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ORIGINAL ARTICLE

Boundary-crossings among health students in interprofessional geropsychiatric outpatient practice: Collaboration with elderly people living at home

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ABSTRACT

This qualitative research explores interprofessional learning among health students within a mental health outpatient setting. The focus is on how they manage to establish a boundary-crossing community of practice. Six final year students from medicine, occupational, and physical therapy, divided into two groups, visited elderly clients living at home on two occasions. Based on an assessment of the client, they had to consider suitable health and social initiatives to enhance quality of life, health outcomes, and wellbeing. The students then had to produce a jointly written health record documenting their professional and interprofessional evaluations. Two facilitators participated in the home visits and documented them through field notes. Focus group interviews conducted before and after the home visits and at the final seminar, together with health record documents, were audio-taped, coded, and thematically analyzed. Iterative reflexive analysis combined the findings with relevant research and theory from social and experiential learning. The findings show how boundary-crossing strengthened client-centeredness and students' knowledgeability, and how the intervention became more beneficial and qualitative. New insights were obtained from reflecting on and discussing professional stereotypes, identity, and roles. Writing the health record together enabled the students to reach a common ground.

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Interprofessional collaboration; practice; education; boundary-crossing; professional identity; knowledgeability

Introduction

Gilbert, Yan, and Hoffman (2010) and the Lancet commission (Frenk et al., 2010) highlight the need for reforms in health education in the twenty-first century to improve the interaction between health systems and education. Professions are faced with boundaries between different perspectives and practices when collaborating in health care. Akkerman and Bakker (2011b, p. 1) define boundaries as sociocultural differences leading to discontinuity in action or interaction. Boundaries can be understood as interfaces, where there are clear dividing lines between areas of different ownership or shared areas of contact (Jones, 2007).

From a social perspective, the body of knowledge students develop in the landscape of practice, consists of a complex system of communities of practice and the boundaries between them. Learning to become a practitioner is not about better acquisition of knowledge; it means developing a meaningful identity of both competence and knowledgeability in a dynamic, varied, and relevant landscape of practices (Wenger-Trayner, 2015).

Engeström and Tuomi-Gröhn (2003, p. 319) use the term "boundary-crossing" to refer to the process of negotiating and combining ingredients from different contexts to achieve hybrid situations. One of the challenges to crossing these boundaries has been the undisciplined manner in which the education and training of health professionals has been structured (Cameron, 2011). Promoting interprofessional learning in education is highlighted worldwide as an important strategy to overcome these challenges (Barr, Gray, Helme, Low, & Reeves, 2016; Hean, Craddock, & Hammick, 2012). Interprofessional learning has been defined as learning *with, from and about each other* to improve collaboration and the quality of care and services (Thistlethwaite, 2012). However, just to read the phrase alone does not provide details of *how* professionals really integrate together in successful interprofessional teams in practice (Hovey & Craig, 2011).

Interprofessional collaborative practice is viewed as a means to reduce client risk and improve the quality of care and health services for people with long-term and complex conditions (Barr, 2013; Reeves et al., 2010). To deal with an increasing elderly population with complex health challenges, there is a need to promote collaborative and interprofessional-knowledgeable health and social services. Tsakitzidis et al. (2016) found through a systematic review that effective interprofessional collaboration for elderly people must address pain, fall incidence, quality of life, independence in daily activities, depression and agitated behavior, transitions, length of stay in hospital, mortality, and period of rehabilitation.

This article focuses on interprofessional collaboration among students studying medicine (MED), occupational therapy (OT) and physical therapy (PT) within a mental health outpatient setting with elderly people living at home. The purpose is to understand how learning is shaped by interaction across boundaries in a new boundary-crossing practice.

Background

Professions and boundary-crossing

The students bring a wide range of professional culture, knowledge, and competencies into practice based on their values,

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unique practical skills, and role in health care (Lindh Falk, 2016; Mentis et al., 2016). McNair (2005) argues that the effort necessary to gain individual control over a distinct body of knowledge can create a significant barrier to effective relationships with clients and other professions.

To become a professional, often understood as someone exerting expertise within a specific field of practice, involves a learning process that challenges the boundaries of the professions (Almås & Ødegård, 2010). Wenger-Trayner (2015) claims that the boundaries of practice are unavoidable. Relationships between practices always involve negotiating boundaries with those who do not share the same history. Because of the lack of shared history, boundaries are places of potential misunderstanding and confusion when there is a meeting of different competences, commitments, values, repertoires, and perspectives.

On the other hand, crossing boundaries holds the potential for unexpected learning. The meeting of different perspectives can lead to rich new insights and great innovative progress. The boundaries caused by norms, knowledge, and power can be crossed in various ways by interactions between people and objects, and can lead to learning in different ways (Engeström & Tuomi-Gröhn, 2003; Lindh Falk, 2016; Wenger-Trayner, 2015). A patient health record is an example of a boundary object. Meetings at boundaries can compel people to reconsider their assumptions and look beyond what is known and familiar.

