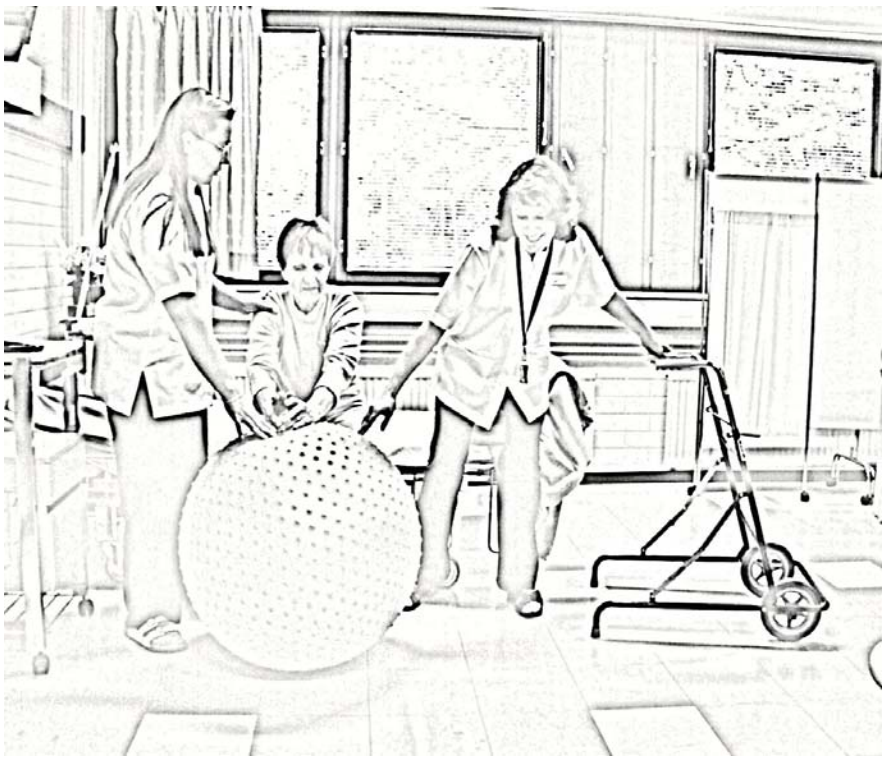
STUDIES IN SPORT, PHYSICAL EDUCATION AND HEALTH
130

Sirpa Laitinen-Väänänen

The construction of supervision and physiotherapy expertise

A qualitative study of physiotherapy students' learning sessions in clinical education



JYVÄSKYLÄN YLIOPISTO

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ABSTRACT

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English Summary
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Clinical education is asserted to be an important period in professional education, being an environment where deep conceptual understanding together with practical experience can develop. The supervisional interaction between clinical educators and students in clinical education is regarded as the strongest element in developing students' expertise, and in forming professional identity. This study examined the natural learning sessions in physiotherapy students' clinical education. The purpose was to analyse what kinds of meanings related to supervision, physiotherapy practice, client, and students' learning experiences were constructed in the learning sessions, and also, how these meanings were constructed. The study assumed according to socio-constructivistic approach that the student, the clinical educator and the patient / client construct the meanings together in interacting with each other. Furthermore, the study presumed that learning does not just occur in one's head but through active engagement with individuals. Thus, the physiotherapy student constructs the professional learning and comprehension of the physiotherapy expertise by participating in the professional community and by accomplishing professional tasks in clinical education. A total of 13 practical learning sessions and 10 supervision conferences were video-recorded, transcribed verbatim, and analysed using an adaptation of the method of discourse analysis. Discourse analysis as a methodological frame of reference in this study focused on the language. Language, in this case, was understood to cover all kinds of interactional acts, verbal talk and non-verbal acts.

The study indicated that the practical learning sessions are complicated and multidimensional interactional entities. Therefore, it might be difficult for the clinical educator to accomplish patient-centred and student-centred supervision during a natural physiotherapy encounter. Accordingly, the results of this study showed that clinical educators play a directing role in constructing the interaction in practical learning sessions. In this role, they have a possibility to direct student attention to the essential elements of the physiotherapy profession. Together with the professional-centred practice, the study revealed episodes where client was constructed in a client-centred way. This two-dimensional observation challenges physiotherapists to be aware of the interactional elements that support or reject client participation during the physiotherapy encounters functioning as practical learning sessions for physiotherapy students. Although a traditional and a technical and a mechanistic orientation to physiotherapy practice emerged in the supervision discussions of this study, learning sessions with ele-

ments of evidence-based practice and elements of enhancing students' reflective skills were also noted. However, this study showed no initiations of transferring the students' learning experiences to other circumstances and vague initiations where the students' experiences were tried to transfer to more abstract level and interact with theoretical knowledge. Furthermore, the study revealed that even though self-assessment skills have been mentioned among the core skills for future professionals, only some elements of this kind of discussion were observed.

Considering the methodological limitations and the fact that this study focused only on the undergraduate level of physiotherapy education, it can be concluded that it gave a fresh insight into the opportunities to construct and widen the understanding of the role of clinical education in enhancing the professional development of physiotherapy students, in promoting evidence-based practice, and in developing the next generation of physiotherapists. Furthermore, the study increased the understanding of both the interactional and the discursive practices employed in the learning sessions during clinical education.

Key words: clinical education, physiotherapy, discourse analysis, interaction, supervision, client, learning

Vuodet opettivat paljon sellaista,
mistä päivät eivät tienneet mitään.
(R. W. Emerson)

Dedicated to my dear family

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In Villähde, In a Sunny Day Summer 2008,
Sirpa Laitinen-Väänänen

FIGURES

TABLES

LIST OF ORIGINAL PUBLICATIONS

The study is based on the following publications, which are referred to in the text by the Roman numerals:

I Laitinen-Väänänen S, Talvitie U, Luukka M-R. 2007. Clinical supervision as an interaction between the clinical educator and the student. Physiotherapy Theory and Practice 23(2), 95-103.

II Laitinen-Väänänen S, Luukka M-R, Talvitie U. 2008. Physiotherapy under discussion: A discourse analytic study of physiotherapy students' clinical education. Advances in Physiotherapy 10(1), 2-8.

III Laitinen-Väänänen S, Talvitie U, Luukka M-R. 2008. Construction of the client in physiotherapy student's practical learning sessions: A discourse analytic study. Learning in Health and Social Care 7(1), 2-11.

IV Laitinen-Väänänen S, Talvitie U, Luukka M-R, Vänskä K. The construction of students' learning experience through discussion: A discourse analytic study of supervision conferences in the physiotherapy students' clinical education. (Submitted)

CONTENTS

1 INTRODUCTION

Clinical education is a characteristic element of undergraduate professional higher education (The Recommendation for Placement, its Organisation and Terminology, 2007). During clinical education students can, by participating in the professional community of practice (Wenger, 1998), learn the norms, values, rules and loyalties within the profession, rehearse the practical skills and consider the theoretical basis of the profession. Furthermore, during the period of clinical education, students start to form their professional identity (Strohschein, Hagler and May, 2002) and their comprehension of professional expertise (Shepard, Hack, Gwyer and Jensen, 1999). Thus, it can be argued that clinical education offers students a unique opportunity to experience physiotherapy practice and to construct their understanding of the physiotherapy profession. This experience cannot be replaced or passed over nor underestimated.

Clinical education is the largest single part of the physiotherapy curriculum, comprising more than one third of the education of physiotherapy students. It can be divided into periods of various lengths in the course of the physiotherapy programme (Lahti University of Applied Sciences. Study Guide, 2007 -2008). The aims of work placement in professional higher education in Finland are, according to the law (Statute on Universities of Applied Sciences, 2003/352), "to acquaint the student by guidance with the core working tasks and to apply the knowledge and skills in working life especially from each profession's perspective". However, the aims can be achieved in various ways. Moreover, accredited higher education institutes have autonomy in designing the content and the organisation of their educational programmes within the framework set by national laws, regulations and the international associations for physiotherapy (European Physiotherapy Benchmarking Statement, late EPBS, 2003).

A characteristic of professional learning in clinical education is that it takes place in actual physiotherapy situations where students can accomplish professional tasks under the supervision of clinical educators. This supervision interaction between the student and the more experienced professional is a typical and integral element of the clinical education. Nevertheless, the actual supervision interaction has attracted very little research interest, even though interactional

and socio-constructivist approaches to research have strengthened in recent decades. This study, for its part, attempts to fill this gap by examining the clinical education of physiotherapy students as an natural interactional phenomenon and applies the discourse analysis as a methodological frame of reference. Consequently, this study contributes to discussion on the meaning of the supervision interaction and the whole clinical education in constructing the understanding of physiotherapy expertise among physiotherapy students.

The study begins by introducing readers to the research and the social constructive frame of reference. In Chapter two, the learning process and definitions of expertise in physiotherapy are described. Chapter three focuses on clinical education as a professional learning context, while Chapter four describes learning as an interactional process. The fifth and sixth chapters describe the aims of the study, the methodological frame of reference, the data and the analytical process. Chapter seven summarises the findings of the four original publications on which this study is based. The results are presented in more detail in the original papers, copies of which are included in this thesis. Chapter eight ends the synopsis by discussing the findings and evaluating the credibility of the study, as well as presenting the future research challenges.

2 LEARNING TO BE AN EXPERT PHYSIOTHERAPIST

2.1 The role of education in achieving expertise in physiotherapy

The overall purpose of undergraduate professional education is to prepare students to be able to work as autonomous practitioners (EPBS, 2003) and to equip the students with adequate knowledge and the skills needed to achieve expertise in physiotherapy (WCPT Policies - Description of Physical Therapy, 2005). Although studies on expert physiotherapists have shown that the formal education is the least important factor in developing expertise in their professional path (Martin, Siösten and Shepard, 1995), the role of undergraduate professional education should not be underestimated, especially when experiences as a physiotherapy student are stated to affect the student's approach and behaviour as a physiotherapist (Richardson, 1999a).

In achieving the goals of undergraduate professional education there has been a tendency to develop competence-based curricula for professional education in the European Union. This development is a consequence of the Bologna–Prague–Berlin–Bergen process (European Ministers of Education 1999; The Confederation of EU Rector's Conferences and the Associations of European Universities, 2000; European Ministers Responsible for Higher Education, 2005; Directorate-General for Education and Culture of the European Commission, 2006; 2007). The purpose of this global curriculum development process is to equip students with competencies by which they can operate outside the educational context (Richardson, 1999b), to develop comparable curricula to ensure the validity of the education process in every country, and to widen employees' opportunities for mobility in the European labour market. By including the competencies as a basis of curriculum design, it can be ensured that the education will fulfil the requirements for educating competent physiotherapists. This development process is in progress and has not reached its target.

In the literature, the term 'competence' has different connotations depending on the context in which it used. Competence has been adopted as part a continuum leading from novice to expert (Dreyfus and Dreyfus, 1986). It can also be understood as a badge of effective performance. However defined, competence is not directly observable. One purpose of competencies is to offer student tools for professional growth within the profession and in acquiring expertise. They can also direct and guide professional education and curricular development as well as assessment. (Cheetham and Chivers, 2005.)

Competencies for higher education, as well for physiotherapy, can be divided to the generic and subject specific competencies. Generic competences are general and applicable to programmes in all disciplines in vocational higher education (The Bologna Process in Finnish Universities of Applied Sciences, 2007). They are "intended to prepare the student for a broad social employability on the labour market and in academic settings, and for general functioning in society". However, they can adopt specific features according to each profession. Generic competences construct the basis for working life, for co-operation and for the development of expertise. (Ven and Vyt, 2007.) In Finland, generic competencies for polytechnic graduates have been described in a joint process between the educational institutions. In this description the generic competencies have been divided into "learning", "ethical", "communication and social", "development", "organizational and societal", and "international" competences. The description of these competencies includes both the theoretical and the practical element of each one. The self-regulatory element is also visible, especially in the "learning" competence. The competences consists of skills to self-evaluate one's own practice, ethical knowledge and practice, interactional knowledge and skill, colleagues, team-working skills, the team and also the knowledge and skills to apply information technology at work. Furthermore, the competencies consist of research-based working habits, entrepreneurship skills, knowledge and skills to work within society and intercultural know-how. (The Bologna Process and Finnish Universities of Applied Sciences. 2007.) The description of the generic competencies is presented in Appendix 1.

