

**Björg Christiansen, Inger Taasen, Nora Hagstrøm,
Kjellaug Kildal Hansen and Dorte Lybye Norenberg**

Collaborative Learning at the Boundaries: Hallmarks within a Rehabilitation Context

Björg Christiansen,
Oslo University
College of Applied
Sciences, Faculty of
Health Sciences,
Norway

Inger Taasen,
Oslo University
College of Applied
Sciences, Faculty of
Health Sciences,
Norway

Nora Hagstrøm,
Oslo University
College of Applied
Sciences, Faculty of
Health Sciences,
Norway

*Kjellaug Kildal
Hansen,*
Oslo University
College of Applied
Sciences, Faculty of
Health Sciences,
Norway

*Dorte Lybye
Norenberg,*
Oslo University
College of Applied
Sciences, Faculty of
Health Sciences,
Norway

Contact:

Björg Christiansen,
Oslo University
College of Applied
Sciences, Faculty of
Health Sciences,
Norway
bjorg.ch@online.no

Abstract: The aim of the article is to shed light on how collaborative learning at the boundaries between professions plays out within a rehabilitation context. The study has an ethnographic design in the form of observation and interviews in two rehabilitation contexts. Findings showed that collaborative learning was stimulated when the professional groups made a concerted effort to acquire an overall perspective on the patient's situation and requested and disseminated context-dependent expressions and knowledge about how the patient functioned. The "training" of patients on the ward served as an abstract boundary object amongst the staff functioning as a unifying resource in collaboration. The study exemplifies the learning potential when boundaries between professions become more open in an overlapping collaboration. This enables awareness of one's own boundaries and of the fact that one had a wealth of shared knowledge. In addition, it entailed the learning of techniques and procedures from other professions, which augmented and developed one's own professional repertoire.

Keywords: Collaborative learning, interprofessional collaboration, boundary object, rehabilitation, ethnography

Interprofessional collaboration in the health sector is by nature a complex process—the problems are complex and several professions are involved. Interprofessional collaboration occurs in the boundary areas between professions, across agencies, and between public service and volunteer work, and it requires active participation in discussing and negotiating to arrive at joint decisions (Anderson, 2012; Orvik, 2015). The delineation between professions has traditionally been used to construct boundaries around tasks and fields of knowledge and to exclude others. However, the borderlines between professions can also be areas of contact that link social worlds and open opportunities for collaboration, learning, and development (Akkermann & Bakker, 2011; Edwards, 2011; Wenger, 1998).

This article presents findings from an ethnographic study at two rehabilitation units. Rehabilitation services are often associated with interprofessional collaboration, involving different health and social care professionals who regularly come together to solve problems and provide services (Wade & de Jong, 2000). Building on the work of Edwards (2011), we regard the boundaries between professionals as spaces for both learning and gaining insight into the purposes and practices of others.

Thommesen (2010) sees rehabilitation as a process requiring cooperation, communication, and coordination, and this entails that professions are tangent to and cross one another's boundaries to solve problems and meet challenges associated

Received:
09 May 2017

Accepted:
22 Nov 2017

with patients. Through joint meetings and daily collaboration, distinctive areas of expertise of the professions emerge allowing professionals to familiarize themselves with one another's knowledge and assessments. The parliamentary white paper *Morgendagens Omsorg* [Tomorrow's Care] (Norwegian Ministry of Health and Care Services, 2013) emphasized the importance of taking into account what occurs between care providers because it is within these interactions that learning and development emerge and contribute to shaping health services for patients. Previous empirical studies in health care have focused on interprofessional collaboration from a number of different angles such as identifying core interprofessional competencies within rehabilitation teams (Croker, Trede, & Higgs, 2012; Kendall et al., 2011), and investigating enablers and barriers in interprofessional collaboration (Supper et al., 2014). However, even though interprofessional learning is usually understood as professionals learning from, with, and about one another (Barr, 1998), there seems to be little research into the understanding of how collaborative learning at the boundaries plays out within a rehabilitation context. Building on our findings from a Norwegian ethnographic study, the article aims to shed light on the potential for learning in collaborative practices based on the following research question: What are the characteristics of collaborative learning at the professional boundaries within a rehabilitation context?

Theoretical background

In a review article, Reeves et al. (2011) found that theoretical perspectives have been minimally employed in the development and evaluation of interprofessional intervention studies. Nevertheless, there seems to be a general agreement among scholars that interprofessional collaboration facilitates learning and development of practice, which involves negotiations pertaining to the contributions that are significant in joint activities (Akkermann & Bakker, 2011; Wenger, 1998). Wenger (1998) argues that learning at the boundaries is necessary for dynamism within communities of practice. Learning at work is understood in its broadest sense including change and development which also may involve cross-disciplinary work. Referring to Suchman (1994), Akkermann and Bakker (2011) denote the term *boundary crossing* as the need for professionals from time to time to enter into territory they are not only unfamiliar with, but in which they also are unqualified to some extent. Thus, interprofessional collaboration at the boundaries also includes an understanding of how markers of difference between the professional groups are played out in daily practice (Akkermann & Bakker, 2011; Johannesen & Olsen, 2008). In 1989, Star and Griesmer paved the way for research on boundary crossing and learning, introducing the concept of boundary objects to indicate how some artefacts fulfil a specific function in bridging intersecting practices. They explain boundary objects as being both plastic enough to adapt to local needs and the constraints of several parties employing them, yet robust enough to maintain a common identity across sites. The authors underscore the need for analysing the different viewpoints of actors in order to understand how boundaries are encountered and crossed. Boundary objects are viewed as organic arrangements that allow different groups to work together (Star, 2010). Referring to a wider community of practice, Wenger (1998) describes boundary objects as entities such as artefacts, documents, terms, and/or concepts that can link communities together as they allow different groups to collaborate on a common task. Akkermann and Bakker (2011) review the research literature on boundary crossing and boundary objects to determine current insights into the learning potentials of boundary work. Most studies focus on boundaries within disciplines discussing how groups and individual professionals with different expertise, tasks, and cultural backgrounds collaborate during work, also within a health care context. Some of the studies use the term boundary object with reference to a shared problem space such as the health of a patient with a chronic and complex disease that needs to be

