specific action, bodily "doings" and "sayings"), rules (principles and regulations that guide actions), teleoaffective structures (which include what motivates people to act towards possible ends and goals in practice) and general understandings (common orientation among people or groups). The idea of practice being governed by what it makes sense for people to do, both on an individual level but also on a broader level with others. Schatzki (2002) also describes practices as temporally unfolding and spatially distributed. In this study, practical understanding refers to specific professional knowledge in the team, while the laws and regulations that direct and guide the health care practice are conceived of as rules. Teleoaffective structures point us to agreements about treatment, attitudes and ethical issues decided at the ward by the professionals, and finally, general understanding refers to the knowledge about the traditions and the nature of one's specific profession and professional role. Maintaining practice requires activity and skills and a shared understanding of the embodied knowledge.

Sociomaterial approaches are also associated with novel ways of approaching questions about knowledge. Some treat knowledge as knowing—a verb—highlighting performative aspects, and avoiding any uncoupling between doing and knowing (Gherardi, 2009). In this paper, we refer to knowledge but retain a key sociomaterial notion that knowledge is not a stable entity residing in individual practitioners' heads, but rather something that is emergent, a property of relationships between professionals, patients and the objects of practice. Learning between professionals is not seen as separate from practices, but part of knowing-in-practice (Rooney et al., 2012). Interprofessional collaboration challenges the boundaries of the expertise between professions, but also gives possibilities to share the knowledge while working with others who bring other forms of knowledge, traditions and roles into the practice. A study conducted by Edwards et al. (2009), investigated how multi-professional units developed new practices to serve young people. The findings provided evidence of how the boundary work between the professionals from different units offered significant spaces for learning. By studying what health care professionals actually do, we can learn more about practices of interprofessional collaboration and the knowledge and learning associated with those practices.

The aim of this study was to investigate how knowledge can be shared and emerges between different professionals in a health care practice. In order to offer a novel understanding of interprofessional collaboration, we use aspects of the sociomaterial perspective that have not previously been widely taken up when following healthcare practices as they unfold.

The empirical study

The research that informs this paper is drawn from an ethnographic research project conducted during 2012 at a spinal cord injury rehabilitation unit at a university hospital in Sweden. The site was chosen based on the first authors' prior knowledge of existing interprofessional collaboration in health care. The project's ethnographic design suited the aim of exploring in-depth how knowledge can emerge and be shared in interprofessional collaboration in health care practice (Hammersley & Atkinson, 2007; Savage, 2000). Schatzki (2012) has argued that ethnography is essential as a research method for acquiring knowledge about how practices and arrangements hang together and about the contexts in which activities and knowledge sharing can take place. According to O'Reilly, (2009) and Srivastava and Hopwood, (2009), taking up ethnography as an iterative-inductive research methodology means that the design evolves through the study process, responding to events and circumstances as they come up.

To facilitate in-depth investigation of interprofessional collaboration, the first author followed two different patients at the ward and a group of professionals built up around these patients. Each group constellation consisted of 1-2 physicians, 4-5 nurses, 4-5 nursing assistants, one occupational therapist, one physiotherapist and one rehabilitation assistant (10-12 people in total). The number of staff participants reflected the organic practice of working with the different patients during their rehabilitation process, rather than being specified in advance. This design enabled observations of many informal interactions, such as how the course of events developed and what was said. Such observation is important to take into account in an ethnographic study (Polit & Beck, 2012).

The site had a nurse station located in the centre of the ward. There were also two separate offices for round meetings and team meetings located in the ward. Rooms for occupational therapy, physiotherapy and music therapy, and a dining room for patients were located on the same floor at the unit.

Several information sessions were used to introduce the study to the different professionals at the ward, after which they gave written informed consent to participate in the study. Further verbal consent was requested before observation started. No team member declined to participate. Patients were initially asked to participate by one of the head nurses. They were also given an information sheet describing the purpose of the study and were asked for their oral and written consent.