Based on a literature review of 182 studies on boundary-crossing and objects, Akkerman and Bakker (2011b, p. 3) identified four types of learning that occur at the boundary: identification, coordination, reflection, and transformation. Boundary-crossing can lead to the identification of intersecting practices, whereby the natures of practices are (re)defined in the light of one another. It can improve coordination of practices, for example, by establishing minimal routinized exchanges between practices, in order to make transitions smoother. Reflection is about learning to look differently at one practice by taking on the perspective of the other practice. Transformation boundary-crossing leads to changes in practices or even the creation of a new boundary practice.

Successful indicators for collaborative practice presented by Sargeant (2009) are respect for other professions, understanding their roles, clear and effective communication, and sharing common goals. A research review by Reeves et al. (2016), (2017) confirmed that interprofessional education contributes to transforming health students into effective and knowledgeable team workers. Because these studies mainly rely on students' self-reports, there is a need for direct observations to strengthen the knowledge and articulate its complexity (Morgan, Pullon, & McKinlay, 2015).

Based on previous research and knowledge about boundary-crossing and interprofessional collaboration, the following specific questions were asked: How do the student groups manage to establish a boundary-crossing community of practice? Which boundary activities and objects are important for the development of shared knowledge? What critical pitfalls for crossing boundaries are encountered?

The context of the study

Practice-based interprofessional learning is preferable to the campus-based form because it enables students' learning to be embedded in a relevant context (Reeves, Freeth, McCrorie, & Perry, 2002). A pilot study conducted in 2015 with one group provided a basis to adjust and improve the structure of the practice and research project conducted in 2016–2017. The clinic invited two clients who could benefit from sharing their experience of illness and everyday life. They had compound medical and health conditions involving both mental and physical health complaints. Due to their long-term illness, there was a need to prevent further hospitalization. The students' interprofessional learning activities were: (1) Assess the client's needs and wishes. (2) Consider suitable health and social initiatives to enhance quality of life, health outcomes, and wellbeing. (3) Document the professional and interprofessional evaluation in the health record.

At the first pre-meeting, the student group read through the clients' discharge summary, discussed themes in it, and organized themselves as a team. Premises for assessment and for collaboration within the team and with the clients were set. They met the clients twice, with a two-week interval between the meetings. At the post-meeting, the students reflected on their experience of home visits, and the collaboration with each other and with the client, after which they wrote a digital health record. Each group had one interprofessional facilitator present during the whole project. A clinician offered support, including writing the health record.

The student's experience of and competence in home visits, and geriatric and mental health, varied greatly. The OT students had experience in all fields. The MED students had geriatric and mental health knowledge and practical experience, but not from home visits. The PT students had less specific knowledge of geriatric and mental health; one had experience from home visits with the elderly. The project and research were explorative and reflective and were not conducted for student assessment purposes.

Methods

Research design

This study aimed to obtain understanding and knowledge of interprofessional collaboration among students in a new landscape of practice that was systematically documented for qualitative analysis. Social and experiential learning (Hean et al., 2012; Lees & Meyer, 2011; Sargeant, 2009; Wenger-Trayner, 2015) served as the theoretic analytic approach used in the study.

Principles from focused ethnography were used, which is suitable when the researcher for a short time enters a well-known context (the researcher had OT experience from geropsychiatric inpatient practice). However, PT and MED students belong to a functionally and differentiated society that demands an explorative attitude toward their values, skills, and competences. Data collection in focused ethnography is focused and intensive, combining different methods, such as field observations and interviews. Audiovisual aids must be used to obtain proper information for further and deeper analysis (Knoblauch, 2005).

All six students participated voluntarily. OT and PT students were recruited from participating educators. The MED students recruited from the outpatient clinic had access to the electronic health record. One female clinician participated,

along with four educators representing the student's unidisciplinary programs and the center of faculty development. One student and one educator were male, while five students and three teachers were female. All 11 participants will be referred to as "she" to prevent identification.

All participants met for the first time at seminar 1 to obtain information and discuss the interprofessional practice and interprofessional research project (Table 1). The students effectively divided themselves into two groups. Each group had an educator who was a skilled facilitator and familiar with qualitative research methods. The pre-meeting, home visit, and post-meeting, and writing of the electronic health record happened twice (totally 8 + 8 h). Finally, the whole group met at seminar 2 to discuss their experiences six (group 1) to eight (group 2) weeks after finishing the interprofessional practice (3 h). Table 1 gives an overview of the participants involved in different learning activities, and data collection methods in a chronological pathway.