solved in collaboration (Edwards & Fowler, 2007). Akkermann and Bakker (2011) conclude that vagueness at boundaries triggers a dialogue and the negotiation of meaning “explaining why encounters at boundaries are not only described as challenging, but also as worthwhile to investigate in relation to learning” (Akkermann & Bakker, 2011, p.150).

Previous studies identify a variety of factors concerning interprofessional collaboration and learning at the boundaries. Drawing on the empirical data, Edwards (2011) regards boundaries as spaces where the resources from different practices are brought together to expand interpretations of multifaceted tasks and work problems. This teaches the ability to integrate one’s own interpretations with those made by other professionals. The learning that occurs in these spaces does not only pertain to learning how to do the work of others, “but involves gaining sufficient insight into purposes and practices of others to enable collaboration” (Edwards, 2011, p. 34). A study focusing on interprofessional collaboration within medical staff in the physical emergency clinic shows different kinds of learning from failures, problem-solving and through collaboration across professional groups. Thus, a team or a working community can be a context for workplace learning if it offers an opportunity for discussion about work situations (Collin, Valleala, Herranen, & Paloniemi, 2012). Quinlan (2009) found that knowledge work within multi-disciplinary primary health care teams is carried out in the context of collective decision-making and involves the negotiation of knowledge claims. Croker, Trede, and Higgs (2012) identify interpersonal and activity-related collaborating capabilities (engaging, entering, establishing, envisioning, effecting) across team members’ professional affiliations. A study conducted within the practice of community rehabilitation found ten competencies, even though the authors warned that the development of such competency lists could inhibit the promotion of reflective, holistic, interprofessional practice (Kendall et al., 2011).

Facilitators and barriers in interprofessional collaboration have also been the focus of several studies. In a systematic review, Supper et al. (2014) finds that the principal facilitators of collaboration were the workers’ common interests in collaboration and their perceptions of opportunities to improve quality of care. The challenges of definition and awareness of one another’s roles and competencies and responsibilities are perceived as some of the main barriers. Based on a qualitative study, MacNaughton, Chreim, and Bourgeault (2013) finds that empowering team members seems to enhance collaborative interactions. They argue that more interchangeable roles might help to lessen the workloads of team members and prevent power struggles, because of less differentiated professional roles. As can be seen, boundaries facilitate complementary and overlapping practices among professional groups (Højhold, 2016; Johannesen & Olsen, 2008). Duner (2013) finds that social workers, physiotherapists and occupational therapists have some overlapping areas of responsibility for the everyday life activities and routines of older people. MacDonald et al. (2010) identify behavioural indicators for acknowledging the professional roles of other disciplines, such as seeking out the contributions of other team members and identify overlapping professional skills amongst team members. In a recent study, Falk, Hopwood, and Dahlgren (2017) explore how knowledge emerges and is passed along as a chain of actions among health care professionals. Despite valuable insight into how knowledge sharing unfolds in a particular practice, their study also reveals a need for further exploration of the complex nature of knowledge seeking and learning during interprofessional work.

After reviewing the literature, there still appears to be a paucity of knowledge concerning how interprofessional learning plays out at disciplinary boundaries within rehabilitation contexts. Within rehabilitation services in Norway, professionals in nursing, occupational therapy, physiotherapy, physicians and—less frequently—social workers collaborate on providing necessary support for a patient’s own efforts, aimed at achieving the best possible combination of function and coping

abilities (Ministry of Health and Care Services, 2011). In addition to regular meetings to negotiate and agree on how to solve complex care problems, these professions also work together closely to provide rehabilitation services on a daily basis.

The empirical study

The research that informs this article is drawn from an ethnographic project, conducted in two rehabilitation contexts. Participant observation of healthcare professionals in shared workspaces and patients' rooms was followed by interviews with the professionals. This combination meant that we could access intentions and understandings concerning interprofessional work in the wards. Participant observation is a suitable method for investigating patterns and connections between caregivers' actions, relations, and collaboration in the practice locations (Fangen, 2010). A general goal of qualitative research is to develop an understanding of phenomena associated with persons and situations in their real social context (Fangen, 2010; Tjora, 2012)—in this conjunction, what characterizes collaborative learning in the boundary areas of health professions.