Data was collected by the first author by participant observations, informal conversations and by reading medical record documentation for the two involved patients. The participant observations and conversations involved direct and sustained contact with the different professionals as they went about their everyday practice, observing what happened and listening to what was said in different activities, a naturalistic approach in line with Lincoln and Guba (1985). The data collection was conducted during three periods from January to November 2012. Each period was about two months. To obtain a rich understanding of interprofessional collaboration, observations took place at different times of day and covered a range of activities reflecting work shifts and staff rotation schedules. However, night shifts were excluded. Most observations involved shadowing health care professionals when working in patients' rooms or in shared workspaces to observe both scheduled and more unforeseen activities between the team members. Conversations with participants during shadowing were supplemented to clarify and complement the observations. The observer also sat in the patient's room to catch up on what happened when different professionals entered the room for different reasons, with particular work to do. Observations of scheduled activities included in total of 12 interprofessional rounds (20 hours), six team meetings including the patients and relatives (10 hours), nine record reviews handover, when nurses and nursing assistants reported to each other and read the medical record together (10 hours), and five allied health meetings while planning the work with nursing assistants (7 hours). The reading through the

medical records was carried out mainly after the observation periods to trace any connection between the observed work activities in the medical record. The study had a longitudinal approach to the collection of data over one year, which allowed the study to generate a detailed description of professional practice at the unit. It also helped the clinical staff and patients to become accustomed to the observer's presence over time.

The observer had experience as a health care professional but also as an academic teacher specialising in interprofessional education. Therefore, it was very important to take into account the impact of the "pre-knowing" of the researcher as well as the relationship between the researcher and the participants. The observer was dressed in white garments like the other professionals.

Field notes and informal conversations were jotted down in notebooks and transcribed into electronic documents directly after the observation sessions by the observer (in total 85 pages). Observer reflection notes were also written at this time. The collection of data and the analysis were carried out almost simultaneously, and the analysis was inspired by Srivastava and Hopwood's (2009) iterative framework, according to which the researchers are urged to ask themselves what the data is telling them and what they wanted to know.

In the earlier stage of the data collection phase, observations were more general, offering orientation to a wide range of professional activities, and informing subsequent observation of a more focused and targeted nature. First, the analysis included re-reading all data visit-by-visit, identifying several activities and locations derived from the site itself (such as rounds, handovers and caring activities, and different spaces such as the round room, patients' ward room and the nurse station). In the next phase, during the second and third observation periods, collaboration was identified in which some kind of knowledge work happened, between professionals and professionals or between professionals and the patient were identified. In the further analysis of these different collaborative activities, the focus was on how these projects were connected and how the connections could facilitate knowledge sharing. Interprofessional collaboration sometimes arose through activities where collaboration between professionals was planned beforehand, and at other times it arose in more spontaneous or responsive ways. Initial actions in particular sequences had specific implications or consequences for subsequent actions undertaken by other health professionals. To explain these patterns we have used the terms of commonality and orchestration (Schatzki, 2002). Commonality refers to something shared, which means activities and practices are structured by the same understandings, rules, intentions and purposes, i.e. they are common activities. Orchestration refers to instances where there are differences in understandings and rules but where one practice depends on or is affected by another in some way.

In accordance with Polit and Beck (2012), emerging analytical ideas were frequently discussed with the other authors. This strengthened the transparency of the process and outcomes and helped to establish the validity of the key ideas.

Findings and discussion

In the following section, we will present and discuss our findings and give examples of how different professionals' projects hang together during the daily practice and how knowledge could be shared. The findings show two different patterns of how knowledge was shared among professionals in their daily work practice as it unfolded. Using a sociomaterial lens when we look at practice and learning we can understand how knowledge sharing take place and hangs together in different ways we refer to as commonality and orchestration, enabling interprofessional collaboration.