Data collection

The methods used were a combination of reflexive focus group interviews, fieldwork, and review of anonymous health record documents as described in Table 1. Eight focus group interviews were conducted before and directly after both home visits. There was one focus group interview with five students, three educators/interprofessional facilitators and one clinician at seminar 2. The interviews had a different purpose. Before and after the home visits the interviews proceeded interactively and reflectively, the intention being to enhance student's experiences and interpretation of collaboration at the home visit. The purpose of seminar 2 was for all participants to discuss their retrospective experiences of the project.

Interprofessional facilitators observed and wrote field notes on seminar 1 as well as during the four home visits focusing on the students' collaboration together and with the clients. The reflections and dialog before and after the home visits related to the context and to concrete situations such as collaboration with the clients, methods of assessment, and preventive and supportive strategies to strengthen the clients' goals and health. They reflected on how writing the health record and coping with the challenges encountered had affected collaboration with and learning from each other.

Data analysis

Research information was transcribed from audio files by a research assistant and myself for the group I did not attend as a facilitator. The transcribed material available for analysis comprised 65,000 words (group 1: 11,000 words, group 2: 39,000 words, seminar 2: 15,000 words, fieldwork notes 2,000 words). The transcribed material was read through by four of the participants, representing all groups, to obtain respondent validation and trustworthiness.

NVivo (QSR International Inc.) was initially used for thematic analysis in nodes. By continuing to use iterative reflexive analysis combined with relevant research and theory, interesting themes become obvious for further analysis (Binding & Tapp, 2008; Srivastava & Hopwood, 2009). Iteration in qualitative data analysis is a highly reflexive process that is used to gain clear insights, and it develops meaning through the process of visiting and revising the data to refine focus and understanding. Themes and categories emerged from interpretation of the data while also considering several relevant subjective and theoretical perspectives (Srivastava & Hopwood, 2009). Three iterative questions were central during the analysis process: Q1. What are the data telling me? Q2: What do I want to know? Q3. What is the dialectical relationship between what the data are telling me and what I want to know? Each iteration between Q1 and Q2 was helpful for identifying gaps in my understanding of what was going on in the case, and how to proceed. Through further analysis it became obvious that students' values and reflections related to the interprofessional practice experienced, representing findings organized in three broad themes with sub-themes as presented in Table 2.

Ethical considerations

The educators and clinician helped with applications for funding, recruitment, and information for the participants. All participants signed informed consents and were free to withdraw at any point. The information transcribed was anonymized and treated as confidential. Approval from NSD, the Norwegian Center for Research data, was obtained for the research design. Ensuring the trustworthiness of the research, combining my role as interprofessional facilitator, belonging to the OT profession, and coordinating the project demanded an explorative and curious approach and continuous critical reflections on my previous experiences, attitude, and knowledge.

Findings

Interprofessional collaboration about and with the client

Two elderly women chosen for the groups were living alone in their home with support from their family and home care service. They both had a history of suffering from mental health problems such as severe depression and anxiety, and

Table 1. Overview of participants involved in different learning activities and data collection methods.

Activities	Seminar 1	Pre-meet x2	Home visit x2	Post-meet x2	Health record x2	Seminar 2
Methods	Fieldwork	Focus group interview	Fieldwork	Focus group interview	Document analysis	Focus group interview
Participants, group 1	3 students 4 educators	3 students 1 clinician IP facilitator	3 students 1 clinician IP facilitator	3 students 1 clinician IP facilitator	3 students	2 students 3 educators
Participants, group 2	1 clinician 3 students	3 students 1 clinician IP facilitator	3 students IP facilitator	3 students IP facilitator	3 students	1 clinician 3 students

Table 2. Research questions and findings divided into themes and sub-themes.

HOW LEARNING IS SHAPED BY INTERACTION ACROSS BOUNDARIES IN A NEW BOUNDARY-CROSSING PRACTICE?		
Specific questions	Themes	Sub-themes
How do the student groups manage to establish a boundary-crossing community of practice?	IP collaboration about and with the client	Establishment of a new team by using health records Crossing boundaries through collaborative examination and negotiation
Which critical pitfalls for crossing boundaries occur?	Balancing boundaries between IP and professional role	Challenging professional boundaries Critical pitfalls in writing the health record
Which boundary activities and objects are important for the development of shared knowledge?	Discovering the importance and benefit of IP collaboration	Boundary-crossing in professional language Making transition smoother The value of learning with and about each other

had complex health care needs such as sight and breathing problems, and pain due to falling accidents.

Establishment of a new team by using health records

Before the first home visit, the student group made plans for collaboration with the client. The latest client discharge summary was used to initiate interprofessional collaboration, using questions and discussion with the aim of gaining a common understanding of the client's health situation. Based on PT inquiry, the MED students explained the client's diagnosis, symptoms, and the effect of a range of medications. The PT students followed up by questioning whether there could be a connection between pain and inactivity. The OT students wondered if anxiety, depression, pain, and movement difficulties might cause isolation and loneliness.