Study context

The study was conducted at two municipal rehabilitation wards. The primary focus of these wards was rehabilitation, but they were also responsible for ensuring that needs were met for patients who required nursing care during their stay. Many of these patients came to the rehabilitation wards following stays in the hospital for training activities of daily life before they were discharged home or transferred to a nursing home. A patient's stay on the rehabilitation ward is allocated based on an application made to the municipal service-request office, which has the financial and coordinating responsibility for the health and care services in the municipality. The municipality has an organized health-services apparatus, inline with a market-oriented, service-request/service-provision model, for which the objective is qualitatively beneficial and cost-effective operations (Birkeland & Flovik, 2014). This is why the office requesting the services, in collaboration with the patient and their next-of-kin, makes the decision as to how long the patient could spend on the ward and coordinates the patient's return home or their eventual transfer to a nursing home. On both wards, the staff included a physician, nurses, assistant nurses, physiotherapists and occupational therapists. The professionals on both wards participated in team meetings in addition to their informal contact on the wards. Both wards observed the same formal guidelines and structures for interprofessional collaboration, (for example, meetings with the service-requesting unit in the urban district, or in network meetings both with and without the patient present). The wards had somewhat different architectural infrastructures, which influenced the extent of informal contact. On one ward, the offices of the occupational therapists and physiotherapists were located on site, while in the other, the offices and training room were on another floor, separate from the ward. The physician's office was on the ward in the first case and outside of it in the other.

Data collection

The study was conducted by a group of five researchers with different professional backgrounds (three nurses, one occupational therapist, one physiotherapist). We wished to gain insight into both formal and informal situations in which professional groups planned or carried out collaborative activities. Although the research question established the point of departure for investigation, opportunities that arose in the field and the knowledge acquired by the researchers during the course of the study also contributed towards determining the situations on which we wanted to focus.

As researchers, we worked in the field in alternating pairs for 17 days (a total of 76 hours). Before fieldwork, we cleared suitable days for observation with the wards and agreed that two researchers would come in the mornings. We took account of the meetings that would be suitable for us to attend as observers and ensured that separate written consent was obtained beforehand if the patient and their next of kin were to be present. We were present as observers for a total of eight interprofessional team meetings. A patient and next of kin were present at three of these meetings. A representative from the service-request office was present at all the observed meetings on one of the two wards, but at only one meeting on the other. We were also present during some patient situations in which several different professions were involved. We wanted to gain insight into informal collaboration on the ward, and into how personnel communicated between themselves both directly and by using aids such as notice boards and message books. We posed questions underway if clarification was required during our observations. Data were written up in a field journal (Fangen, 2010; Tjora, 2012). We did not use a tape recorder during meetings and brief ad hoc conversations on the ward. It was deemed important to acquire descriptions in detail and at a meaningful level of various situations in accordance with what Geertz (1973) describes as “thick descriptions.” Utterances and action must be incorporated in their context if they are to bear meaning. These observation notes were written in final form the same day, with a precise and specific account of conversations, comments, and actions, as well as the context in which they occurred. In addition, we wrote keywords and questions we wished to bring up during planned follow-up interviews with the various professional groups that were conducted nearly every day during our observations.

Qualitative interviews

Brinkmann and Kvale (2015) characterize the qualitative research interview as a conversation with a structure and an objective—in this context aimed at enhancing knowledge of the professions’ collaboration and learning within the boundary areas between them. A total of 24 persons, representing five different professions were interviewed across the two wards. Four nurses, four occupational therapists, four physiotherapists, four assistant nurses, two physicians, two professional development nurses, one head of section (nurse) and one institution manager (nurse). The interviews were based on an interview guide containing key topics that had been sent to the informants beforehand, including the significance of formal and informal situations in which collaboration and learning took place, and the interviewee’s perceptions of both their own role and that of others in collaboration to rehabilitate the patient. The qualitative interviews also provided an opportunity to clarify and elaborate on the meaningful content associated with the discussions and behaviours in the observed situations. We emphasized the interviews were of a dialogic nature. The interview guide helped maintain a shared focus during the interviews, but we also attempted to follow up and elaborate on statements from the informants, and this contributed towards developing a more nuanced understanding of the topic in focus. A dictaphone was used to record the qualitative interviews, which were subsequently transcribed verbatim by a research assistant. The qualitative interviews proved to be an important source of data because the professional groups’ perspectives provided an enhanced understanding of our observations.

Data analysis

Data analysis is not seen as a separate stage in ethnographic research (Fangen, 2010). Thoughts and ideas linked with the data material manifested themselves early in the process, which initiated further reading of literature with relevance to the distinctiveness of the data. One relevant question in the research process was how the re-

searcher(s) influence(s) the process (Brinkmann & Kvale, 2015). In both the field-work and the further analysis of the data, we placed emphasis on being conscious of our own pre-understanding. Reflexivity was stimulated through ongoing discussions in the research group. We worked continuously, each one individually and all of us collectively, to process a comprehensive and complex data set with a view to making it accessible for joint analysis. The collective efforts of five researchers can be construed as a type of researcher triangulation, which, according to Brinkmann and Kvale (2015), involves using researchers with differing academic background and pre-understandings in relation to a research topic. Multiple participants in the analysis process, according to the authors, can be seen as a source for nuanced and fruitful interpretation.