Subject-specific competencies relate to the specific profession. They should construct the basis of the curriculum in each profession and could be applied when developing the goals and the assessment scales. The first attempt to describe the subject-specific competences in physiotherapy on the European level was presented in 2007 by the European Network of Physiotherapy in Higher Education (Ven and Vyt, 2007). This Competence Chart divides the specific competencies for physiotherapy into the seven units: assessment and interpretation, planning and implementation, evaluation, health care, professional behaviour, management and scientific research. While this chart is the first description of the subject-specific competencies in physiotherapy, it requires further development after feedback from implementation.

At the national level in Finland a version of the subject-specific competencies for the degree programme in physiotherapy has been prepared in a joint process between the educational institutions. In this description the generic competencies have been divided into "physiotherapeutic assessment and clinical reasoning", "counselling and guidance", "therapeutic", "collaboration and social" and "technology" competences. (The Subject Specific Competencies for Degree Programmes in Physiotherapy, 2006. See Appendix 2.)

2.2 Expert knowledge in physiotherapy

When defining expertise in physiotherapy it is important to consider what expertise is and what kind of knowledge it applies. In physiotherapy, the understanding of what kind of knowledge physiotherapists need and what kind of knowledge is appreciated has changed during recent decades (Lindquist, 2006), while the epistemology of physiotherapy has remained undefined (Noronen and Wikström-Grotell, 1999; Richardson, 1999b). When considering expert or professional knowledge in general, no clear consensus has been reached on how these concepts should be defined. However, it can be argued that it is a question of combing different kinds of knowledge. Eteläpelto and Light (1999) define expert knowledge to consist of three components of knowledge: formal knowledge, which is declarative and can be learned during professional education, practical knowledge, also known as procedural knowledge, which describes the know-how or skill component, and thirdly, self-regulatory knowledge, which involves metacognitive and reflective skills. Experts have argued for the integration of these different elements of knowledge in practicing their profession. (Eteläpelto and Light, 1999; Tynjälä, 1998.)

In enhancing the integration of the different elements of knowledge, it is important that students have a possibility already during their undergraduate professional education to gain experience in practicing the integration of practical and theoretical knowledge into actual physiotherapy practice. It is also essential that the students can experience reflective practice in physiotherapy treatment (Öhman, Solomon and Finch, 2002). Furthermore, metacognitive and reflective skills are required in aiming to sustain their professional development and to further develop the physiotherapy profession and expertise in a more evidence-based direction.

Higgs and Titchen (1995) preferred the concept 'practice knowledge' in defining the knowledge applied in physiotherapy. They defined 'practice knowledge' to consist of three components: the 'propositional component', by which they mean knowledge that is driven from a theory and research, the 'professional craft component', by which they refer to the skills that are individual and are learned from professional experience, and finally the 'professional knowledge component', by which they indicate attitude, which is also developed through experience but in this case from individual experiences. Besides propositional knowledge, much attention has been given to procedural knowledge in referring the applications of techniques and approaches, as in neurology and musculoskeletal physiotherapy (Richardson, 1999b). Following this observation, one of the challenges, or even problems, facing the physiotherapy profession is that it rests to a great extent on practical knowledge, and physiotherapists have rarely exploited theoretical knowledge as a basis for their practice (Roskell, Hawison and Wildman, 1998). The body of professional knowledge in physiotherapy for its part is argued to be based on both empirical and clinical evidence. This includes knowledge relevant to all health care professionals in areas such as anatomy, pathology, biomechanics, medical science and psychology, and also knowledge unique to physiotherapists. Knowledge particular to physiotherapy includes a broad understanding of movement and impairment of function. (Higgs, Refshauge and Ellis, 2001.)

2.3 Expert practice in physiotherapy

Besides expertise knowledge, expert practice has been a subject of research interest in physiotherapy. A typical and integral part of physiotherapy practice is the interaction between clients and physiotherapist, by which the fundamental tasks are achieved and profession-specific skills are employed. "Physiotherapy practice is an institutional practice which to a large extent is constituted by interaction". (Martin, 2004, 15.) This therapeutic interaction requires interactional and interpersonal skills, which are included among the core skills in the physiotherapy profession (EPBS, 2003).

The ethical basis of the therapeutic relationship (Johnson and Webb, 1995; Williams and Harrison, 1999) and the global tendencies in social and health care in recent years (WHO, 2001) underline the patient-centred approach and stress a more active role and equal partnership of the client in the interaction. Even though physiotherapists themselves have placed a high value on gaining the active participation of the client in treatment (Chase, Elkins, Readinger and Shephard, 1993; Westman Kumlin and Kroksmark, 1992), the clients have been found to be quite minimally involved in the planning and evaluation of their treatment during physiotherapy encounters (Payton and Nelson, 1996). Researches conducted by analysing natural physiotherapy practice have revealed elements of physiotherapist's conducting role in organising physiotherapy practice. Parry (2004) noted that when the encounters were constructed according to the physiotherapist's agenda the clients had fewer opportunities to participate in goal-setting. Furthermore, studies analysing the interaction between physiotherapists and clients have shown low levels of communicative participation by clients. Patients' initiations were found to be passed over during the encounters and the interaction between a physiotherapist and a stroke patient was reported to involve little dialogical or reciprocal communication (Talvitie and Reunanen, 2002). Roberts and Bucksey (2007) found out in analysing verbal and non-verbal communication from video recorded physiotherapy sessions that physiotherapists' verbal communication occurred twice as much as patients. Their findings were consistent with previous findings from Talvitie (2000). Talvitie analysed the video recorded physiotherapy practice sessions by applying systematic observation instrument. She stated that physiotherapists "spoke nearly all the time whereas patients asked only a few questions and made few comments". Furthermore, Thornquist (2001a; 2001b) in examining the working practices of differently-orientated physiotherapists found out that the physiotherapist's specialisation and work-orientation (manual therapist, psychomotor therapist and visiting therapist) affected the interaction and the construction of the patient's position in the physiotherapy encounter.

Reflective thinking and reflective skills are defined as core elements of expert practice in physiotherapy and in many other disciplines (Clouder, 2000; Holmström and Rosenqvist, 2004; Jensen, Shepard, Gwyer and Hack, 1992; Mostrom, 1999; Mostrom and Shepard, 1999; Richardson 1999a; 1999b; Schön, 1987). Reflective skill is defined as skill in combining theory and practice (Schön, 1987), and as the process by which past experiences are reconstructed and new meanings are given to them (Kolb, 1984). Shepard and Jensen (1994) assert reflective practice to be a hallmark of professional behaviour. Furthermore, reflective practice is an im-

portant and necessary skill for continual professional development and has been mentioned as the most important element in developing expert practice among physiotherapists (Martin, Siösteen and Shepard, 1995). However, Mezirow (1991, 106) has stated that students' learning in clinical training occurs without reflection, for practical training is full of non-reflective actions where students do not evaluate or question their method or reasons for counselling when they analyse and act upon the situation.

In aiming to analyse the level of reflectivity, the three-level reflectivity taxonomy developed by Van Manen (1977) can be applied. The framework helps to bridge the practical and theoretical concern of reflectivity. Van Manen's taxonomy divides reflectivity into practical/technical, interpretative and critical levels. The practical level focuses on practical application, asking questions such as "What is…?" and "How is it?" In the interpretative level the focus shifts to a more analytical direction. The aim is to understand and analyse the phenomenon. In the critical reflectivity level, interest focuses on ethical and societal considerations. The question that can be asked is "What ought to be?" (Mostrom and Shepard, 1999). This framework can be helpful in analysing a physiotherapist's or student's level of reflectivity. According to Clouder (2000), it is vital that undergraduate education incorporates strategies that facilitate dialogical reflection rather that solely focus on written reflection.

3 CLINICAL EDUCATION AS A CONTEXT FOR PROFESSIONAL LEARNING

3.1 Clinical education and professional socialisation

There is an unambiguous consensus on the essential role of clinical education in physiotherapy education, which has been expressed in several studies (e.g. Baldry Currens and Bithell, 2000; Bennet, 2003; Cross, 1993; DeClute and Ladyshewsky, 1993; Gignac-Caille and Oermann, 2001; Griffiths, 1987; Miller and Solomon, 2002; Shepard, Hack, Gwyer and Jensen 1999; Strohschein, Hagler and May, 2002). The guidelines for physiotherapy education in Europe also stress the central role of clinical practice in providing learning opportunities for students (EPBS, 2003). In clinical education, physiotherapy students can, by participating in professional communities and by interacting and learning together with more experienced professionals and other students, develop their professional knowledge and skills.

Through participation in the working culture, clinical education offers physiotherapy students an excellent opportunity for professional socialisation. Professional learning, constructed in line with professional competencies, has been argued to take place through a professional socialisation process by which students not only learn the theoretical basis and practical skills that are specific to the profession, but also learn the norms, values, rules and loyalties within the profession (Wenthworth, 1980; Wollmer and Mills, 1966). Professional socialisation has been defined as particularly occurring in the interaction between advanced professionals and novices (Wentworth, 1980), for which clinical education offers an excellent context (Miller and Solomon, 2002). Furthermore, the professional socialisation process enhances and produces the professional identity of learners (Öhman, 2001), which according to Wenger (1998) is developed through participating in professional practices and communities and is mutually constituted between individuals by communication. By this means, clinical education can be defined to form the professional identity among physiotherapy students (Strohschein, Hagler and May, 2002). Clinical education as such offers

a unique learning possibility that cannot be replaced elsewhere (Baldry Currens and Bithell, 2000).

However, it has been stated that physiotherapy education should "take a fresh look" at the professional socialisation process by examining how physiotherapy students actually learn the profession, considering that clinical education should not only enhance the professional growth of the students but also encourage them to develop the physiotherapy profession in future (Richardson, 1999a). Furthermore, criticism has been expressed towards the differences between the educational and practice cultures in the physiotherapy profession. This difference will lead to a situation where students first unlearn their knowledge in the school environment and then re-learn it in clinical settings, depending on the rules established in each workplace (Richardson, 1999b). Kotila (2000) has argued that students accept or reject the knowledge gained in the school environment depending on the experience from their clinical practice.

3.2 Learning planes in clinical education

Clinical education as a learning environment offers variable learning opportunities. In the workplace environment, student learning has been agued to take place in three planes: (1) by participation in actual work activities, (2) by direct supervising and (3) by indirect supervising (Billet, 2002). When participating in actual work activities, student learning takes place in undertaking daily activities, such as in practical learning sessions in which real physiotherapy practices are carried out. During practical learning sessions the participation of students can be peripheral when the student observes and listens to the professional at work, or full, referring to the situation when the student works independently. In their study on first-year physiotherapy students, Lindquist, Engardt and Richardson (2004) found that students regarded working with patients as important and wanted to participate in treatment sessions from the beginning of their clinical periods. However, these situations have been found to be stressful for both students and clinical educators. Students might be offered too complicated problems to solve or they might be left to work too independently with clients and without supervision. Clinical educators have felt uncertain of how to accomplish supervision during treatment encounters. (Onuoha, 1994.)