Table 1
Conceptual summary of the two different types of knowledge sharing through interprofessional collaboration using Schatzki´s concept of Orchestration and Commonality

Type	**Origin of knowledge**	**How knowledge moves**	**Clinical consequence**
A: Interprofessional collaboration through Orchestration	From interaction between one professional and the patient	Chain of interactions in which knowledge becomes a common resource; interactions can be professional-professional or professional - patient	Profession-specific projects continue, now shaped by knowledge of particular significance to one professional; individual professional actions adjusted in light of other professionals' knowledge
B: Interprofessional collaboration through Commonality	From interaction between one or more professional(s) (and patient)	Different pieces of knowledge resource joint discussion (with or without the patient) resulting in shared stance and new joint project	Professional actions now have new element that contributes to joint project of shared significance, no longer associated with one particular profession

The two different types of knowledge sharing are described in a conceptual summary in Table 1 using Schatzki's (2002) concept of orchestration and commonality, mentioned earlier. In Table 2, we will visualize some concrete examples of patterns by specifying the focus of the specific situation, and the origin of knowledge, and finally, we will show the movement of knowledge through orchestration and/or commonality. This table also present the clinical significance of knowledge.

Table 2. *Template with examples of patterns of how different professional practices hang together and how knowledge was shared in different projects of a practice (A—Orchestration, B—Communality, using Schatzki´s concept, 2002)*

Type	**Knowledge focus in certain projects**	**Origin of knowledge**	**How knowledge moves**	**Clinical/care consequence or significance of knowledge**
A1	Correction of the patient's arm position while the patient was lying in the bed	Interaction between a physiotherapist and a patient in a bed in a ward room	The knowledge moves from the physiotherapist to the nurse and nursing assistant coming into the room, and from the physiotherapist to the patient and relatives.	The professional knowledge from the physiotherapist becomes a common resource for all involved. All profession-specific projects continue, shaped by knowledge of particular significance to one professional and adjusted in light of other professionals´ knowledge
A2	Working with a solution for how to position an alarm button on patient's wheelchair for best safety and independency for the patient	Interaction between an occupational therapist, patient and the materiality of a wheelchair	The knowledge moves from the occupational therapist to a nursing assistant coming into the room, and from the occupational therapist to the patient.	The professional knowledge from the occupational therapist becomes a common resource for all involved. All profession-specific projects continue, shaped by knowledge of particular significance to one professional and adjusted in light of other professionals´ knowledge.
A3	A nurse is sitting in the nurse station, searching for information about a certain patient, preparing for the round session	Interaction between the nurse, the nursing assistants and later on the medical doctor and others during the round	The knowledge moves from the nursing assistants who has collected information about a certain patient, further to the nurse and then via the nurse to the medical doctor and others	The knowledge from the nursing assistants become a common resource via the nurse into the round where all the professionals more or less are influenced and adjusted their actions in the future
B1	Decision making for increased patient and family involvement	Interaction between two or more professionals in a ward round room	Different pieces of knowledge resource a joint discussion (no patient) and resulting in a shared stance and new joint projects.	Professional actions now have a new element that contributes to a joint project of shared significance, no longer associated with one particular profession
B2	Setting goals with the patient	Interaction between two or more professionals and the patient in a room for team meetings	Different pieces of knowledge from different professionals and the patient´s own knowledge and experience resulting in a common decision and new joint projects.	The professionals and the patient share the new joint projects.

We will now illustrate these patterns with two different vignettes, using examples from each type of, A and B, from the table 2, to elaborate on and show evidence of the dynamic and fluid relationship between the different professionals.

The first vignette, gives an example of an activity (see Table 1, type A1), initiated by one professional as a planned action but which then became a shared activity performed with a nurse and a nurse assistant when they entered the space of action. The physiotherapist was working on contracture prevention by stretching the soft tissues of one of the patients in order to increase joint mobility. The physiotherapist observed that the patient's arm was positioned awkwardly as the patient was lying in bed.