Without a common history or culture, the groups were in charge of planning and carrying out the interprofessional collaboration at the home visit. They imagined the client's situation, how to establish rapport, and how to work in a client-centered manner. After reflecting on the client's health situation and how to initiate collaboration, both groups agreed not to have a specific leader. MED1 summarized the discussion: *We explain why we are there and let the client describe how they experience their situation. We must never interrupt, but must remain quiet even if that feels uncomfortable.*

Crossing boundaries through collaborative examination and negotiation

At the first home visit, both student groups were served coffee and cakes in the living-room. They listened to the clients and heard about their life stories, everyday life, illness and health situation, values, and goals. While the first home visit focused on communication and establishing a good relationship with the client, the second contained both professional observation and assessment. The students examined the client's biomedical symptoms, mental health, physical and cognitive function, and environment and social participation (Figure 1). To evaluate balance, risk of falling and physical activity, they observed the client when walking, cycling, carrying objects, standing up, and sitting in a chair and bed. To evaluate the client's independence in daily life activities, they observed the client using the toilet and bathroom equipment and making food in the kitchen. Based on situated experiences, learning from each other and the client, the students established a common knowledge base to facilitate discussion and further action. Figure 1 visualizes the examination at the home visit as documented in the health record and shows the degree of engagement among the students.

Boundary-crossing led to the identification of intersecting practices by OT and PT; however, with a different degree of engagement and examination (Figure 1). Because both clients had pain and movement challenges, preventing falls became a major focus in both groups. After the first home visit, OT2 was concerned about the inappropriate walking stick that the client used at home and the outdoor rolling-walker received from the home care service. OT2 demonstrated the client's performance and risk of falling with the walking stick and said to PT2: *Did you notice how she leaned upon the crutch?* On the second home visit, PT2 asked the client to walk without a stick. The client managed walking quite well but argued she needed the stick to stretch out. PT2 then conducted a balance test, which the client performed quite well for her age. PT2 said to her: *I am highly impressed with your balance. You walk faster, more lightly and better without the stick*. OT and PT recommended her to walk without a stick.

Both clients had problems walking outdoors. This was due to their physical and mental health, but also because of factors related to the outdoor environment, such as the cold snowy winter, poor accessibility of building entrances, and transportation. One client had received but had not used a huge, nonfunctional rolling-walker from the municipality. PT2 was in general negative toward assistive technology and claimed: *She is too healthy for it*. OT2 argued: *She needs one that can be adjusted, tall enough for her to stretch her back, with good wheels for winter use*. This started negotiation between the OT and PT students about the value of assistive technology for helping people become physically active and for enabling social participation, such as walking in the neighborhood to visit family, a café, or the hairdresser.

Balancing boundaries between interprofessional and professional role

Placed in a new learning environment, reflections and knowledge were simultaneously connected to communication with and observation of each other and clients. Through collaboration in practice and by writing the health record, professional roles were challenged and boundaries crossed.