In Billet's second plane, learning occurs through the direct guidance of the clinical educator. In direct guidance, supervisors can use guidance strategies such as modelling, coaching, scaffolding or other techniques in developing the professional understanding and skill of students in actual working situations (Billet, 2002). Direct guidance has been found to be one of the most important elements in effective supervising in clinical education (Cottrell, Kilminster, Jolly and Grant, 2002).

In the third learning plane, guidance continues indirectly by focusing on transferring learning and extending the student's adaptability of knowledge to other situations and circumstances. In this plane the supervisor can use guidance strategies such as questioning, problem-solving and scenario-building in extending knowledge and developing professional understanding in students (Billet, 2002). Indirect guidance can occur in supervision discussion sessions or confer-

ences, which are mutual, face-to-face situations involving a student and clinical educator and can take place before or after a practical learning session. Indirect guidance offers students an appropriate opportunity to discuss, express ideas, solve problems, discuss experiences, ask and answer questions, and share feelings. Students can also plan or evaluate adequate and evidence-based practice for the client with indirect guidance from the clinical educator.

During a physiotherapy treatment session the reasoning process is rapid and students, especially in the first years of their studies, need more time than experts to think, plan, and reflect before making decisions. The physiotherapy students in Lähteenmäki's (2005) study mentioned being unready and feeling anxious and uncertain about independently implementing physiotherapy at the beginning of their clinical education. Therefore, it is important that students' level of task maturity (Higgs, 1992) and professional development is taken into account when organising and planning the organisation of each student's learning tasks and learning planes in clinical education.

3.3 Supervision in clinical education

The supervision interaction is a typical element of clinical education. The student's supervision is organised together with supervising professionals from workplaces and supervising teachers from educational institutions. A qualified physiotherapist who provides mentorship for students (EPBS, 2003) is called a clinical educator, clinical instructor, clinical supervisor or supervisor, and the supervising teacher can thus be called a clinical tutor. In this study the terms 'clinical educator' and 'tutor' are preferred.

In the educational process, the main responsibility of clinical educators is to take care of the daily supervision of physiotherapy students during clinical placements. They have been found to play a crucial role in enhancing student learning (DeClute and Ladyshewsky, 1993), and physiotherapy students have most frequently indicated the clinical educators as positive role models during their education (Öhman, Solomon and Finch, 2002). The presence of a role model within the profession has been stated to be one of the most important features in developing expertise in physiotherapy (Shepard, Hack, Gwyer and Jensen, 1999). Thus, the role of the clinical educator in constructing the image of the physiotherapy profession and expertise should not be underestimated.

The purpose of supervision is to encourage students to construct knowledge of their practice in powerful and productive ways (Nolan and Hoover, 2004). Supervision also aims to enhance student's professional development and professional learning. Through supervision a clinical educator can promote students to reformulate learning experiences and support reflectivity and self-directive learning. In other words, supervision opens the understanding of the professional by supporting students in giving new meanings to their experiences. Supervision not only individually affects student knowledge and know-how, but simultaneously enables clinical educators to develop the next professional generation (Baldry Currens and Bithell, 2000) and promote the physiotherapy profession (Bennet, 2003; Richardson, 1999b). The quality of the interaction between clinical

educators and students in particular has been stated to be the strongest element in developing expertise among students and in forming their professional identity (Shepard, Hack, Gwyer and Jensen, 1999).

However, the role of supervision in forming professionalism and in promoting a profession should be carefully considered according to the Anderson's (1988) broad analysis of the history of supervising. She argued that after reviewing the supervisory literature and whatever the profession is, the literature seemed to share some common themes about supervising, such as "lack of theory, limited or no validation of a wide variety of models and practices, lack of accountability, confusion of roles, the multidimensionality of the process, the extensive gap between research and actual practice, the need for research, lack of validation of methodologies for preparing supervisors, effects of personal variables of participants in the supervisory process" (Anderson, 1988, 45). Although the review was carried out twenty years ago, the findings are still worth consideration and study.

4 LEARNING AS INTERACTION

4.1 Social constructivist approach

This study focused on professional learning as an interactional phenomenon in clinical education. The first studies focusing on learning as interactional process were carried out in the 1960s, when Bellack and co-workers (1966) analysed classroom interaction. They compared classroom discussion to a 'language game'. Some years later, Flanders (1970) continued classroom interaction analysis by examining teacher actions in the classroom. At the same time, Bales (1970) introduced interaction process analysis, a system for scoring types of communication in small group interaction. Sinclair and Coulthard (1975) further developed a model (IRF) for analysing spoken language in the classroom environment. McHoul's (1978) research concerning the turn-taking system in "formal" classroom interaction was among the first conversational analyses to focus on institutional interaction in education. Mehan (1979) shifted the research focus to a more interpretative direction. He employed ethnomethodology in studying classroom interaction and analysed the construction of the meanings related to participation. Cazden (1988), as a sociolinguist, continued Mehan's tradition by arguing that spoken language represents peoples' identities. The above-mentioned researchers have undeniably had an effect on the advancement of research into authentic learning interaction and on transferring this knowledge to other sciences.

Approaches that point out the interactional element in learning could adopt elements of the social constructivist theory of knowledge, which emphasises understanding of the constructive nature of knowledge. Knowledge is understood to be constructed and enhanced in interactions between individuals within society and thereby knowledge is social in nature. (Gergen, 1985; 1999.)

The social constructivist approaches of learning define as crucial both the social "environment" that participants bring to the learning situation and the context in which learning occurs. These elements are understood to be in close interaction between each other. (Gredler, 1997.) Furthermore, learning is understood to comprise both individual and social processes in which knowledge and

skills are constructed through dialogue between participants when they solve problems and tasks together (Gergen, 1999; 2001; Kauppila, 2007, 113-114; Pintrich and Sinatra, 2003). Teaching and learning have been defined as reciprocal "endeavours". As such, learning does not just occur in one's head but through active engagement with individuals. Thus, the presence of other members in a particular learning process, such as teachers, clinical educators and other students, is crucial. Learning and teaching are comprehended to be more about how teachers are engaged with students than about what is taught. (Mostrom, 2004.)

Language, together with non-verbal actions, can be used as mediating tool in interactional processes. In social constructivist approaches, language is argued to possess a special function in constructing meanings in social practices. Language allows participants to change, organise and reform social reality. They can use language in doing things, explaining things to each other, and they can construct various versions of reality, depending on the context of the conversation. (Gergen, 1985.) The role of the teacher is that of mediating between students' "personal meaning" and the "culturally established meanings of wider society" (Cobb, 1994). Although, learning has been stated to occur when one's action, knowledge and understanding have been changed to a more argued direction (Pintrich and Sinatra, 2003), there has not been presented a clear definition of how learning actually can be identified in one's talk.

Besides interaction, social constructivist approaches emphasize the meaning of the contextual and situated nature of learning. This approach is especially emphasised in socio-cultural theory and has been developed by Lave and Wenger (1991), among others. This tradition is inter-related with the socio-constructivist approach and has been affected by the work of Vygotsky (1986). In Vygotskian terms, "the learning process is described best by a movement from the interpsychological plane (between or among individuals) to the intrapsychological plane (within the individual)". The influence of the environment in the learning process is argued to be so important that social constructivists state that learning should not take place in isolation from the environment (Gredler, 1997). The approach that points out the situated and contextual nature of learning is literally interested in the situations and environments where learning takes place and how it takes place, because the situations and the environments are assumed to affect what is learned and how it can be transferred to new situations.

As a learning context, learning tasks that simulate or are as similar as possible to real working life situations are considered essential for fostering proper learning (Tynjälä, 1998). According to Leinhardt, McCarthy Young and Merriman (1995), practical situations that simulate real working situations are the best means for students to transform abstract theories and formal knowledge into professional knowledge. Lave and Wenger (1991) assert that the practical knowledge in society is situated in relations among practitioners, their practice, and the social organization. Following from this definition, they prefer learning tasks and learning environments that involve practices where knowledge and practice are combined. Clinical education as a learning context implies the real work environment which, following the social constructivist approaches, offers a unique and real possibility to apply knowledge and rehearse practices with patients in treatment encounters. Clinical education serves as a professional environment where formal and informal interaction actually takes place.

4.2 Supervision as interaction

When considering professional learning as an interactional process, interactional supervising situations involving clinical educators and students are undeniably a focus of research interest. Supervision in clinical education has been found to take place in many forms and places (Anderson, 1988), but is mainly embodied in face-to-face interaction and communication between a clinical educator and a student. The supervising interaction can be considered as an institutional interactional situation where a professional and a lay person or person with less knowledge meet and interact. In this kind of situation the professional has a possibility to direct the interaction in desired and organizationally relevant ways, and hence also the agenda for the situation. (Drew and Heritage, 2001.)

In supervising students, clinical educators can employ different supervisory methods and means and they are basically in charge of selecting the appropriate supervisory strategy for each student. Researchers have agreed that no single instructional strategy is effective for all the learners all the time, as instructing and learning are complex processes that are influenced by many factors such as learners' attitudes, abilities, educators' competencies and the context (Killen, 2000). However, supervising offered by clinical educators has been found to be closely related to the clinical educators' own view of the goals of clinical education as well as their views of professional learning (Lähteenmäki, 2005). A discrepancy has been discovered between the opinions of students and clinical educators regarding supervision in clinical settings. Students have wanted their stage of study to be taken into the account in selecting the method of supervision and they have also expected to be treated equally during their clinical practice, whereas clinical educators have not rated these supervisory behaviours as highly as the students. (Onuoha, 1994.) At its best, clinical supervision can offer students a chance to learn without the fear of embarrassment from making mistakes (Griffiths, 1987). Hekelman, Blase and Bedinghaus (1996) demonstrated that by developing teachers' communication skills, student learning will improved.

In the learning process during clinical education the clinical educator and the student start to convey messages to each other in words and also by means of non-verbal communication and action. They learn these messages in the course of the clinical education. As the learning process is enhanced when students accomplishing tasks, clinical educators respond with verbal advice, hints, criticism, descriptions (Schön, 1987, 163-164), and also by practical demonstrations.

Demonstrating and modelling are challenging for clinical educators because they have to adapt their demonstration and possible verbal description to the students' level. Thus, the supervising process requires reflection by clinical educators. (Schön, 1987, 163-164.) During a practical learning session, when modelling treatment practices, clinical educators can verbalize their own practical knowledge while treating the client (Zanting, Verlop and Vermunt, 2001) and also reflectively question the student (Tomm, 1987; 1988) in order to activate the student's own mental processes. During supervision discussion, clinical educators can support open dialogue to facilitate reflective thinking among students (Noddings, 1984) or use video-recorded encounters (Holmström and Rosenqvist, 2004). Furthermore, they can conduct discussions in which the participants reciprocally, by analysing and changing perspectives, together observe and evaluate

the video-recorded practice (Schön, 1998, 278). When this dialogue works well, it acquires the form of a 'reflection–in–action' discussion. Discussion can be seen as a versatile instructional strategy that can be adapted to suit any subject/learning area at any level (Killen, 2000). The negotiation with and resolution of the work tasks has cognitive consequences, as these activities transform individual knowledge (Billet, 2002).

During clinical education the clinical educator and student have good opportunities to discuss future or past learning situations and the student's experiences in general. Zeichner and Liston (1985) examined the content of discussions between supervising teachers and student teachers in post-observation discussion as part of the student teachers' practical training. They distinguished four main types of discourse: factual, focused on describing the event in the previous practical learning sessions; prudential, where the preceding practical teaching session was evaluated; justificatory, focusing on the reasons employed when answering questions such "Why do this rather than that?"; and critical discourse, which examines and assesses the adequacy of the reasons offered as justification for the actions in the previous teaching session. Factual discourse occurred most frequently. This finding leads to the conclusion that in aiming to enhance and widen student comprehension of the physiotherapy profession it is important to recognize what is said and what kinds of issues are raised with physiotherapy students.