Inspired by Brinkmann and Kvale (2015) and Fangen (2010), the analysis process was roughly divided into three levels of interpretation. The first level of interpretation involved the researchers reading through the material to obtain an overall, introductory understanding. When data from interviews and observation are read in light of one another, a better basis for interpreting the meaning and significance of the content is created (Brinkmann & Kvale, 2015; Fangen, 2010). This in turn provided an opportunity to see actions in the light of the stated intentions brought out in the interviews. Ideas, associations, and reflections from the introductory reading were recorded and then discussed in the group. The second level of interpretation involved re-reading the texts, this time in light of specific questions/topics described in the interview and observation guides, as well as in the research question. To highlight the meaningful content that fell suitably within these tentative topical headings, we used colour coding, which resulted in a more capsulized compilation of the material. Typical patterns and distinctive features characterizing collaboration and learning in boundary areas were depicted through three headings, and meaningful content was supported with quotes: Expanding interpretations of the patients' situation, addressing uncertainty and context-dependent information, awareness of similarities and differences. The depiction of the findings reflected what Brinkmann and Kvale (2015) call critical understanding, and Fangen (2010) calls second-degree interpretation.

The third level of interpretation involves a more abstracted and theoretical understanding (Brinkmann & Kvale, 2015; Fangen, 2010), in which findings are discussed in the light of theory and prior research. As reflected in the discussion, this is a more comprehensive interpretation that expands a critical, common sense understanding. Although the findings reflect collaborative learning between professions on two rehabilitation wards, the study may be transferable to other similar contexts.

Ethical considerations

The study was approved by NSD (Norwegian Data Protection Office for Research, project number 34457) and by the two rehabilitation wards where the study took place. The staff were given information prior to the field study during information meetings, and they gave informed consent to participate. At the start of the field study, the personnel involved were again informed of the purpose of the study and written, informed consent was collected from each participant. We informed the staff that they could withdraw from the study at any time, and without giving a reason. Although the focal point of the study was the staff, the field study also entailed encounters with patients and with work situations, both formal and informal. All patients and next of kin who were involved in the situations we observed (for example, during meetings and morning personal hygiene routines on the wards) were informed about the study and asked by a liaison person on the ward if we could participate as observers. Written informed consent was obtained, and the participants were told that they could ask the observer to withdraw from any given situation without providing any reason.

Findings

Expanding interpretations of the patients' situation

One recurrent finding throughout the analysis was that interprofessional collaboration was driven by a desire to be able to “see all aspects or the whole” as one physiotherapist expressed it. The professional groups' collaboration, therefore, enabled an expanded perspective on the patient's situation, and this also fostered learning opportunities because staff gained insight into one another's assessments: During one network meeting, an occupational therapist (=O) and physiotherapist (=P) emphasized the patient's mobility and need for a walker and support stockings, while a nurse (=N) contributed knowledge concerning the patient's anxiety about falling and the need for help with daily personal hygiene. On one of the wards, the physician (=Dr) seldom attended these meetings, but according to this physician, he obtained information about the patients from the various professional groups: from the nurses concerning somatic changes, from the physiotherapist about physical function ability, and from the occupational therapist about cognitive function: “if there are cognitive issues, we just ask if there is an occupational therapist who can administer an MMS [cognitive test] and so on” (Dr.)

The wish to acquire a comprehensive and correct depiction of the patient's situation was sometimes a topic of discussion: At a network meeting with the service-requesting office (=RO), the physiotherapist assessed that a patient was ready to return home. However, a nurse who knew the patient well was of another opinion and thought that the patient was not medically well enough, and made the argument that “to move her now is hair-raisingly ... unethical.”

Generally, the employee with a professional background from the requesting office and the nurse concurred in their assessments, but there were also regular cases of conflicting views:

N: Applied for LTA (long-term admission)
 RO: Consider it...
 N: Needs it.
 RO: Needs?
 N: Yes.
 RO: Nursing care and physician's report lacking.

One example illustrated how aspects of a patient's situation might be overlooked if the relevant professions were not present: During a network meeting with a patient, when the physiotherapist and occupational therapist the patient posed medically related questions pertaining to pain and blood circulation, the questions went unanswered.

Addressing uncertainty and context-dependent information

It was particularly when situations were problematic or unclear that the professions consulted one another for an opinion: “What do we do now, where do we go from here, is there anything we haven't seen?” (N). In one case, the nurse experienced that she was unable to “make any further progress” with the patient, and she encouraged the occupational therapist “to go in and conduct a new assessment” (N). The initiative on the part of the nurse prompted the occupational therapist to conduct a new assessment and draw up a training programme. It was common to seek situation-specific advice from one another: “We [nurses] can go to a physiotherapist or occupational therapist and relate a situation that they can offer advice about, or they can get advice from us” (N). Patient's medical status might affect the training regime and result in the physiotherapist or occupational therapist seeking advice from the

nurse.

Collaboration was stimulated by the professional groups' interest in ascertaining how the patients functioned in various situations, particularly when there was doubt: For example, when a patient was to be discharged and sent home, the occupational therapist might consult with a nurse or assistant nurse who had had continual contact with the patients, concerning the patient's general status and cognitive function, for example, "We see them on a very limited basis" (O). If an occupational therapist had conducted a cognitive test on a patient, it was important to obtain a notion of how the patient functioned in different situations: "whether they [nurse and assistant nurse] can see things in practice that indicate one thing or another ... check to see that we see the same thing ... are there any differences between morning, evening, night" (O). One physiotherapist acquired much useful information from assistant nurses "because some people react differently in a training situation with a physiotherapist than they do with an assistant nurse" (P). Perceptions about how patients functioned could vary: "They [physiotherapists] see the patient down there [in the physical therapy room] where he can walk on the track in a secure environment, and up here [on the ward] he can hardly stand upright!" (AN). Experiences might also vary due to "the patient making a maximum effort during training, and then coming up to the ward completely exhausted" (N). Exchanges of information like these frequently occurred at the weekly interdisciplinary meetings.