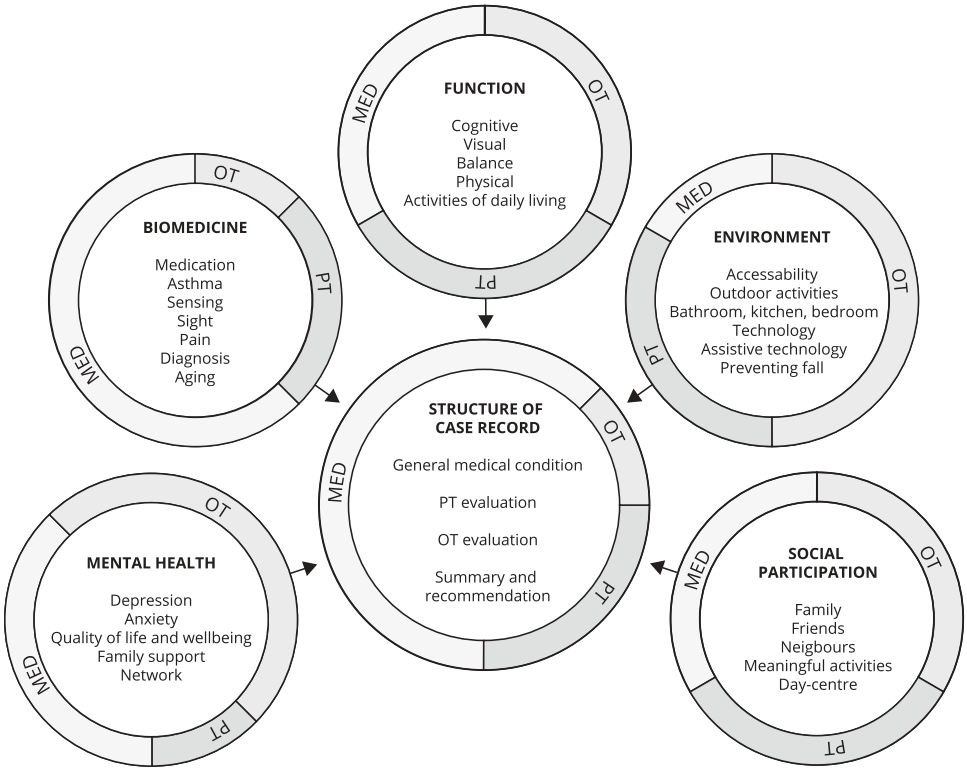

Figure 1. Examination at home visit documented in health records. Degree of engagement among OT, PT, and MED students.

Challenging professional boundaries

The PTs, who usually met and examined clients within a PT environment, found the home environment unsatisfying. With other colleagues present, it felt unethical asking clients to undress for a proper examination. Without this professional knowledge, they found it difficult to motivate the client to become more physically active. The following dialog occurred at seminar 2. PT1: *If I had been alone with the undressed client, I would have conducted a complete examination. I don't feel I have shown you my professional competence*. PT2 agreed and added: *Cooperation within the team would have been much better*. It was obvious that the PT students had discussed this situation together and with the educators on the program. PT2 critically asked: *Have we really archived interprofessional in this project? All PTs in this room (including the educator) think that to present our knowledge, we should first have conducted a proper structural examination. However, the home environment has limitations.*

OT2 challenged their professional boundaries: *At the office, you would not have seen her cycling or standing up from her favorite chair. In our visit you could observe her challenges in everyday life and think about what we could do to help*. PT2 agreed: *Yes, I saw what was most important, and what I told her was significant for her*. PT2 reflected about differences in clients and professional needs: PT2: *However, palpation and examination of muscles and joints was not the most important issue for the client*. PT1: I *felt insecure because physical examination was not needed by the client*. PT1 acknowledged that her statement was based on insufficient geriatric and psychiatric knowledge, together with lack of experience of home visits. Both PTs expressed the need for more time for preparation, supervision, and discussion. Students and the interprofessional supervisor in one of the groups found it hard to have good discussions and reflections when student's professional boundaries were challenged.

The MED students did not express the need for professional supervision. Licensed as doctors for 1 year, they had already obtained solid and varied practical experience, including cooperation with other health professions. MED2: *I don't think it over, I just do it*. OT2 related her opinion to her power and confidence in her professional role: *The medical doctor has a clear role, often as the leader of a team. As a medical student, you have an important role and inherit confidence*. MED2 challenged her stereotypical attitudes: *Medical students do not naturally become the leaders! It has more to do with practical experience within the profession. If I had joined this project as a fourth year student, I would not have thought of this as "Childs' play"*.

The OTs had very different experiences of their professional role within the groups. OT1 described at seminar 2 how she struggled to find her professional role, especially during the first home visit when PT and MED students focused on the client's health complaints, function, and medication. OT1 was more concerned about challenges experienced in everyday life: *I found it difficult to follow up when she talked about her social life … I tried to ask about her social activities, but I felt there was no time for it*. MED1 supported her, by describing her own experiences of holding back due to time limitations during the home visit. OT1 found it difficult to position herself within the team: *I was afraid that my profession would take too much space … I struggled to find my place.*

But, I am new in this profession. In contrast, OT2 did not experience the problem of positioning herself in the group because the focus was on the client's experiences of anxiety and loneliness, followed by participation in meaningful activities.

OT1 felt discomfort about working in a group being observed not only by different professions, but also by a clinician and educators: *I felt like they were looking over my shoulder, I was observed by everybody*. PT1 responded: *I did not feel the need to perform, just to learn*. MED2: *I felt this was fun. I don't have the capability to evaluate others' performance. This is not a performing or evaluation situation*. This response gave OT1 an opportunity to explain how important this interprofessional collaboration was for her learning: *It became better after a while. It was great learning.*

Critical pitfalls in writing the health record

After a discussion of how to write the health record after the first home visit, the MED students suggested the structure of the text: *First a general anamnesis, then PT followed by OT evaluation, then suggestions for further evaluation and actions*. The groups presented different health evaluations. Group 1 highlighted the client's function and biomedical condition. Group 2 highlighted the client's perspective, mental health, and social participation. Due to time limitations, group 1 wrote separate professional notes which were integrated in the health record by the MED student. The unidisciplinary way of writing the health record led to critical discoveries. The interprofessional perspectives were absent and the client's illness was highlighted when repeated several times by all professions.