Vänskä (2002) developed a model for counselling discussion after studying counselling sessions in health promotion. This model is based on the constructivist view of learning and counselling and can be directly applied to the supervising situations in clinical education. This model implements the idea of shared expertise, meaning that both participants in a discussion are experts in their own area. The model aims to analyse the counsellors', as she calls supervisors, action in terms of the learners' learning process and its different phases. This model (Figure 1) has two main dimensions: the vertical and the horizontal dimension. In the vertical dimension the counsellor's background thinking about counselling is described. In the expert / teacher orientation the counsellor reflects a traditional, behaviouristic orientation to counselling and has a tendency for monologues, so the interaction becomes linear. At the other end of the vertical dimension is student-orientated counselling, in which the counsellor reflects the constructivistic and empowering approach and aims to activate reciprocal and dialogical communication in the counselling interaction.

Thus, the horizontal dimension considers the intention of the counselling discussion. On the left side, the counsellor orients to the situation of the student and on the right side intends to contribute to it. The model thereby divides the counsellor's intentions into charting, inquiring into the relationships between different parts of charting, reconstructing and supporting transformation opportunities. (Vänskä, 2002.)

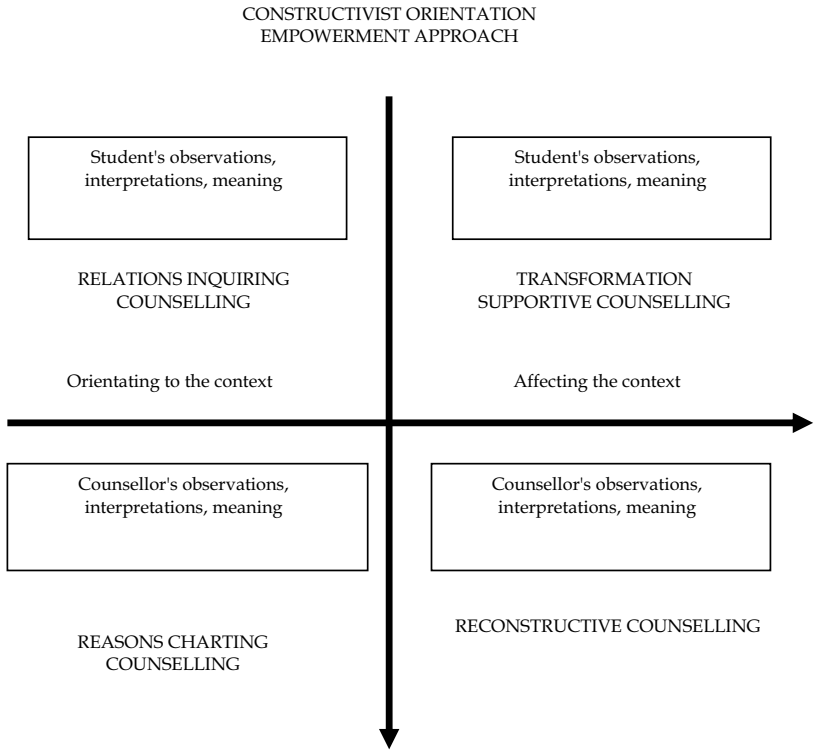

FIGURE 1 A model of shared expertise enabling counselling developed by Vänskä (2005). (Maunonen-Eskelinen, Kaikkonen and Clayton, 2005).

The idea of this model is that the progress of the counselling discussion and the selection of the counselling methods to a great extent depend on the concept of learning and counselling held by the counsellor. The basis of this model rests on the joint understanding of the counsellor and student of how meanings can be constructed for experiences. When aiming to transform the student's understanding, it means that the student has to change the meanings she or he adopts in this process. This transformation can be enhanced by the counsellor by applying different counselling methods that promote reflection and thereby support the creation of the new meanings. This transformation can be called learning. (Vänskä, 2002; Maunonen-Eskelinen, Kaikkonen and Clayton, 2005.) The model developed by Vänskä can be applied also in a clinical education context when analysing and developing the supervision process between the physiotherapy student and the clinical educator.

5 AIMS OF THIS STUDY

This study focused on natural learning sessions in physiotherapy students' clinical education. The purpose of this study was to analyse what kinds of meanings related to supervision, physiotherapy practice, client, and students' learning experiences were constructed in the learning sessions, and also, how these meanings were constructed. The study assumed that the student, the clinical educator and the client construct the meanings together in interacting with each other. Furthermore, the study presumed according to the socio-constructivistic approach that learning does not just occur in one's head but through active engagement with individuals. Thus, physiotherapy student constructs the professional learning and comprehension of the physiotherapy expertise by participating in the professional community and by accomplishing professional tasks in clinical education. The overall framework of the study is represented in Figure 2.

The specific research questions in this study were the following:

1. How do students and clinical educators construct supervised practical learning sessions? (Publication I)
2. What kinds of meanings related to physiotherapy practice do clinical educators and students produce, and how are these meanings constructed through discussion? (Publication II)
3. How is the client constructed in practical learning sessions and how is this construction organised between the physiotherapist, the student and the client? (Publication III)
4. How are the student's learning and learning experiences discussed between the clinical educator and the student and how is this discussion organised in supervision conferences as part of the clinical education of undergraduate physiotherapy students? (Publication IV)

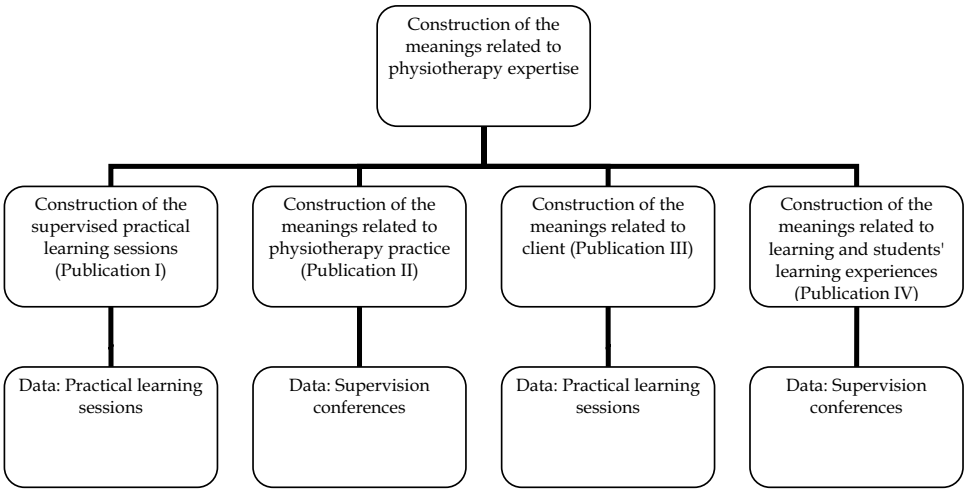

FIGURE 2 A framework of the study.

6 METHODS

6.1 Discourse analysis as frame of reference

Discourse analysis was used as a frame of reference in this study in analysing the data as it has been perceived as appropriate for the study of naturally occurring, collaborative conversational processes (Potter, 1998) and as the interest was not only in the interaction as such but in the meanings participants construct for professional practices in learning situations. Discourse analysis is a qualitative research approach in which the answers to research questions are produced inductively through analysing and interpreting the data (Hekelman and Blase, 1996). It is difficult to arrive at a clear definition of discourse analysis, as it describes a heterogeneous range of research, typically in social sciences, that is based on written or spoken communication. However, there is a clear understanding that discourse analytic research focuses on the language and on the acts not as an abstract entity but as a medium for social and cultural interaction (Potter, 1998). Language is considered to possess a two-dimensional function. The descriptions and accounts of language that the participants use in interaction with each other construct the world, and language itself reflects and is constructed by the surrounding world. Language, in this definition, can be understood to cover all kinds of interactional acts consisting, besides verbal talk, of non-verbal acts. (Potter and Wetherell, 1987.) In addition, language is defined to possess a transforming element: by employing language the meanings for things can be transformed.

Discourse analysis is characterised by a meta-theoretical emphasis on constructivism (Potter, 1998). The roots of the discourse analytic research tradition extend back to the 1970s, when both Habermas (1971) in Germany and Foucault (1972) in France started to use the concept of discourse in examining human action in society. The work of these researchers can be seen as a starting point for the development of the discourse analytic research approach that was divided into two separate research lines in later years: into the Anglo-American (influenced more by Habermas) and the French (influenced by Foucault) tradition (Potter,

1998.) The discourse analysis approach applied in this study has similarities and connections to the Anglo-American tradition. The Anglo-American research line has been further developed in the English-speaking countries and has been influenced and developed by researchers such as David Silverman, Jonathan Potter, Margaret Wetherell, as well as by Arja Jokinen, Kirsi Juhila, Anssi Peräkylä and Eero Suoninen in Finland.

In this study, discourse analysis was applied in analysing social interaction. Social interaction was understood to be constructed through simultaneous talking and body movements. More precisely, the analysis focused on the content, the organisation and the consequences of the talk and actions, and furthermore, on the concrete practices and actions employed in the interactional learning sessions between the participants.

The content of the interaction refers to what is done and spoken in the sessions, whereas the organisation and the concrete practices refer to how the actions and discussions are accomplished. Consequences, for their part, refer to what follows after employing particular talk or action, or in other words, how the participants respond to the talk or action. Concretely, this means that the analysis focuses on what is spoken and how, who initiates the action or discussion and how, what is answered and how, and what kinds of positions are constructed for the participants. Interactional situations are not stable, as when the interaction advances the forms of interaction and discussion also change.

However, discourse analysis directs beyond the accounts and the acts. As a qualitative research method, the purpose of the analysis is to understand and interpret the meanings participants construct by talking and interacting (Potter and Wetherell, 1987).

6.1.1 Interpretative repertoire and discourse

Discourse analysis applies the concepts 'interpretative repertoire' and 'discourse' as methodological tools for the interpretation process (Potter, 2000). The 'interpretative repertoire' as a concept is closely connected to the cultural interpretation linked to the actual social practice where the language is used. It is preferred when the purpose is to emphasize the construction of meanings in social practices. Potter and Wetherell (1987, 149) have defined the interpretative repertoire as follows: "Interpretative repertoires are recurrently used systems of terms used for characterizing and evaluating actions, events and other phenomena. A repertoire is constituted through limited range of terms used in particular stylistic and grammatical constructions."

'Discourse' as a concept arises from Foucault's (1972) tradition. 'Discourse' can be understand as a broader term and, according to Potter and Wetherell (1987), too broad to be used in analysing single speech practices. 'Discourse' refers to the institutional habits in using language and actions and, in addition, implies the system of meanings, which is relatively independent of individual actors. It is not as culturally dependent as the interpretative repertoire. (Foucault, 1972.)

An interpretative repertoire or discourse is often organised around specific metaphors and figures of speech. However, the interpretative repertoire and discourse are more than the group of the terms. They are like 'opportunities' to

understand the meanings of interaction and discussion. During an interaction, different acts and utterances affect the construction of meanings, and various interpretative repertoires and discourses can therefore be identified from the data. In research the interpretative repertoires and discourses are named metaphorically in order to reveal the general features of the repertoire or discourse to the readers. (Potter and Wetherell, 1987.)

The difference between these two concepts is subtle, and both were applied in this study. The similarities between the concepts are stressed and they are not understood as mutually exclusive. They were used to analyse and interpret the data as credibly as possible. In three of the original publications (II, III, IV) the 'interpretative repertoire' was employed and in the first publication (I) 'discourse' was used. 'Discourse' was chosen for that publication to better capture the variation in the interactional ways to construct supervision practices in the analysed sessions and thereby to better address the research questions.