Awareness of similarities and differences

Interprofessional collaboration could also be of a more overlapping nature when the focus was on particular patient situations. One example was in reference to a visit made to a patient's home prior to their discharge. Normally, the physiotherapist and occupational therapist were the staff members who conducted these home visits. "On these visits, we work together examining the risks of stumbling, the physical environment in the home, but also how the user functions in his/her own home and how he or she does different things" (O). Physiotherapists and occupational therapists emphasized that they cooperated well with one another and had overlapping work tasks. One occupational therapist thought that her professional group had much knowledge in common with nurses, while at the same time she believed that "we do not have the same theoretical basis when we observe the user in the same situation" (O). A similar distinction was expressed when the professions spoke of their own assistance provided to patients, and that of others, when patients were washed and dressed in the morning: "personal hygiene routines" were associated with nurses and assistant nurses (=AN), while "ADL training"(activity of daily living) was related to occupational therapists. Nevertheless, there was some overlapping between ADL chores and personal hygiene routines: "I had a patient who was to be visited by the occupational therapist today; I read afterwards what she did, so now I will know it the next time I am there" (AN). However, some situations were perceived as so profession specific that they excluded overlapping:

It has to do a little with boundaries between the professions, too. We can accompany patients to the toilet, but that is the limit; we summon the assistant nurses as soon as it is a question of actually going to the toilet, taking off clothes. For those tasks, I feel that I have to wear gloves and so on; that is where I draw the line as to what my work tasks include. (P)

For all the professions, the term *patient training* appeared to be conducive to overlapping collaboration. Although the patients often associated training with physiotherapists and occupational therapists, the nurses and assistant nurses were convinced that they too were "trainers". One example showed how nurses asked for help from the physiotherapist to explain the following: "Because they [the patients]

need a good amount of repetitive training”(N). In this context, training was related to activities throughout the day, such as morning hygiene routines, getting in and out of bed and acquisition of skills that they needed to practise in order to do. “Things like visits to the toilet, moving from one place to another, are things we most often do. And then we need to do it right, not just halfway” (N). *Transferring* patients was also a situation that fostered collaboration and learning opportunities for the staff. Generally, the physiotherapist first assessed the patient’s ability to move (for example, to move from a lying position to a sitting posture, from bed to a chair), and then demonstrated for the others (N, AN, O) how the procedure should be carried out:

Today I had one [patient] who was very heavy. I went and got the physiotherapist who showed me a few tricks; after that, it was very easy. It feels very satisfying, plus, we are making a little progress and learning more. (AN)

On occasions, they also collaborated on finding expedient ways of performing the tasks: “There are a lot of unsafe moving situations that not everyone feels comfortable doing” (P). In such cases, several professional groups might convene around a patient in a somewhat overlapping manner:

[a]nd then the physiotherapist came in, along with the occupational therapist and the nursing students, and supervised the moving situation. The occupational therapist would go to the next patient, but the physiotherapist and the nurse remained behind to supervise the movement from bed to chair. (P)

It was emphasized that the movement was to be carried out as gently as possible, both for the patient and the staff.

Discussion

Findings showed that collaborative learning was stimulated when staff made a concerted effort to acquire an overall perspective on the patient’s situation. This involved everyone sharing and soliciting each other’s profession specific knowledge about the patient in question, usually during joint meetings. Our findings demonstrate how the professions are dependent on one another in order to achieve this “overall” perspective: The absence of one profession (nurse) from a network meeting means a lack of a response to a medically related question. Sharing of knowledge can be associated with complementary competence, whereby professional groups with different knowledge and skills bring their special competence into a team (Bjørke, 2012; Orvik, 2015). In a qualitative study of teamwork in different health institutions, Kvarnström (2009) found that team members learned from one another when they took part in the way other professional groups reasoned concerning various patients. In our findings, this pattern of collaborative learning became particularly clear when patients presented with problematic, complex health care situations in which the professions were unsure as to whether or not they had overlooked something. They then proceeded to enquire in an open environment where ideas crystallized into solutions through the efforts of the entire team. The acknowledgement that knowledge was lacking entailed further mapping of the patient’s situation, such as in the case when the nurse encouraged the occupational therapist to assess the patient a second time. The findings in this study serve to illuminate aspects of “knowledge work” among professionals (Quinlan, 2009), specifically those where they fill in knowledge gaps and open up questions for exploration. In order to get a deeper and broader understanding, Schön (1983, 1987) highlighted the significance of an open and explorative attitude when naming and framing problems in practical situations. The quest for an overall perspective on the patient’s situation might also bring about conflicts of opinion and negotiation—in our findings, these especially

took place in conjunction with a patient's transfer from the rehabilitation ward to their private home. Based on the organization of the municipal health services (Birkeland & Flovik, 2014), one staff member with a professional background from the Service Request Office participated as a decision-making intermediary when decisions were to be adopted regarding whether the patient would stay on in the institution or be discharged. Contexts such as these demanded a professionally reasoned argument grounded in the perspectives that the professional groups already had, regarding the patient's situation and functional level. As Edwards (2011) claims, meetings that focus on finding solutions are rarely neutral; there are strong emotional elements that reflect how discourses connect with identities.