> The patient is lying in bed. The physiotherapist explains to the patient that the arm position will bring imbalance in muscle strength in the arms and lead to negative consequences for the arm function in the future. As the physiotherapist is continuing working with the patient, a nurse and a nursing assistant come into the room. The physiotherapist immediately explains to the nurse and nursing assistants about the arm position and the importance of the right position: "We'll try to help each other so that the arm is placed in the correct position," the physiotherapist says. The nurse and nursing assistant listen and observe the physiotherapist in action while positioning the arm using a specific pillow. "It's hard to write this practical information down on the whiteboard here so can you please try to inform our colleagues?" The nurse makes some notes in a notebook to remind herself to report that later. Then the physiotherapist turns to the patient's partner and asks her/him to notice the position as well. "You can also ask the staff to check your arm while helping you in bed," she says to the patient. When the physiotherapist leaves the room, the nurse and nursing assistant begin their routine care activities. It is clear that they are paying specific attention to the patient's arm position. They also ask the patient to check if the arm position was the same as when the physiotherapist did the positioning. The patient confirms that. A note from the occupational therapist a few days later in the medical record was related to the activity the physiotherapist had carried out. An adjustment had been made. No other notes in the medical record regarding the position in bed were then found. (Field notes)

This is an example of how an activity started up in an orchestrated way. The activity, performed by one professional with profession-specific practical understandings about what to do, connected to and influenced how other professionals in the team applied and then adjusted their work in relation to their profession-specific knowledge. The physiotherapist had an intention and a purpose going into the patient´s room and starting up the activity as a specific project together with the patient. The profession-specific knowledge regarding contracture prevention is mostly carried by the physiotherapist, but it is common among the different professionals to share the total responsibility for the patient in general. Therefore, it was important to share this knowledge with others to ensure safety, consistency and quality of care. The physiotherapist took the opportunity to inform about the prevention strategy when the nurse and a nursing assistant came into the room. The physiotherapist's sayings and doings were connected to and affected the way the nurse and nursing assistant performed the specific activity (how to position the patient's arm in the bed) later on. The nurse and the nursing assistant had applied and adjusted their work activities as a new commonality, a new shared understanding and common intention between all of them about the specific situation. Thereby, the nurse and nursing assistant expanded their repertoire of actions by adjusting their professional doings. The vignette shows how material objects become involved in the emerging knowledge and knowledge sharing. The patient's body, the whiteboard, the pillow and medical record can be understood as relational to the knowledge sharing and social relations between the professionals. Their relations prefigure certain actions that can be efficiently carried out and are likely to succeed. Furthermore, the chain of action was later connected to the occupational therapist as well, who made an

adjustment regarding the arm position and used the medical record to spread awareness of the new contribution. Future actions of individual professionals would be based on shared knowledge of the patient's situation.

The second vignette is an example of type B (see Table 1), from a round meeting at the ward, and illustrates an activity where two or more professions worked together without the patient present. All professionals participated, except nursing assistants. The purpose of the rounds was to discuss the patients' needs regarding medical treatment and rehabilitation. The arrangement of the room, with a table in the middle surrounded by the staff, and the digital record as a common tool for sharing knowledge, enabled the team to share their knowledge and experiences in a collaborative activity.

The functional round itself is an example of where commonality exists—a practice which is structured by shared rules, structures and understandings of how the round practice should be performed, in a common space.