6.1.2 The context of interpretation

Interpretation is always contextual in nature. In other words, when the context changes, so too does the meaning of the language. In discourse analytic research the context is understood to consist of the time, place, cultural habits, or institutionally legitimated tasks that are presented and might affect the language and actions of the participants in the interaction. (Jokinen, Juhila and Suoninen, 1993, 29-30.)

To assess the credibility and validity of the interpretation it is necessary to define the interpretative context. In this study, the interpretative contexts have been described in the introduction sections of each publication. The physiotherapy profession and professional learning cultures can be considered as broader interpretative contexts connecting the individual publications. The physiotherapeutic manoeuvres and treatment methods, as well as the relationship and interaction between the physiotherapist and client are implementations of the physiotherapeutic contexts, which are understood to be reflected through the discursive and interactional acts involving the clinical educator, student and client. Professional learning can be interpreted to arise in supervising practices and discussing habits and in the content of the talk and acts.

6.2 Data and data collection

The data in this study comprised video-recorded learning sessions taking place during the clinical education of undergraduate physiotherapy students. The research material was gathered as part of a larger research and development project conducted from 2000 to 2004 in a region of one university of applied sciences in Finland and entitled "The development of physiotherapy work and clinical education in physiotherapy" (Talvitie, Laitinen-Väänänen, Tikkanen and Nuutinen, 2003), the goal of which was to examine and develop physiotherapy practice, physiotherapy education and students' supervision in clinical education. The arrangements for the project were approved by the ethical committee of the Social and Health Services department of the City of Lahti, Finland.

Video-recording was carried out by the supervising physiotherapists (n = 30) who participated voluntarily in the project. The physiotherapists were asked to videotape their students' supervision sessions in the initial phase (2000-2001), in the middle, and in the end of the project (2003-2004) of the project to document their work. The video-recording was instructed quite openly only pointing out that the session should be a natural practical learning session for the student or a supervision discussion situation between the supervisor and the students. From the physiotherapists 21 returned a video and the data in total comprised 42 video-recorded supervision sessions. These videos documented two types of supervision sessions: practical learning sessions (n = 23), which were real physiotherapy treatment sessions for clients and in which one or two physiotherapy students performed the client's physiotherapy, and supervision discussion sessions (late conferences) (n = 19), where a clinical educator, students and in some sessions also the teacher discussed the preceding or forthcoming client treatment session.

From the practical learning sessions, all the videos that were recorded in the initial phase of the project (n = 13) were selected for the sample in publications I and III of this study. One of the videotapes was excluded because of poor voice recording; thus, the final sample comprised twelve practical learning sessions. These data amounted to a total of 5 hours 53 minutes of recordings, with individual sessions varying from 14 minutes to 44 minutes in length.

The initial phase was selected in purpose to describe the starting point of supervision practices in clinical education for the project. The selected practical learning sessions were organised in various part of the participating students' clinical education periods. A total of twelve physiotherapists, twelve physiotherapy students and twelve clients voluntarily participated in the practical learning sessions.

The video-recorded supervision conferences were organised in many ways. Some were organised between a teacher, a clinical educator and students. In some conferences, there were only one clinical educator and several students while in some sessions only one student was participating. Some conferences were organised prior to practical learning sessions and some after. In purpose to validate the research data, all the sessions where one clinical educator discussed with one student and which were organized after a practical learning session were selected as a sample for publications II and IV in this study. According to these selection criteria the sample included ten (n=10) video-recorded supervision conferences. The data occupied a total of 3 hours and 28 minutes of tapes, varying from 4 minutes to 36 minutes. The conferences were organised in the middle and in the end of the students' clinical education periods, referring here the time after two first weeks. A total of ten physiotherapists and ten undergraduate physiotherapy students voluntarily participated in the sessions. The data and the formation of the samples are presented in Figure 3.

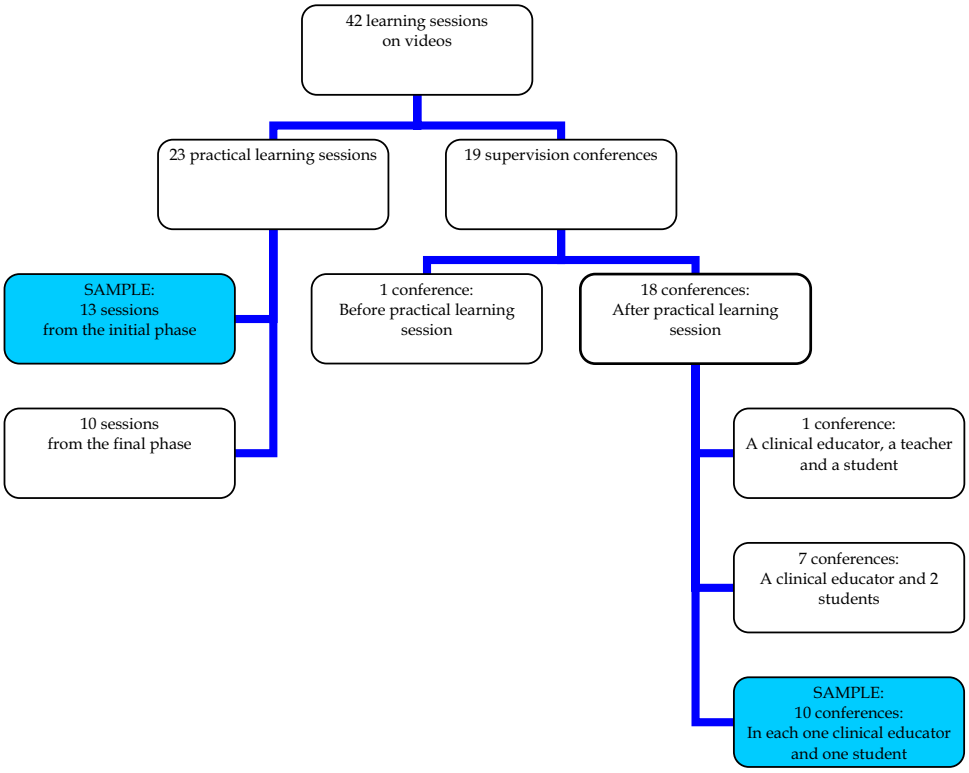

FIGURE 3 The data and formation of the samples in the study.

The physiotherapists working as clinical educators in this study ranged in work experience from 5 to 25 years. They worked both in public hospitals and in private physiotherapy clinics. They all had worked as clinical educators from the beginning of their working experience. None of them had taken special courses concerning supervision, except short one-day meetings once per year in a local university of applied sciences. Physiotherapists participated voluntarily in the research and development project and at the same time voluntarily in this study. They were informed verbally about the project at their workplaces and in the starting session of the project. More precise biographical information of the physiotherapists is presented in Tables 1 and 2.

The participating students were undertaking their clinical education in the supervisors' workplaces during the data collection period. They studied in the local university of applied sciences where they were completing their undergraduate physiotherapy education. They studied in their 2nd, 3rd or the last 4th year in their school and represented the whole range in stages of clinical study, from those in their second clinical education period during their second academic year to students in their final clinical education period during their final semester. Students were informed about the project in their school. Their participation was voluntary and each one was asked a verbal permission for video-recording. More precise information on the students, their year of study, and their experience of clinical education is presented in Tables 1 and 2.

The clients also participated voluntarily. They were informed verbally prior to the treatment session about the purposes of the project and they were signed a permission to video-record their treatment session. In the case of children their parents gave the permission. Clients comprised both inpatients in hospitals and outpatients visiting the physiotherapy clinic from home. They suffered different kinds of functional problems and represented a range of ages. More detailed information on the participants is presented in the original publications.

TABLE 1 The supervising physiotherapists and the students in the practical learning sessions.

Physiotherapists:

Age group	Number of physiotherapists (n = 12)	Working experience (in years)
36 – 40 years	4	9 -11 years
41 – 45 years	3	12 – 18 years
46 – 50 years	5	17 – 25 years

Students:

Year of study (max 4)	Number of students (n = 12)	Practical experience of clinical education (months and weeks)
2nd	4	5 weeks
3rd	6	4 months
4th	2	more than 8 months

TABLE 2 The supervising physiotherapists and the students in the supervision conferences.

Physiotherapists:

Age group (years)	Number of physiotherapists (n = 10)	Working experience (in years)
26 – 30	1	5
31 – 35	0	0
36 – 40	2	10 -11
41 – 45	4	6 – 20
46 – 50	3	20 – 25

Students:

Year of study (max 4)	Number of students (n = 10)	Practical experience of clinical education (in months and weeks)
2nd	2	5 weeks
3rd	2	4 months
4th	6	more than 8 months

6.3 Data analyses

The discourse analysis developed by Potter and Wetherell (1987) was applied when conducting the analyses in this study. Not being a strict analytical tool, it gives freedom to revise the analysis according to the purposes of the ongoing study (Potter, 1998). Before analysis a detailed and complete transcription of the discourses between the participants in each video-recording was performed. The transcription symbols are listed and explained in Appendix 3. The analyses involved close and repeated viewing of the videos and close reading of the transcriptions concurrently. In each analysis process the analysis started by reading the transcriptions and watching the video to gain an overview of the data. The process proceeded by identifying the episodes from the data in which the relevant research interest was observed to occur. To the selected episodes the non-verbal interaction, i.e. activity associated with the discussion, was added. Furthermore, the episodes were then more closely analysed.

According the social constructivist approach, in analysing social interaction it is possible to distinguish the contextual aspect that reflects the meanings transformed by the language and the interactional aspect describing the structure and the form of the interaction (Edwards and Westgate, 1994). This study focused discourse analysis on both the organisation of the discussion and interaction and on the content of the speech. By identifying differences and similarities from the episodes and by combining them, different discourses and interpretative repertoires relating to each research interest were identified. Furthermore, the discourses and interpretative repertoires were metaphorically named to highlight their special features. The analytical processes are described more precisely and the results are presented by using extracts from the data in the original publications. In the extracts the transcription and the activity associated with the discussions, being originally Finnish, were translated into English to be as truthful as possible and maintain the content of the discussions.

7 SUMMARIES OF THE RESULTS FROM THE ORIGINAL PUBLICATIONS

In the next chapter the results of the four original publications are summarised. More detailed findings are presented in each original publication.

7.1 The construction of the supervised practical learning sessions

The first purpose of this study was to examine how physiotherapy students and clinical educators construct supervision in the practical learning sessions that form part of the clinical education. The focus was on the forms of interaction between the clinical educators and the students. By analysing 12 video-recorded practical learning sessions and applying discourse analysis, three supervision discourses emerged from the data: 'directing the interaction', 'making limited room for the student' and 'encouraging the student's participation'. In 'directing the interaction' the clinical educator was in a leading position and by giving instructions and by other kinds of initiations guided the session forward. In 'making limited room for the student', students were given more room to participate and raise their ideas about physiotherapy. This room was given by the clinical educator through applying interactional means. In 'encouraging the student's participation' the clinical educator even encouraged the student to participate, for instance by asking questions.

The results demonstrated that supervision can be constructed differently during clinical education. Clinical educators seem to have a dominant role in constructing practical learning sessions. However, the students have an opportunity to participate by practically accomplishing the treatment and by asking questions and suggesting opportunities to carry out the physiotherapy. Depending on how the supervising interaction is constructed, it seems to be possible for clinical educators to support or even prevent student participation in clinical decision-making, as well as to promote or reject student rehearsal of critical thinking or self-directedness.

7.2 The construction of physiotherapy practice

The second purpose was to examine what kinds of meanings related to physiotherapy practice were produced by clinical educators and their students, and how were these meanings constructed by means of discussion in supervision conferences. By analysing ten videorecorded supervision conferences and by applying qualitative discourse analysis, three interpretative repertoires relating to physiotherapy practice were identified: 'treatment-skill', 'theory-based' and 'experience' repertoires. In the 'treatment-skill' repertoire, physiotherapy practice was constructed as a course of treatment manoeuvres or as a manual and verbal skill. In the 'theory-based' repertoire the discussion of physiotherapy was raised to a more abstract level and elements were identified where the theoretical basis of physiotherapy was considered. In the 'experience' repertoire, physiotherapy was considered from the perspective of the student's own experience.