Collaborative learning was also stimulated when the professional groups requested and disseminated context-dependent expressions and knowledge about how the patient functioned. Our findings showed, for example, that the patient's physical function ability could vary from the training room to nursing ward. A cognitive test conducted by the occupational therapist could likewise be verified by information from the nursing staff about how the patient handled activities of daily living on the ward. Together they created a more nuanced view of the patient's function and coping, which resulted in increased insight for each professional, along with significance for further follow-up. According to Edwards (2011), relational engagement with the knowledge of others can produce a form of common knowledge, which comprises a partially shared understanding of what matters for other contributing professionals. Thus, this knowledge can mediate responsive professional action (Edwards, 2011).

Another pattern in collaborative learning was characterized by an awareness of similarities and differences among the professional groups. We saw examples of this when the occupational therapist and physiotherapist stated that they might have overlapping work tasks, and that the occupational therapist and nurse perceived that they had knowledge in common, although the difference in theoretical background coloured what they observed in the same patient situation. This form of collaboration between health professions may have elements of role overlap, as Booth and Hewison (2002) and Nancarrow (2004) found between occupational therapists and physiotherapists working in rehabilitation and intermediate health services. One study of interprofessional collaboration in a hospital setting showed that close collaboration among professionals of equal status facilitated learning (Keshet, Ben-Arye, & Schiff, 2012). An overlapping collaboration is situation-specific—it is the aspects in the given situation together with professional caregivers' technical assessments that create this form of collaboration. Overlapping collaboration and an awareness of similarities does not mean that professional groups take over tasks that they are unqualified to perform. What happens is that the boundaries between professions become more open, and we are simultaneously made aware of a separate and distinct core competence. The example of the physiotherapist who felt uncomfortable, but not necessarily disqualified, when she helped a patient in a toilet situation illustrates an increased awareness of the specificity of her own professional knowledge. The example also raises some questions that need to be further investigated: how boundaries between professionals seem to coincide with particularities of situations, which may have the potential for both helping/caring and training patients (as in the case above). The example also sheds some light on the status of different work tasks (such as helping patients use the bathroom), and how this affects where the boundaries are drawn.

Interprofessional collaboration at the boundaries fosters opportunities for learning and development (Akkerman & Bakker, 2011; Edwards, 2011; Hagland, 2015; Wenger, 1998). Close collaboration and overlapping increases the opportunities, as Barr (1998) has expressed it, for the professions to learn from, with and about one another. Examples in our study illustrate how the spirit of professional community and development is stimulated when professional groups realize that they share much knowledge in common, or when profession-specific techniques were

disseminated to the others in the shared practical environment; as when moving patients and describing principles in ADL therapy. According to Wenger (1998), learning at the boundaries is necessary for dynamism within communities of practice.

In our study, the notion of training gave rise to an awareness of similarities between the professional groups, since training was central in the patients' rehabilitation process in the form of activities to which all of the professions related in various ways. Training can be understood as an abstract boundary object concept that, according to Wenger (1998), can create a sense of community and connection between the professional groups. What is crucial is that a boundary object facilitates collaboration between the various professional groups and helps to interconnect the knowledge and activity of the professions (Star, 2010; Star & Griesmer, 1989). Training as a boundary object had particular significance for the way nurses and assistant nurses viewed their own role when the patient tried to master activities in a normal, routine day.

As a profession, nurses usually differentiate between themselves and others when it comes to ways of working. Whether nurses work independently, collaboratively or both, caring for patients and next of kin is deeply rooted as a primary responsibility (Henderson, 1997). Within rehabilitation, nurses usually work more comprehensively compared to other professionals like physiotherapists and occupational therapists who have a more specialized, therapeutic approach towards patients. Earlier studies have indicated that nurses may have difficulty describing their role and responsibility in interdisciplinary rehabilitation (Burton, 2000; Dahl, Romsland, & Slettebø, 2014; Christiansen & Feiring, 2016). Expectations regarding each other's roles contribute to the way situations are defined and build lines to follow in the interaction (Album, 2010). Thus, patients often have particular expectations about how they should be treated by nurses, physiotherapists, and occupational therapists within rehabilitation contexts. Despite the fact that the physiotherapists and occupational therapists were seen through their own and others' eyes as the central staff in rehabilitative training, our study shows that the assistant nurses and nurses perceived themselves as trainers when they stimulated patients to self-help in performing daily activities. Thus, caring and therapeutic perspectives and approaches towards rehabilitative patients were more aligned. Training as a boundary object stimulated learning in terms of identity development (Wenger 1998), with a particular significance for nurses and assistant nurses in rehabilitation contexts. The perception of oneself as a "trainer" can be understood as a form of self-categorization relating to the term a person chooses to denote themselves as, in terms of being a member of various social groups (Chatman et al., 1998). It can underpin and support a feeling of equality between the professional groups in their legitimization of their own roles in a rehabilitative team.

Conclusions

The ethnographic approach of this study enabled us to reveal nuances in interprofessional collaboration and learning at the boundaries, as seen on two rehabilitation wards. The study contributes to understandings of how local interactions between different professions may promote joint learning, although to a greater extent for nurses and assistant nurses (AN) than for occupational therapists (OT) and physiotherapists (PT). Collaborative learning was stimulated when the professional groups shared and solicited one another's knowledge and insight about patients. What created a particular incentive for such collaborative learning was the acknowledgement that knowledge was lacking in terms of problematic and complex patient situations, which bolstered an open and investigative attitude. A similar pattern emerged when the participants together created a more nuanced and more valid notion of the patient's functional level and ability to cope, based on context-dependent, profession-specific input. Both patterns in collaboration at the boundaries thereby led to the

construction of new knowledge that became significant for the further follow-up of the patient, and in addition, fostered learning for the staff.