PT1 expressed dissatisfaction with the learning opportunity and quality of the health record: *Too bad that we had to rush this writing since I have never before written an interprofessional health record.. The first time it felt unsatisfactory because I did not get the opportunity to read it through*. Writing the first record was challenging. PT2: *It was a blind shot, the best we could do*. Both groups felt they needed more time working together, and supervision.

The diversity of the patient settings along with the exploratory nature of the project challenged the students' professional boundaries and comfort zones. The students gained knowledge from collaboration, which was of major importance for learning, and for enhancing the quality and efficiency of their work.

Discovering the importance and benefits of interprofessional collaboration

Students' previous collaborative experiences were from sharing and listening to unidisciplinary assessments at team meetings. Engaging in interprofessional collaboration in the same room led to new discoveries.

Boundary-crossing in professional language

Both groups learned from their first experiences and prioritized extra time for the second writing of the health record. The students reflected on their professional contribution and role. They demonstrated their competence, negotiated, and gave each other feedback on how interprofessional collaboration had proceeded within the group and with the client. PT1: The *second time was good. PT2: It was very good when we sat and finished the whole record together*. The process of collaborative writing was an important contribution to interprofessional learning in professional language. OT2: *Both to write and discuss professional concepts and learn something about our "tribe-language"*. M2: *This gave me the best and most valuable interprofessional learning, about PT and OT priorities and observations*. OT2: *I was impressed with MED2 student's concrete and very specific way of expressing herself in the health record. It was obvious that she and the PT had experience of writing health records.*

The MED students were the most experienced and led the writing process. By discussing and adding professional concepts to their observations and examination of the client, they learned about each other and managed boundary-crossing in professional language. Writing the health record together enabled the students to reach a common ground, and to strengthen their confidence in their professional and interprofessional capabilities.

Making transition smoother

All students experienced the home visit as a meaningful interprofessional learning environment. By maintaining a reserved attitude in collaboration with the client, boundaries were crossed and new insights were obtained. OT2: *You wait for the other to take the initiative. You could have raised the question, but you wait to give the place to somebody else*. PT2: *I waited consciously … It was strange that both of you asked my questions*. By holding back and not interfering with each other and the client, the client could concentrate on the whole group. OT2: *Participation on the client's home ground, with collaboration, gave a lot of information that would not be obtained in a* unidisciplinary *environment*. When the student group listened to the story together, they followed up with individual questions about the client's story.

Boundary-crossing led to less burden for the client, who did not need to tell the same story several times and participate in several assessments. MED2 said: *If we had done the assessment separately, we would have had to spend much more time and she would have had to tell the same story to absolutely everybody*. Another important discovery was that the focus of the client's story would shift toward the interest of the profession and the rest would get lost. OT2: *Generally, I think it had become three different stories*. Within interprofessional collaboration, the client's needs and story become more important than the different professional examinations.

The value of learning with and about each other

The students discovered the effectiveness of boundary-crossing in interprofessional collaboration. Performing together in the same context was effective and gave the assessment and intervention planning higher quality. M2: *For us there was a lot of learning when listening to and observing the way the other professions interacted with the client. This led to a deeper understanding of the client's health situation and gave more insight into the other professions' performance*. OT2 also found that interprofessional collaboration gave a more holistic

picture of the client and the effectiveness of teamwork: *The collaboration between us led to a more effective way of acting, we got more information from the client.*

They also learned about each other. PT2: *I could not imagine how we were going to work together. We asked the client about different subjects, it was certainly interesting.* MED2: *It is great performing like this and doing the evaluation based on the client's story and your observation*. The MED student experienced that OT and PT students had a different perspective and asked questions she not had thought about. MED1: *Especially when we talked about her sight challenges and the OT asked: "Can you see the telephone"? This was an important, revealing question, which I had never considered*. The students followed up on each other's examinations and expanded their knowledge. OT2 valued PT2's balance examination: *Yes, it was very obvious that her balance was good.*

The OT students described the importance of being challenged through interprofessional collaboration during education. OT2: *I think it was great to work like this. You feel insecure, but you have to learn*. For OT1, the professional challenges through interprofessional collaboration had valuable meaning:

> It is so important to obtain knowledge about each other's performance. Everybody should have the chance to be challenged during the study. Otherwise, you will be surprised after graduation, when others don't show understanding of your profession. Teamwork will then become more difficult.

Through interprofessional collaborative practice the client became the midpoint. The newly established groups managed rapidly to establish an intersecting practice. They discovered how the client's situation, goals, and values become the major focus of intervention when boundaries were crossed. Client-centered interprofessional collaboration was challenging, but gave valuable professional insights and new important knowledge. Through the process of learning with and from each other, they developed a better understanding of each professional's beliefs, values, knowledge, and actions, which was important for establishing a more effective client-centered practice.