The results indicated that although physiotherapy practice seemed to be discussed quite uncritically and unreflectively, this publication highlighted the supervision discussion sessions in clinical education as an arena for critical analysis of physiotherapy practice and thereby assisting in bridging the gap between theory and practice in the physiotherapy profession. Furthermore, the findings indicated that the clinical educators seemed to play an important role in revising students' comprehension of physiotherapy practice by conducting the discussions. However, repertoires where the comprehension of physiotherapy practice was constructed in joint understanding between clinical educators and students were also observed.

7.3 The construction of the client

Furthermore, the meanings related to the client and the construction of the meanings was examined in this study. The basic assumption, following social constructivist theory, was that the meanings were constructed in the interaction between participants in their dialogue and actions. By applying discourse analysis to twelve videotaped practical learning sessions four constructions of the client were identified. These interpretative repertoires were named according to the client's role in the interaction as 'receiver ', 'executer', 'participator' and 'fellow'. In the 'receiver' repertoire the client passively received the treatment from the clinical educator and the student. In the 'executer' repertoire the client could participate by practically accomplishing the given instructions. In both the previous repertoires the clinical educator and the student acted quite dominantly, leading the sessions forward. Thus, in the 'participator' repertoire the client could participate more in the construction of the session and in the construction of the content of the treatment. The roles of the clinical educator and student were constructed more equally with that of the client than in the previous interpretative repertoires. Finally, the 'fellow' repertoire was an interesting combination of the previous repertoires. In this repertoire the student accomplished the passive exercises with the client and the client received them but at the same time he and the clinical educator actively discussed with each other like fellows.

The results revealed a traditional client's role in health care. However, episodes and interactional ways for the client to participate emerged. Furthermore, the publication revealed the multidimensionality and contradictory construction of the client during sessions where two professionals differing in knowledge and skills were working together. Although the professional appeared to play a dominant role in constructing the clientele, the client's eagerness to participate was crucial. In order to promote student understanding of client-centred care and how client-centeredness should be organised by means of interaction, the practical learning sessions need to be well organised and offer a possibility to discuss and assess the interactional elements of the treatment encounters afterwards.

7.4 The construction of the students' learning experiences

This fourth purpose was to examine the content and organisation of discussion concerning student learning and learning experiences in supervision conferences. By analysing the ten supervision conferences and by applying discourse analysis, four interpretative repertoires related to learning and learning experiences were identified. The repertoires were metaphorically named: 'student constructs learning', 'learning as a bodily experience', 'learning as exploring new ways to accomplish physiotherapy' and 'learning as professional development'. In the 'student constructs learning' repertoire, learning experiences were constructed from the student's point of view. The 'learning as a bodily experience' repertoire focused on simultaneous practical skills rehearsing and enhancing the student's own thinking and understanding by verbal discussion. In both of the previous repertoires the reflective element was observed to occur. In the 'learning as exploring new ways to accomplish physiotherapy' repertoire, the evaluation and consideration of discussion allowed the student to discover new opportunities to construct physiotherapy, although in this repertoire the preceding physiotherapy encounter was also only repeated and described. The fourth repertoire, 'learning as professional development', consisted of discussion sessions where the student's learning experiences were discussed analytically and as part of the student's own professional development process. The student's practical experiences were raised to a more theoretical level and new meanings were given to them.

According to the results, supervision conferences consisted of both verbal discussion and demonstration of techniques that aimed to give opportunity to rehearse the physiotherapy methods. The clinical educators played an essential role in affecting the organisation of the conferences and the content of the discussion. However, learning as a word was seldom used. No indication of discussion where the student's understanding of physiotherapy practice was enhanced to transfer to a more abstract level or to other physiotherapy situations was observed. This is perhaps because the conferences were held after practical learning sessions and most of the identified repertoires focused on the preceding treatment. However a repertoire, where the student's own professional development during the clinical education period was identified.

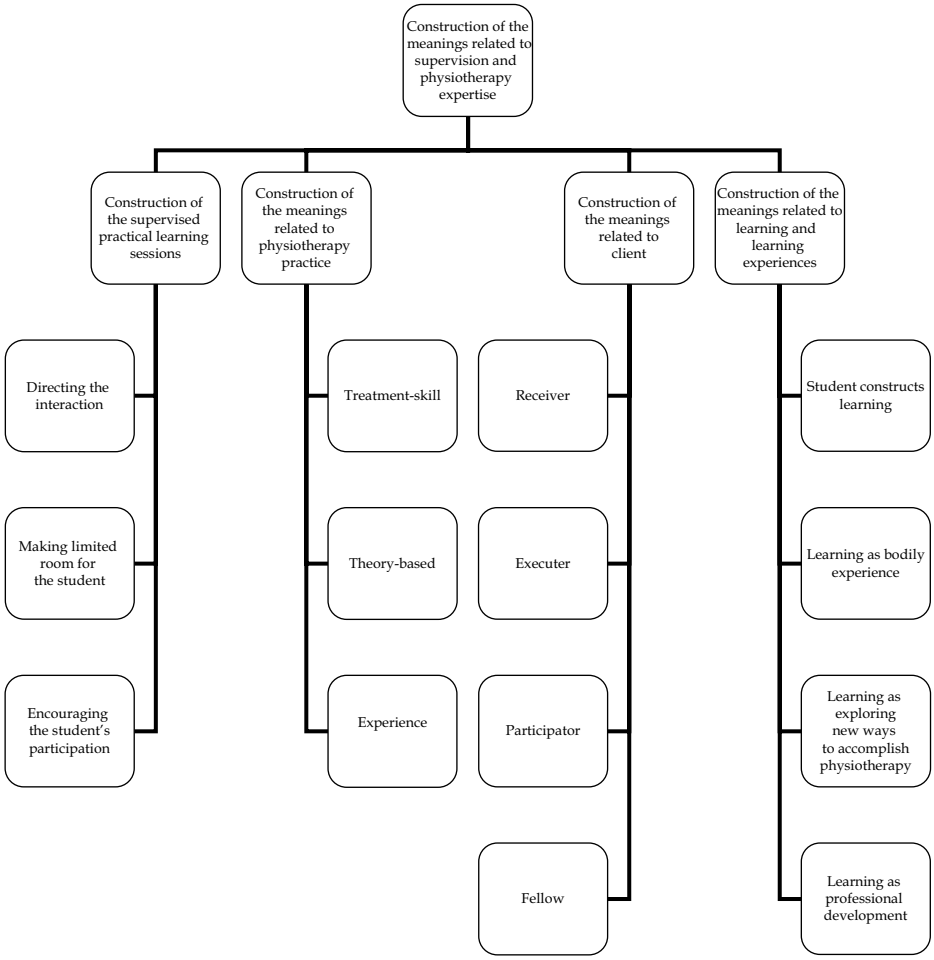

FIGURE 4 Summary of the findings.

8 DISCUSSION

8.1 The construction of the supervised practical learning sessions

The study revealed that the clinical educator have an initiating and a crucial role in organising and constructing the content of the practical learning sessions. The social identities of the participants can be constructed by applying the discursive patterns of the interactional situations (McHoul, 1978).In this study, in constructing the directive role, the clinical educators applied discursive patterns such as giving instructions to the student on how to accomplish the treatment, modelling or demonstrating treatment practices themselves, and by asking questions or making other kinds of initiations by which they could direct the content of the interaction. If students' initiations occurred, they were ignored. This kind of initiating role of the counsellor and the problem of student passivity during supervision conversations have also been noted in a study by Vehviläinen (1999) where she studied interaction in counselling encounters during career guidance training. By assuming a directing role, clinical educators also have a possibility to focus student attention on the essential elements of the physiotherapy profession and on physiotherapy expertise from the clinical educator's point of view.

This study revealed that the supervision of clinical educators focused on renaming and describing the practical activities in the treatment, such as practical skills and manual assistance. This type of supervisory interaction does not appear to promote critical thinking or reflective practice, which are regarded as important characteristics of the physiotherapy profession in clinical practice (Richardson, 1999a; 1999b). According to Öhman, Solomon and Finch (2002), an ongoing challenge in physiotherapy education programmes has been to find the balance between enhancing students' critical thinking, reflective practice and self-directedness as well as practical clinical skills and to bridge the gap between theory and practice in physiotherapy (Hunt, Adamson, Higgs and Harris, 1998; Richardson, 1999a; Roskell, Hawison and Wildman, 1998).

In institutional interaction where professional and lay people meet and interact, the professional typically directs the interaction in desired and organiza-

tionally relevant ways and hence also the agenda for the situation (Drew and Heritage, 2001). If participants who are novices and have less power in institutional interaction, such as the physiotherapy students in this study, do not become aware of the authoritative nature of their profession, this will inevitably lead to asymmetrical interaction in which one participant controls the interaction through his or her statements (Heath, 2001; Wintermantel, 1991). Higgs (1992) has argued that a learning model that involves asymmetrical decision-making and gives responsibility to teachers might promote passivity and dependence in students, as observed in this study.

Besides the directing role of the clinical educator, the students were observed to have their own opportunities to participate during practical learning sessions. In such sessions, clinical educators supported student participation by leaving more room for the students to express their thoughts and ideas by delaying the giving of direct advice. Clinical educators also encouraged students to participate by asking open questions, like counsellors, and this way invited students to interact. Students were thereby given an opportunity to grasp the idea of the therapeutic exercises, implement their own ideas about the treatment, rehearse treatment manoeuvres, become involved in the decision making about treatment, and express and share their ideas and thoughts. Thus, the students were able to work in a more self-directed manner.

Although students had the possibility to participate, some episodes were observed where the students were not eager to take the opportunity to work as independently as the clinical educator offered. Those physiotherapy students at the beginning of their clinical education were found to be unready for independent working and reported feeling anxious and uncertain in independently implementing physiotherapy (Lähteenmäki, 2005), even though they have expressed a wish to work with real clients from the beginning of their physiotherapy education (Lindquist, Engardt and Richardson, 2004). Schön (1987, 166) has argued that real working situations can be effective experiences for students, because they just have to jump into the doing without knowing in essential ways what needs to be learnt. This provokes feelings of helplessness. However, such a response is something that one cannot pass over and it is part of the process of learning a practical profession. Therefore, clinical educators must accept that there is no way to prevent this feeling, especially at the beginning of professional education.

In the episodes where students were not eager to participate the final decision-making concerning the treatment was left to the clinical educator. During a physiotherapy treatment session the clinical reasoning process can be rapid and novice students need time to think and plan before making decisions. The clinical reasoning process in physiotherapy is actually a mental process that needs to be practiced by integrating practice and knowledge. There are grounds to assume that by verbalizing their own reasoning process, while modelling treatment practices, asking open questions, and avoiding direct answers, clinical educators could open their own reasoning process to the students. This way student's reflective practice and comprehension and understanding of the decision-making process in physiotherapy practice could be enhanced.

8.2 The construction of the physiotherapy profession and expertise

In this study, physiotherapy expertise was analysed by focusing on the construction of physiotherapy practice and the client, and how they were produced by means of interaction in learning sessions during clinical education.