The study exemplifies the learning potential when boundaries between professions become more open in an overlapping collaboration. This enables awareness of one's own boundaries and the fact that one has a wealth of shared knowledge. Additionally, it entailed the learning of techniques and procedures from other professions, which augmented and developed one's own professional repertoire. Training, understood as an abstract boundary object, served as a unifying artefact in collaboration, underpinning a feeling of equality and legitimacy, especially among the nursing personnel in the rehabilitative team. Nevertheless, findings in this and other studies show a need to more fully explore nurse roles and participation within interprofessional teams in rehabilitative contexts. We also need to know more about how learning and knowledge development at the boundaries takes place in the field of rehabilitation, not least in conjunction with the profession-specific student groups' experiences with interprofessional collaboration. In a time when patients' co-determination and influence on decision-making processes are being emphasized to a great extent, there is also a need for further studies addressing how such matters impact on collaboration between professions, patients and next of kin.

References

- Akkerman, S. F., & Bakker, A. (2011). Boundary crossing and boundary objects. *Review of Educational Research, 81*(2), 132–169. <https://doi.org/10.3102/0034654311404435>
- Album, D. (2010). Close strangers: Patient–patient interaction rituals in acute care hospitals. In M. H. Jacobsen (Ed.), *The contemporary Goffman* (pp 352–372). London/New York: Routledge.
- Anderson, H. (2012). Collaborative relationships and dialogic conversations: Ideas for a relationally responsive practice. *Family Process, 51*(1), 8–24. <https://doi.org/10.1111/j.1545-5300.2012.01385.x>
- Barr, H. (1998). Competent to collaborate: Towards a competency-based model for interprofessional education. *Journal of Interprofessional Care, 12*(2), 181–188. <https://doi.org/10.3109/13561829809014104>
- Birkeland, A., & Flovik, A.M. (2014). *Sykepleie i hjemmet* [Nursing care in the home]. Oslo: Cappelen Damm.
- Bjørke, G. (Ed.) (2012). *Kvalifisering av tverrprofesjonelt samarbeid i helse- og sosialsektoren* [Collaboration across professional boundaries]. Høgskolen i Oslo og Akershus, Oslo.
- Booth, J., & Hewison, A. (2002). Role overlap between occupational therapy and physiotherapy during in-patient stroke rehabilitation: An exploratory study. *Journal of Interprofessional Care, 16*(1), 31–40. <https://doi.org/10.1080/13561820220104140>
- Brinkmann, S., & Kvale, S. (2015). *InterViews: Learning the craft of qualitative research interviewing*. California: Sage, Thousand Oaks.
- Burton, C. A. (2000). Description of the nursing role in stroke rehabilitation. *Journal of Advanced Nursing, 32*, 174–181. <https://doi.org/10.1046/j.1365-2648.2000.01411.x>
- Chatman, J. A., Poltzer, J. T., Barsade, S. G., & Neale, M. A. (1998). Being different, yet feeling similar: The influence of demographic composition and organizational culture on work processes and outcomes. *Administrative Science Quarterly, 43*(4), 749–780. <https://doi.org/10.2307/2393615>

- Christiansen, B., & Feiring, M. (2016). Challenges in the nurse's role in rehabilitation contexts. *Journal of Clinical Nursing*, 26(19/20).
<http://dx.doi.org/10.1111/jocn.13674>
- Collin, K. M., Valleala, U. M., Herranen, S., & Paloniemi, S. (2012). Ways of interprofessional collaboration and learning in emergency work. *Studies in Continuing Education*, 34(3), 281–300.
<https://doi.org/10.1080/0158037X.2011.617364>
- Croker, A., Trede, F., & Higgs, J. (2012). Collaboration: What is it like? Phenomenological interpretation of the experience of collaborating within rehabilitation teams. *Journal of Interprofessional Care*, 26(1), 13–20.
- Dahl, B., Romsland, G., & Slettebø, Å. (2014). Håp er drivkraften [Hope is the driving force]. *Sykepleien*, 102(9), 52–55.
<https://doi.org/10.4220/sykepleiens.2014.0104>
- Duner, A. (2013). Care planning and decision-making in teams in Swedish elderly care: A study of interprofessional collaboration and professional boundaries. *Journal of Interprofessional Care*, 27(3), 246–253.
<https://doi.org/10.3109/13561820.2012.757730>
- Edwards, A. (2011). Building common knowledge at the boundaries between professional practices: Relational agency and relational expertise in systems of distributed expertise. *International Journal of Educational Research*, 50(1), 33–39.
- Edwards, R., & Fowler, Z. (2007). Unsettling boundaries in making a space for research. *British Educational Research Journal*, 33(1), 107–123.
- Fangen, K. (2010). *Deltagende observasjon* [Participant observation]. Bergen: Fagbokforlaget.
- Geertz, C. (1973). *The interpretation of cultures*. New York: Basic Books.
- Hagland, H. (2015). *Å krysse fremfor å beskytte grenser: Om ergoterapeut-, fysioterapeut-, lege- og sykepleierstudenters deltakelse og læring i tverrprofesjonell praksis* [Crossing rather than protecting boundaries: On participation and learning in interprofessional practice among students of occupational therapy, medicine and nursing] (Doctoral dissertation). Høgskolen i Oslo og Akershus, Oslo.
- Henderson, V. (1997). *Basic principles of nursing care*. International Council of Nurses, Geneva, Switzerland.
- Højholdt, A. (2016). *Tværfaglig samarbejde i teori og praksis* [Interprofessional collaboration in theory and practice]. København: Hans Reitzels Forlag.
- Johannesen, J. A., & Olsen, B. (2008). *Positivt lederskap: Jakten på de positive kreftene* [Positive leadership: The quest for positive powers]. Bergen: Fagbokforlaget.
- Kendall, E., Muenchberger, H., Catalano, T., Amsters, D., Dorsett, P., & Cox, R. (2011). Developing core interprofessional competencies for community rehabilitation practitioners: Findings from an Australian study. *Journal of Interprofessional Care*, 25(2), 145–151.
- Keshet, Y., Ben-Arye, E., & Schiff, E. (2012). The use of boundary objects to enhance interprofessional collaboration: Integrating complementary medicine in a hospital setting. *Sociology of Health & Illness*, 35(5), 666–681.
- Kvarnström, B. (2009). Samarbeid og læring i det tverrprofesjonelle teamet [Collaboration and learning in the interprofessional team]. In E. Willumsen (Ed.), *Tverrprofesjonelt arbeid* [Interprofessional work]. Oslo: Universitetsforlaget.