> One physician (a) and a physiotherapist are sitting together and reading the digital medical record about a certain patient, considering the notes from yesterday when an occupational therapist and physiotherapist visited the patient's home. Another physician (b) starts to read as well, sitting next to physician (a). He says: "Well, from the physiotherapist's comment in the record, it seems that the patient has to move from the house. It is very difficult to find solutions regarding how to adjust the house to address the patient's challenges with walking and managing the daily tasks. The patient's relative is old," the physician (a) says. They continue to talk about the patient's future and whether the plans are reasonable. The nurse enters the room and sits down with the physician (b) and the physiotherapist. She looks at her own notebook to find any additional information. The physiotherapist continues to talk about the patient and tells physician (b) that the patient said that she had been told that there was 50 percent chance of walking again, and the patient seems to have fixated on that. Physician (b) says: "I really tried to be clear about this to the patient when I talked to her the other day. We have to be more distinct and show a clear plan for the future."
>
> Now everybody in the room turns to the physiotherapist and the physicians, and the physiotherapist starts reporting about the home visit to everyone in the room. The physiotherapist tells them briefly about the house, how the house was furnished, how the patient reacted when trying to move inside the kitchen and how the conversation with the patient and family went. The counsellor comments regarding the reaction from the patient and says that she had a different opinion when she talked to the patient after the home visit. The physiotherapist and the counsellor start to discuss this differences among the two of them, while the others in the group listen actively. The counsellor believes that the patient's daughter could be more involved in the discussion and physician (a) agrees on that and comments that the whole team has to talk to the daughter about how long the patient can stay in the rehabilitation unit. The counsellor asks "How do we continue?" The physiotherapist considers different factors regarding the patient´s overall conditions and the possibility to get better function in the legs and then ends up with saying, "I really don't know. It is a tricky thing when the patient gets different messages from us." Physician (a) says: "We have to give our common and clear picture of the situation to the patient and relatives. We have a team meeting with the patient and relatives next week where we can talk about the plans. We have to be more concrete now, and the patients and family must decide." The physiotherapist suggests that the patient can have a day's furlough and asks the nurse whether there is any decision regarding transportation service the patient is entitled to. The nurse doesn't know but turns to the counsellor who says that they can arrange permission for one day. The physiotherapist asks physician (a) about the focus of the team meeting. "So we can have the same strategy, and

> how much can we push them in the decision process." Physician (a) hesitates a bit but then says, "We will probably have the discussion with the patient and relatives at the team meeting anyhow." (Field notes)

The above-described course of action started as a common activity where several professionals worked together with the patient present only via the medical record. The different professionals were well aware of the purposes, intentions and rules regarding the round meeting and brought in various aspects of profession-specific knowledge to the meeting in different orchestrated actions. While sitting around the table, discussing and listening to different arguments from each other in the group, joint decision-making about the purpose of future actions and treatment for the patient was accomplished. These decisions taken at the round then led to forms of the orchestration of future actions for each unique professional. The professionals had together shared their knowledge and established a common point of concern in order to define the direction of changes in each professional's understandings and how to meet the patient's and relative's concerns. The professionals were enabled to enact specific professional practice in individual, but coordinated ways, as newly established shared forms of knowledge.

Discussion

Our study has conceptualized empirical examples of the daily knowledge sharing in practice by studying what health care professionals actually do in practice. The professionals were constantly involved in different types of knowledge practices, by asking questions, exploring each other's knowledge or documenting their work, and that provided an opportunity to learn. Through constantly recurring sayings and doings and relatings between different professionals in the team, knowledge sharing took place and thereby a shared stance and new joint projects were established. Each professional was guided by the understandings gained from the new shared knowledge when planning and performing their future actions and professional projects with the patients. These actions indicate that the practical and material arrangements of the unit have an important impact on how sayings and doings and relatings unfold and how interprofessional activities emerge. The studies of both Hager, Lee and Reich (2012) and Fenwick and Nerland (2014) have stated that learning is an essential part of everyday practice. The ward rounds in the mornings, where almost all the professionals have the possibility to participate and share their professional ideas and standpoints, as well as the shared time and space in the patient´s room, where it is also possible for different professionals to meet without any resistance, are successful activities where knowledge can be shared, and learning can happen.

Hubbard and Themessl-Huber (2005) emphasized that team collaboration is not just about transferring information between professionals, but also about how to create new ways of thinking, and seeing professionals as active problem-solvers. We want to add that it is also important to use the opportunity to share the knowledge in the daily practice between professionals while working so close to each other, which is possible in a hospital unit.