8.2.1 The construction of physiotherapy practice

Although the professional development of expertise in physiotherapy is a lifelong process, physiotherapy students start to construct their comprehension of physiotherapy expertise during their undergraduate physiotherapy education. Publication II focused on the construction of physiotherapy practice during supervision conferences in the discussion between clinical educators and students. The study revealed three interpretative repertoires through which the meanings related to physiotherapy practice were constructed. The most frequently appearing repertoire consisted of discussion of the manoeuvres or the practices employed in the preceding practical learning session. The clinical educators taught and rehearsed the treatment manoeuvres with the student in practice or asked the students to name and describe what they had done with the client in the preceding practical learning session, thereby chronologically following the course of the exercises. This discussion repertoire has similarities with Zeichner and Liston's (1985) factual discourse. Factual discourse focuses on the events in a previous working situation. This kind of discussion, where the profession is understood as a series of practical manoeuvres, reflects the technical direction of the profession (Öhman, Solomon and Finch, 2002). Previous studies have indicated that in physiotherapy much attention has focused on the application of techniques and approaches, especially in neurology and musculoskeletal physiotherapy (Richardson, 1999b). Furthermore, physiotherapists have been criticised for rarely exploiting theoretical knowledge as a basis for their practice (Roskell, Hawison and Wildman, 1998) and the physiotherapy profession has therefore been challenged to move from a technical, hands-on perspective to a more academic perspective. Research and theory are as important in clinical practice as practical skill acquisition (Öhman, Solomon and Finch, 2002).

However, an interpretative repertoire was observed in this study in which an effort was made to raise the physiotherapy discussion to a more abstract level. The students were given an opportunity to deliberate the theoretical basis of physiotherapy practice and distance themselves from the preceding treatment sessions. This repertoire has similarities to Zeichner and Liston's (1985) justificatory discourse, where the justifications for professional practices are discussed and searched for. This repertoire presented an opportunity to construct research- or evidence-based physiotherapy when assessing the treatment in terms of scientific knowledge. By discussing the theoretical basis of the physiotherapy methods and allowing the students time to find the answers, an attempt was made to bridge the theory-practice gap (Roskell, Hawison and Wildman, 1998), which has been argued to occur in many forms in the physiotherapy profession and even in undergraduate education. Furthermore, Öhman, Salomon and Finch (2002) emphasise this argument by stating that physiotherapy students should learn the

theoretical approach to physiotherapy during their undergraduate professional education in order to understand and accept its importance within the profession. As physiotherapy students have been found to regard clinical educators as more important role models than faculty members (Öhman, Salomon and Finch, 2002), it is important that the clinical educators themselves, in practicing physiotherapy, are aware of and apply evidence-based practices and methods.

Furthermore, this study revealed that meanings for physiotherapy practice can also be constructed from the student's point of view. In one repertoire the discussion between the clinical educator and the student focused on the student's inner experience in practicing physiotherapy. This repertoire can be interpreted to reflect the elements of reflective discussion. Reflection is considered to be an important part of physiotherapy practice and clinical decision making (e.g. Donaghy and Morss, 2000; 2007; Jensen, Gwyer, Shepard and Hack, 2000; Mostrom, 1999) and in addition, as one of the competences for physiotherapy education (Ven and Vyt, 2007). In initiating reflectively-oriented discussion in a supervision conference, the questioner plays an essential role (Tomm, 1988). Tomm (1987; 1988) presented a pattern of reflexive questions for use in family therapy situations, which can be adopted and applied to various situations in order to enhance reflectivity. He divides reflexive questions into future-oriented, observer-perspective, unexpected context-change, embedded-suggestion, normative-comparison, distinction-clarifying, hypothesis-introducing and process-interruption questions. While these questions can be applied in different ways during discussions according to the ongoing purposes, their crucial aim is to enhance self-awareness, to trigger reflexive activity, and to open spaces for the answerer to see new possibilities (Tomm, 1987). The awareness to apply these kinds of questions and thereby conduct a reflective discussion offers students a possibility to rehearse reflective thinking during treatment sessions or supervision discussions. In addition to applying reflective questioning in supervision, the reflective practice of physiotherapy students has also been argued to be enhanced earlier in the professional physiotherapy programme by integrating clinical placements throughout the academic studies (Wessel and Larin, 2006).

8.2.2 The construction of the client

The ideal environment for physiotherapy students to learn and rehearse the interaction with clients /patients is clinical education. Students have argued to learn about patient-therapist relationship and patient education by watching their clinical educators (Wessel and Larin, 2006). In this study (Publication III), four interpretative repertoires were identified through which the meanings related to the client were constructed. The study revealed a multidimensional and a partly contradictory construction of the client in practical learning sessions. One of the identified repertoires described a professional interaction where the client was portrayed as a recipient of physiotherapy. The physiotherapist and the student performed the majority of the talking and all the manoeuvres, while the clients remained quiet and passive. Clients were not invited to join in the interaction, even if they were capable of communicating. They liked to receive treatment. In another identified repertoire the clinical educator and the student were also active in constructing the content of the treatment. However, in this repertoire the client could participate by performing the given instruction, although he/she did

not participate in the goal-setting or the construction of the content of the treatment session. These repertoires embodied the traditional and the typical role of the client in healthcare, which has been observed in many previous studies (e.g. Heath, 2001; Kettunen, Poskiparta, Liimatainen, Sjögrén and Karhila, 2001). Physiotherapists have been argued to tend to take control of the patient encounters at the expense of patients' participation in decision-making (Talvitie and Reunanen, 2002; Thornquist, 1994).

The traditional treatment techniques and methods which are observed to be applied in physiotherapy are based on manual guidance (Talvitie, 1996) or the use of touch (Roger, Darfour, Dham, Hickman, Shaubach and Shepard, 2002), which inevitably places the client in the role of a passive receiver of the therapy. Therefore, in order to answer to the demands for patient-centred care set for the physiotherapy profession, the physiotherapist needs to be aware that each physiotherapy method, as such, places the client in a certain position in the therapy process, and that the application of methods or techniques will therefore affect the client's position in the treatment process.

A further repertoire with more equal participation of the client was also observed to occur. In this repertoire the client was constructed in mutual and joint understanding between the physiotherapist, the student and the client. The professionals questioned and instructed the client, who immediately responded and implemented the instructions. The interaction was mutual and advanced by turn between the professionals and the client. Questioning and instructing as such offered the client a possibility to participate in the creation of the reality of the treatment session. Questioning and advising strategies were stated to be crucial in building empowering conversation in healthcare counselling (Poskiparta, Liimatainen, Kettunen and Karhila, 2001). Empowerment is defined as a process as well as an outcome of developing the skills and perceptions of clients (Kettunen, Poskiparta and Liimatainen, 2001). It is based on the philosophy that the patient is an equal and autonomous member of the rehabilitation team (Feste and Anderson, 1995). Empowerment is closely connected to the concept of patient-centred care, which highlights the client as a subject of care or rehabilitation (Price, 2006).

This study revealed that the construction of the client in the physiotherapy sessions is more than simply passive or active participation to the interaction and therefore the interaction between the participants can become a contradictory process in the treatment sessions. This contradiction was apparent between the informal conversation, or chatting, between the client and the clinical educator and the client's simultaneously passive role as a receiver of treatment from the student. This finding supports the argument that it is important for professional physiotherapists to be aware of the interactional means by which patient-centred care can be constructed especially when Dahlgren (1998) has argued, in her study where she interviewed physiotherapy students during their education, that students do not manage to achieve a patient-centred attitude during the course of their educational programme. However, when expected that the discreteness of the client-professional interaction should be learned by participating in actual healthcare encounters in clinical situations, as in clinical education (Baldry Currens and Bithell, 2000), this finding challenges supervising physiotherapists to be able to verbalise and conceptualise to the physiotherapy students the means by which they support the client's participation.

8.3 The construction of the students' learning experiences

The overall purpose of clinical education is to enhance student learning. In publication IV, four interpretative repertoires were identified through which the meanings related to professional learning and the student's learning experiences were constructed in supervision conferences. In two of the repertoires the meanings for the student's learning experiences were found in the treatment practices accomplished in the preceding treatment encounter, which could be typical while the supervision conferences were organised after a physiotherapy treatment sessions. However, the interaction in these two repertoires was constructed differently: in one repertoire the student himself constructed the discussion by his initiations and in the other the clinical educator initiated the interaction by asking the student to rehearse the treatment practices together with her. The latter kind of discussion has similarities with the Van Manen's (1977) practical level reflectivity, which he reported in developing his three-level reflectivity taxonomy. Supervision discussions focus then on practical applications, such as working practices. In addition, previous studies on physiotherapist and patient discussions in physiotherapy treatment encounters (Talvitie and Pyöriä, 2006) have revealed that talking about physiotherapy exercises and manoeuvres passes over the interactional and patient-centred elements of physiotherapy in treatment conversations. Supervision discussion, which focuses on the treatment manoeuvres, directs student attention to the practical skills, although the ethos in health care has directed the focus towards patient-centredness (Johnson and Webb, 1995; Williams and Harrison, 1999). Therefore, when seeking to direct the comprehension of physiotherapy expertise among students towards empowering patient resources, the patient's viewpoint should be raised for discussion during already clinical education.

Self-assessment skill has been mentioned to be one of the skills needed from future professionals in health care (e.g. Richardson, 1999a; 1999b) and this skill has been argued to be connected to life-long learning (Boud, Keogh and Walker, 1985). This study revealed a repertoire where the clinical educators by giving feedback and asking questions supported the student's self-assessment and directed the learning focus towards critical and reflective practice. Receiving feedback has been stated to be an important element in supporting professional development, and physiotherapy students have expressed the desire for regular, frequent, and constructive feedback from clinical educators (Onuoha, 1994). Questioning in the teaching situation, for its part, promotes the student's own thinking (Cazden, 1988).

In addition, this study identified a repertoire in which learning was constructed by discussing the student's professional development. The facilitation of professional development is undeniably an important and overall aim of clinical education. The construction of a professional identity as well as professional development have been argued to be enhanced by participating in professional practices, in Wenger's (1998) words, in 'communities of practice'. In professional communities, students can share joint experiences and have discussions in formal and informal situations with more experienced physiotherapists. They can thereby share the practice as well as the knowledge, and especially during this sharing process the participants can learn from each other. The sharing proc-

ess is mutually constituted between individuals in communication and calls for interaction and reciprocity. (Wenger, 1998.) Clinical education and supervision conferences offer more experienced professionals and students a possibility to share knowledge and to analyse the student's professional development process and the elements that have supported or rejected this process.

When comparing the findings concerning the construction of the meanings related to professional learning and learning experiences in the supervision conferences with Billet's (2002) learning planes in the workplace environment, it can be argued that the results of this study represent the second plane. Learning was evidently enhanced by guidance. Supervision conferences as an educational forum also offer a possibility for the third plane, where learning is transferred to other situations and circumstances. However, no elements of this kind of discussion were identified in this study.

8.4 Conclusions from the findings

According to the results of this study, clinical educators play a directing role in constructing the interaction in practical learning sessions. In this role, they have a possibility to direct student attention to the essential elements of the physiotherapy profession. By applying discursive methods, clinical educators can extend student understanding and knowledge of the physiotherapy profession and expertise. In addition, by being aware of the level of professional development in students, they can plan appropriate learning tasks, practical learning sessions and supervisory methods for the student.

Furthermore, it can be concluded that the interaction in practical learning sessions is multidimensional and the situation can become complicated for the participants. The patient's position and opportunities to participate can be difficult to construct and the patient can easily remain an outsider, especially where the clinical educator and the student communicate with each other about the ongoing treatment. Although the traditional elements of physiotherapy practice were observed in the study, meaning the patient's passive role during the treatment session, supervision discussions were also observed where physiotherapy practice was constructed in a more patient-centred way. This observation challenges clinical educators and physiotherapists to be aware of the interactional elements that support patient participation during treatment interaction.

Besides revealing a technical and mechanistic orientation to physiotherapy practice, learning sessions with elements of evidence-based practice were also noted. Episodes and repertoires of this kind are important to recognise in supervisory interaction sessions and should be carefully analysed in aiming to enhance the development of theory-based physiotherapy among students.