Discussion

Interprofessional collaborative practice aims to decrease client risk, and improve the quality of care and health services for people with long-term and complex conditions (Barr, 2013; Reeves et al., 2010). A research review by Reeves et al. (2016), (2017) confirmed that interprofessional education contributes to transforming health students into collaborative team workers. Because these studies mainly rely on students' self-reports, there is a need for direct observations to strengthen the knowledge and articulate its complexity (Morgan, Pullon, & McKinlay, 2015). This empirical study analyzes data from both students' experiences and facilitators' observations in several trajectories related to home visit practice, documentation in health records, and reflection at seminars.

Framed by Wenger's sociocultural perspectives (1998, 2015), the present findings point out how the students work at the boundaries when establishing a new community of practice in a geropsychiatric outpatient interprofessional practice, and answers the following specific questions: How did they manage to establish a boundary-crossing community of practice? What critical pitfalls were encountered? What boundary activities and objects were important for shared knowledge? The identified themes and sub-themes show how the student groups managed to establish a boundary-crossing community of interprofessional practice. Figure 1 presents the different degrees of engagement in students' collaboration in several boundary assessment activities, documented in the health record. Some boundary activities and objects were shown to be more effective for the development of shared knowledge. These were simultaneous dialog and examination with the client at home, and writing the health record.

Boundary objects, like the health record, have a standardized form, with standardized medical concepts for sharing information, but they are flexible enough for different professions to write their interpretations from examinations. A boundary object supports connection and collaboration but does not force the consensus of meaning (Kubiac et al., 2014). The discharge summary serves in this study as a team builder where students with different professional perspectives learn from each other, and reflect upon and discuss aspects of patient health and illness in their professional language. It helped with planning examinations and establishing a relationship with the client. The health record in the study served as an important boundary-crossing object that enhanced reflection and negotiation, initiating and bridging interprofessional collaboration.

Boundary-crossing is a way of creating continuity when different professions meet in practice (Akkerman & Bakker, 2011b; Wenger-Trayner, 2015). Rather than seeking the unproblematic applicability of knowledge across practices, Wenger-Trayner (2015) views boundaries as learning assets that depend on the student's engagement and critical reflections in a mutual process based on the perspective of other practices. Akkerman and Bakker (2011a, 2011b) found that boundaries seem to function as mediational means, helping to define and maintain certain boundaries as well as to overcome boundaries.

The present study shows how boundary-crossing strengthens client-centeredness. On home visits, the students managed to bridge their professional perspectives through dialog and interaction with the client. The focus was on the client's story when the student group sat together, acting humbly and maintaining a reserved attitude. This led to less burden for the client, who did not have to repeat the same story or participate in a series of examinations to meet the needs of the different professions. They examined the patient simultaneously, and discussed and evaluated different topics such as mental health, pain, balance, ADL, fall incidence, and social participation (Figure 1). Through boundary-crossing, they discovered that the intersection of each other's practice led to a smoother transition within the interprofessional collaboration. Boundary-crossing through interprofessional collaboration led to greater effectiveness and an improved quality of evaluation, and they became more knowledgeable about each other. According to Wenger-Trayner (2015), knowledgeability reflects a person's connection with a multiplicity of practices developed through cross-boundary learning

experiences. Knowledgeability depends on one's competence in one or more core practices, and knowledge of other practices and the boundaries between them. Identification is a key factor in shaping knowledgeability because it implies accountability. Identification is a process that precedes reflection and transformation (Akkerman & Bakker, 2011a). Occasionally, we found a lack of identification of the boundaries because the students did not explicate how they experienced boundaries in the situation when it actually occurred. However, they explicated their opinions and boundaries later in seminar 2. Reflection and feedback occurred, new insights were obtained, and boundaries were crossed.

Knowing in practice includes competences that the students shape and change through experience. Competence describes knowledge negotiated within a single community of practice (Wenger-Trayner, 2015) such as within PT, OT, and MED uni-professions. The present findings show that relying only on this competence was not sufficient. The students had to clarify, understand, and combine different ways of thinking, knowledge, and skills in a way that benefited the clients, as supported in the study by Hean et al. (2012). When working on the boundaries, critical pitfalls related to stereotyped attitude, professional roles and identity occurred and interfered with interprofessional collaboration and boundary-crossing.

Pollard, Miers, and Gilchrist (2005) find that the professionalization process strongly influences students' attitudes toward interprofessional learning and work. PT students felt insecure in their professional role without conducting a proper structural examination alone with the client and questioned interprofessional achievement. McNair (2005) argues that the effort to maintain control over a distinct body of knowledge can create a significant barrier to effective relationships with other professions and with clients. When students struggled to cope with boundaries between different perspectives and practices, they tended to work within their own uni-professional silos to ensure their common goals, language, and approaches (Akkerman & Bakker, 2011a).