Researching boundary work in different interprofessional practices, Edwards has found three conceptual tools in terms of common knowledge, relational expertise and relational agency for describing the cross-practice collaboration (see, for example, Edwards et al., 2009; Edwards, 2012). Common knowledge based on shared experiences within a team can offer resources for joint decision-making. In this study, we want to emphasize that the different types of knowledge sharing that were observed represented important findings related to interprofessional collaboration as a practice for learning. These chains of actions brought professional projects of a practice into different kinds of relationship with one another; in some cases, through commonality, and in others through orchestration. These relationships provided the

basis for interactions through which knowledge was shared between different professionals and used in practice. Thus, we can claim that learning between professionals as well as between professionals and patients is emergent as health care work unfolds. However, it is important to underline that the learning that occurs is not to learn how to do the work of others but to obtain insight and interact in the same spaces, with the same overall purposes of enabling collaboration and ensuring best practice for the patient. We can argue that the fluid movement between commonality and orchestration is a crucial feature of interprofessional collaboration and knowledge sharing. This view offers a novel perspective on *how* interprofessional collaboration as a practice involving ongoing learning, unfolds. It reveals the mechanisms by which different forms of professional knowledge are mobilized in this kind of work.

Crooker, Trede, and Higgs (2012) have stated that it is a challenge to achieve sufficient depth of understanding of complex collaborative practice. However, qualitative approaches such as ethnography are helpful when empirically studying the professional practices in health care and for developing a greater understanding of the complex nature of interprofessional practice (Reeves, Goldman, & Zwarenstein, 2009). Several research studies regarding interprofessional collaboration, such as Croker Trede and Higgs (2012) and Kraft, Blomberg and Hedman (2012), have gathered interview data which add important reports of insights into professionals' views of their work, but still the data is perception-based. While first-hand perspectives and accounts of practice are important, observational approaches have a different value, particularly through their ability to trace what people do and how they relate to each other in practice. In this study, use of the ethnographic approach helped us to understand *how* knowledge can emerge and be shared in interprofessional practice by different professionals. By using a sociomaterial, practice-based approach we were able to trace these processes empirically, with a high degree of sensitivity to context that incorporated a material dimension, and yet always remained close to the actual performance of health care work.

However, it is important to note that this study was limited by the collection of data from only one site, and by considering only one particular kind of unit and two different teams. Savage (2000) has stated that ethnography is not used for developing generalized conclusions but rather for studying a specific group of people regarding a specific topic, and for drawing conclusions only about what was studied. Ethnographic findings come from certain individuals and situations and from a particular place and time (Hammersley & Atkinson, 2007). Nonetheless, the wider relevance of this study comes not from an empirical generalization about the concrete content of what was depicted, but from the theoretical arguments about what knowledge is constructed and shared, and how this happens in the accomplishment of interprofessional collaboration.

Conclusions

Our aim of this article has been to show *how* knowledge can emerge and be shared between professionals in healthcare practice. Understood as a social practice, interprofessional collaboration is a specific kind of human activity in which characteristic actions and activities (doings) are understandable in terms of relevant ideas and discourses (sayings), and in which the people and objects involved, have certain relationships (relatings). By using a sociomaterial lens on practice and learning, our study has provided an additional perspective about interprofessional collaboration in health care practice. We have shown how knowledge emerged and was shared between professionals which brought professionals into different kinds of relationship with one another involving ongoing learning. The knowledge practices hung together through different chains of actions which prevented isolated and fragmented working approaches. Questions about how knowledge emerges and can be shared

among professionals in the daily work with patients will be crucial in the future to respond to the opportunities and challenges in health care practices for delivering safe and effective healthcare. Our study provides insights to be considered by researchers interested in interprofessional collaboration and learning that can occur and unfolds in health care practices. Working together with others who bring other forms of knowledge and understanding to the practice adds the valuable insight that learning from and about each other has to be an integral part of interprofessional practice. Learning from and about each other included to obtain insight in others profession-specific knowledge in a specific situation and then adjusted and use in once own work repertoire and produce a new shared knowledge while interact in the same spaces with the patients. By using an ethnographic approach to studying what health care professionals do in practice, and staying close to the practices, we have learned more about the complex nature of interprofessional practice and about the knowledge and learning associated with such practices.

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