- Falk, A. L., Hopwood, N., Dahlgren, M. A. (2017). Unfolding practices: A sociomaterial view of interprofessional collaboration in health care. *Professions & Professionalism*, 7(2).
- MacDonald, M. B., Bally, J. M., Ferguson, L. M., Lee Murray, B., Fowler-Kerry, S. E., & Anonson, J. M. S. (2010). Knowledge of the professional role of others: A key interprofessional competency. *Nurse Education in Practice*, 10(4), 238–242.
- MacNaughton, K., Chreim, S., & Bourgeault, I. L. (2013). Role construction and boundaries in interprofessional primary health care teams: A qualitative study. *BMC Health Services Research*, 13(486).
- Nancarrow, S. (2004). Dynamic role boundaries in intermediate care services. *Journal of Interprofessional Care*, 18(2), 141–151.
- Norwegian Ministry of Health and Care Services. (2011). *Forskrift om habilitering og rehabilitering, individuell plan og koordinator* [Regulations on rehabilitation and habilitation]. Oslo: Norwegian Ministry of Health and Care Services. Retrieved from https://lovdata.no/dokument/SF/forskrift/2011-12-16-1256#KAPITTEL_3
- Norwegian Ministry of Health and Care Services (2013). *Morgendagens omsorg* [Future care]. Parliamentary white paper nr 29. Oslo: Norwegian Ministry of Health and Care Services.
- Norwegian Ministry of Health and Care Services (2015). *Fremtidens Primærhelsetjeneste—nærhet og helhet* [The primary health and care services of tomorrow—localised and integrated]. Parliamentary white paper nr 26. Oslo: Norwegian Ministry of Health and Care Services.
- Orvik, A. (2015). *Organisatorisk kompetanse—innføring i profesjonskunnskap og klinisk ledelse* [Organizational competence an introduction in professions knowledge and clinical management]. Oslo: Cappelen Akademiske.
- Quinlan, E. (2009). The “actualities” of knowledge work: An institutional ethnography of multi-disciplinary primary health care teams. *Sociology of Health & Illness*, 31(5), 625–641.
- Reeves, S., Goldman, J., Gilbert, J., Tepper, J., Silver, I., Suter, E., & Zwarenstein, M. (2011). A scoping review to improve conceptual clarity of interprofessional interventions. *Journal of Interprofessional Care*, 25(3), 167–174.
- Schön, D. A. (1983). *The reflective practitioner*. New York: Basic Books, Inc. Publishers.
- Schön, D. A. (1987). *Educating the reflective practitioner*. San Francisco: Jossey Bass Publishers.
- Star, S. L. (2010). This is not a boundary object: Reflections on the origin of a concept. *Science, Technology & Human Values*, 35(5), 601–617.
- Star, S.L., & Griesmer, J. R. (1989). Institutional ecology, “translations” and boundary objects: Amateurs and professionals in Berkeley’s Museum of Vertebrate Zoology. *Social Studies of Science*, 19(3), 387–420.
- Suchman, L. (1994). Working relations of technology production and use. *Computer Supported Cooperative Work*, 2(1/2), 21–39.
- Supper, I., Catala, O., Lustman, M., Chemla, C., Bourgueil, Y., & Letrilliart, L. (2014). Interprofessional collaboration in primary health care: A review of facilitators and barriers perceived by involved actors. *Journal of Public Health*, 37(4), 1–12.
- Thommesen, H. (Ed.). (2010). *Rehabilitering som politikk, virksomhet og studiefelt* [Rehabilitation as policy, reality and field of study]. Oslo: Gyldendal Norsk Forlag AS.

- Tjora, A. (2012). *Kvalitative forskningmetoder i praksis* [Qualitative research methods in practice]. Oslo: Gyldendal Akademisk.
- Wade, D. T., & de Jong, B.A. (2000). Recent advances in rehabilitation. *BMJ*, 320, 1385-8.
- Wenger, E. (1998). *Communities of practice: Learning, meaning and identity*. New York: Cambridge University Press.