MED2 was annoyed when a team member related her leadership, professional confidence, and habitual acting to inherent power in the medical doctor's professional role. According to Moeller (2011), tension is generated when individuals are sharing perspectives and skills within a community of practice. Tension can at worst fragment the community, at best generate the innovation and creativity needed to develop new knowledge, new forms of practice, and a collective identity. Sargeant (2009) highlights the necessity to deal with and be aware of how professional identity and stereotypes held upon collaborative learning and practice. However, the stereotyped statement enhanced another important discussion in the group: how inequality in the level of practice experience influences interprofessional collaboration.

Almås and Ødegård (2010) describe professional identity development as a complex and forever changing phenomenon as individuals engage in a dynamic process of reflection, interpretation, and reinterpretation of their own practice and context. Wenger (1998) similarly describes professional identity formation as a learning process where individuals are formed by their social interaction and self-reflection. OT1 expressed a feeling of professional insecurity within the group. She held back on expressing her view when the biomedical assessment approach became dominant. She expressed how the feeling of being observed and evaluated inhibited acting and participation in the project. Through group feedback and support, followed by self-reflection, she gained a new insight into the value this experience had for strengthening confidence in the professional role. Awareness of professional sensitivity is important (Hall, Weaver, & Grassau, 2013; Shrader & Zaudke, 2018). Interprofessional facilitators and students ought to sensitively consider how professional identities, stereotypes, hierarchy and culture influence boundary-crossing. Working interprofessionally provides the opportunity for students to develop confidence about themselves and about their knowledge and skills, professional identities and roles, and the contributions they make across communities (Mentis et al., 2016).

Through engagement and reflection when engaging in boundary activities, the students in this study acquired direct experience of each other's competence and were able to explore boundaries. Boundary-crossing led to comparing and identification of intersection practices. The way they coordinated different practices made the transition smoother. They looked differently at their own practice by taking on the perspective of other practices, made assumptions about each other, about previous experiences, and reflected on the needs of the client. Initially, this reflective process concerning the client's situation was based on the discharge summary from which different hypotheses were shared, discussed, and subsequently learned from. The health record informed other health professionals of the evaluation and recommendations made. Writing the health record together enabled the students to reach a common ground, and to gain insight and confidence into their professional and interprofessional capability.

Limitations

The students volunteered for this project, which might have led to the recruitment of particularly positive students. Because one of the students was unable to participate in seminar 2, less reflection was obtained from the MED students. The project coordinator/author had additional roles, including as the interprofessional facilitator for one group, and coordinator of meetings and seminars and the research process. The facilitator role was participatory and explorative, while the research role was critical and reflective throughout the analytic and theorizing process. Closeness to the processes within the interprofessional demands analytic distance and critical thinking toward one's own preconceptions and interpretation in the analysis process of the research (Binding & Tapp, 2008).

Conclusion

There are several findings in this study that show a positive effect from boundary-crossing in interprofessional collaboration. The interventions became more client-centered, effective, and valuable. Acting humbly as the guest and putting the client in charge led to the acquisition of more detailed information about the clients' situation compared to a uni-professional

examination. Listening to and observing other professionals' interactions with the client broadened the students' knowledge. They achieved a good rapport when collaborating with the clients. Boundary-crossing in interprofessional collaboration gave a more holistic picture of the client and led to more effective teamwork than uniprofessional interventions.

Students and educators need to be aware of and discuss the critical pitfalls of boundary-crossing, such as insecurity concerning knowledge, inequality in the professional role, stereotypes, and attitudes. To enhance equality among the students, the MED students should participate in similar interprofessional practice in their fourth or fifth years. The students experienced learning from the interprofessional practice project as both challenging and meaningful. The two home visits provided incredible learning and insight from looking into different clinical interprofessional practices. Interprofessional collaboration provided boundary-crossing and an opportunity for students to develop confidence about themselves, their knowledge and skills, their professional identities and roles, and the contribution they made across communities of practice. Writing the health record provided valuable learning from, with, and about each other's interprofessional and professional competences. It helped them to reach a common ground and to strengthen their professional confidence and interprofessional knowledgeability. Acquiring more knowledge about, and providing more time and supervision for writing the health record should be given a high priority.

To deal with the complexity and rapid knowledge demands in future health care, professionals must handle a constant stream of new situations. This demands situated knowledge, a capacity for both stability and flexibility, creativity and innovative thinking, empathy, imagination and intuition, critical sense and even resistance in some situations. Further empirical research is needed on how to design interprofessional practice and where and how boundary-crossing during health education happens and how it impacts on professional trust and understanding and respecting team members' roles.

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Declaration of interest

The author reports no conflicts of interest. The author alone is responsible for the content and writing of this article.

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