In addition, this study showed that clinical educators did not conduct discussions in supervision conferences aimed at transferring the students' learning experiences to other circumstances or reformulating them to interact with theoretical knowledge. Furthermore, the study revealed that even though self-assessment skills have been mentioned as one of the core skills for future professionals

in social and health care, only some elements of this kind of discussion were observed in our study.

Considering the methodological limitations and the fact that this study focused only on the undergraduate level of the physiotherapy education, it can be concluded that this study has given a fresh insight into the opportunities to construct and widen understanding of the role of clinical education in enhancing the professional development of physiotherapy students, in promoting evidence-based practice, and in developing the next generation of physiotherapists. Furthermore, the study increased our understanding of both the interactional and the discursive practices employed in learning sessions during clinical education.

8.5 Credibility and limitations of this study

This study employed a qualitative research approach. While qualitative research is always associated with interpretation and interpretation is associated with the context, in justifying the credibility of the study it is necessary to describe the data context, the analysis process, and the interpretation process as exactly as possible. In this study the steps developed in discourse analysis were followed and applied. This means that the analyses and interpretation processes were described thoroughly and openly in the original publications, and the research material was presented in extracts, turn-by-turn, in order to allow readers to assess the analysis and make their own judgments concerning the interpretations. The interpretations were supported by comparison with previous studies in the discussion chapters.

Video-recording as a data collection method succeeded in capturing the actual interaction between the participants in the learning sessions. Furthermore, it offered an opportunity to review the sessions several times and to check the interpretation in the analysis phase, and thereby enhanced the credibility of the study (Paterson, Bottorff and Hewat, 2003). Discourse analysis seemed to be an appropriate, although laborious, method to address the research questions. Not being a strict analytical method it gave freedom to conduct the analysis in the line of the ongoing research questions. However, this freedom challenged the analysis and the interpretation process. It appeared important to write down exactly the steps followed in the analysis phase to open this process as reliably as possible to the readers.

Discourse analysis as a frame a reference focuses on the construction of social practices and on the meanings constructed in the interaction between participants. Hence, it leaves out the participants' inner, experienced element, which interviews with educators and students or other analytical methods could have captured.

The students in this study represented all stages of the undergraduate physiotherapy education programme. Moreover, the clinical educators had quite a broad range of supervisory and work experience. By limiting these ranges, e.g. selecting students from a particular year of study and clinical educators with a similar level of supervisory experience, the findings could have been more de-

scriptive. However, this study succeeded in highlighting the importance of learning sessions in the clinical education of physiotherapy students.

When making generalizations on the basis of the results of this study it is important to consider the small number of analyzed sessions which were selected as a sample according to the inclusion criteria. For the analysis of supervision conferences the aim was to select interactionally similar one-to-one situations, i.e. organised post-practical learning sessions, in which the discussion did not cover the whole clinical education period and therefore the inclusion criteria could have biased the findings. However, the practical learning sessions were selected for analysis from the beginning of the project, as it was hoped that the larger development project might already begin to influence supervisory practices during its course. According to Lincoln and Guba (1985), the abstract knowledge obtained from this kind of research design should be generalisable to other social contexts sharing similar structures. However, the main purpose in this qualitative study was not to make generalisations, but to describe the reality of learning sessions in clinical education and raise educational issues for consideration and discussion by the physiotherapy profession.

8.6 Challenges for future research

This study raised a number of opportunities for further research. In order to widen our understanding of the meaning of supervision as an interactional process in the clinical education of physiotherapy students, it would be interesting to interview students and clinical educators immediately after practical learning sessions. In addition, a study could be carried out involving stimulated recall interviews, where the participants could review the preceding treatment situation and simultaneously explain how they experienced the events. Furthermore, in aiming to hear the client's voice and experience concerning the multidimensional practical learning session, clients could also be interviewed.

This study did not focus on the social identities constructed for the participants in the interactional learning sessions. Therefore, it might be interesting to further analyse the identified interpretative repertoires and determine what kinds of social identities are constructed for students and clinical educators, and how. Furthermore, this study did not compare the supervising practices used with new students beginning their studies with those for graduating students. Hence, this comparison might be interesting to make. In order to analyse the changes occurring in supervising practices in the course of the physiotherapy education programme, individual students or student cohorts could be interesting to follow. In addition, by focusing the analysis on the practical learning sessions of Master's-level students, our understanding of how meanings related to physiotherapy are constructed through the same kinds of repertoires as in this study could be broadened.

Previous studies have argued the need for international comparisons in physiotherapy education (Lindquist, 2006; Öhman, 2001). Considering the opening labour market in Europe and the challenges arisen from he Bologna process there is an apparent need to standardise professional education practices, harmonise and make transparency education processes as well in clinical education.

A study examining comprehensions of the relevancy of supervision in clinical education or comparing supervision practices in different educational cultures would give a fresh opening for discussion.

YHTEENVETO

Opiskelijan ohjauksen ja fysioterapian asiantuntijuuden rakentuminen: Laadullinen tutkimus fysioterapiaopiskelijan oppimistilanteista työharjoittelussa.

Ohjatulla työharjoittelulla ja opiskelijan ja työharjoittelun ohjaajan välisellä ohjaussuhteella on todettu olevan tärkeä merkitys fysioterapiaopiskelijan ammatillisen identiteetin ja asiantuntijuuden rakentumisessa. Työharjoittelukokemuksen perusteella opiskelijan on väitetty joko hyväksyvän tai hylkäävän oppilaitosympäristössä oppimansa. Työharjoittelussa opiskelija voi hakea merkityksiä oppilaitoksessa oppimalleen, sillä harjoitteluympäristössä opiskelija voi toimia aidoissa työtilanteissa, todellisissa työympäristöissä ja kohdata todellisia asiakkaita. Hän saa kokemusta teoreettisen ja käytännöllisen tiedon yhdistämisestä, hän voi kehittää käsitteellistä ajatteluaan, harjoitella kliinistä päättelyä ja ammattiin liittyviä taitoja asiantuntijayhteisössä. Harjoittelu on laajin yksittäinen opintokokonaisuus fysioterapian perusopintojen opetussuunnitelmassa käsittäen noin kolmasosan opinnoista.

Oppimisen työharjoittelussa on määritelty tapahtuvan joko ohjauksen tuella tai ilman ohjausta. Ohjaus voi kohdistua suoraan opiskelijan tekemän työn tekemiseen tai olla epäsuoraa, kuten ohjauskeskustelutilanteissa, joissa ohjaajan kanssa keskustellen voidaan palata menneeseen tai suunnitella tulevaa. Ilman ohjausta tapahtuvissa oppimistilanteissa opiskelija taas hoitaa työtehtäviään itsenäisesti. Tämä tutkimus kohdistui fysioterapeuttiopiskelijoiden työharjoittelun ohjaamis- ja oppimistilanteisiin. Tavoitteena oli tutkia, miten edellä mainituissa tilanteissa opiskelijan ohjaaminen rakentui ja millaisia merkityksiä ja miten fysioterapialle, asiakkuudelle ja opiskelijan oppimiskokemuksille rakennettiin. Oletuksena oli, sosiokonstruktivistista näkökulmaa seuraten, että opiskelija ja työharjoittelun ohjaaja sekä käytännön työharjoittelutilanteissa myös asiakas rakentavat näitä merkityksiä yhdessä ollessaan vuorovaikutuksessa toistensa kanssa. Edelleen oletettiin, että suorittaessaan ammatillisia työtehtäviä työharjoittelupaikassaan ja osallistuessaan fysioterapiayhteisön toimintaan fysioterapiaopiskelija rakentaa käsitystään fysioterapeutin asiantuntijuudesta.

Tutkimus oli osa laajempaa fysioterapiatyön ja fysioterapiakoulutuksen tutkimus- ja kehittämisprojektia, joka toteutui vuosina 2000-2004 yhden ammattikorkeakoulun alueella Suomessa. Projektiin osallistuneet fysioterapeutit (n=30) videokuvasivat projektia varten opiskelijan ohjaustilanteitaan dokumentoidakseen ohjaustyötään. Videokuvatuista ohjaustilanteista valittiin tähän tutkimukseen tutkimusaineistoksi kaikki projektin alkuvaiheessa videokuvatut asiakkaan kanssa toteutuneet käytännön työharjoittelutilanteet (n=13), joihin osallistuivat asiakas, yksi tai kaksi opiskelijaa ja ohjaava fysioterapeutti sekä koko projektin ajalta kaikki ohjauskeskustelutilanteet (n=10), jotka oli käyty yhden opiskelijan ja työharjoittelun ohjaavan fysioterapeutin välillä asiakastilanteen jälkeen.

Aineisto analysoitiin käyttämällä diskurssianalyysiä metodologisena viitekehyksenä. Diskurssianalyysi on kiinnostunut kielestä sosiaalista todellisuutta rakentavana ja heijastavana tekijänä. Kielen avulla vuorovaikutuksen osallistujat rakentavat merkityksiä asioille. Tässä tutkimuksessa kieli ymmärrettiin laajasti käsittäen niin verbaaliset kuin non-verbaalisetkin toiminnat ohjaustilanteissa.

Ennen aineiston analysointia videotilanteet litteroitiin teksteiksi. Katsomalla videoita ja lukemalla litteraatioita identifioitiin tutkimuskysymysten kannalta relevantit vuorovaikutusepisodit, joiden litteraatioihin lisättiin videolta havaittava non-verbaali toiminta. Analysoimalla valittujen vuorovaikutusepisodien eroja ja yhtäläisyyksiä sekä yhdistämällä niitä identifioitiin aineistosta diskursseja ja tulkintarepertuaareja, joissa merkityksiä tulkittiin rakentuvan puheen ja vuorovaikutustilanteessa ilmenevän toiminnan avulla. Diskurssit ja tulkintarepertuaarit nimettiin niitä ilmentävin metaforin ja tulokset raportoitiin aineistoesimerkein, jotta lukijalle välittyisi tehtyjen tulkintojen merkitystenrakentumisen perusteet ja tehdyn tulkinnan konteksti.

Tutkimus toi esille, että ohjauksen näkökulmasta käytännön työharjoittelutilanteet, jotka toteutuvat asiakkaan kanssa ovat monimutkaisia ja moniulotteisia vuorovaikutustilanteita, koska harjoittelun ohjaajalla on tilanteessa vastuullaan sekä asiakkaan tarpeet huomioiva fysioterapian toteutus että opiskelijan ammatillista kasvua huomioiva ja tukeva ohjaus. Tulokset osoittivat edelleen, että ohjaajalla näyttää olevan tärkeä asema ja rooli ohjausvuorovaikutuksen rakentajana työharjoittelun oppimistilanteissa ja näin olleen ohjaaja voi ohjausaloitteidensa avulla suunnata opiskelijan huomion valitsemiinsa asioihin fysioterapian toteutuksen tai ohjauskeskustelujen aikana. Kuitenkin havaittiin myös opiskelijalla olevan mahdollisuuden tehdä aloitteita, esimerkiksi kysymyksiä, ja näin suunnata ja syventää omaa ymmärrystään. Näiden aloitteiden tunnistaminen ja niihin vastaaminen vahvistaa opiskelijalähtöistä ohjaamista työharjoittelun käytännön tilanteissa.

Vaikka analysoidut käytännön oppimistilanteet, joihin myös asiakas osallistuu, välittivät kuvan perinteisestä, asiantuntijalähtöisestä fysioterapiasta, jossa asiakkuus näyttäytyi hoidon kohteena olemisena, havaittiin myös vuorovaikutusepisodeja, joissa tilanteet rakentuivat yhdessä asiakkaan kanssa, asiakaslähtöisemmin. Asiakkuuden rakentuminen ei näyttäisi kuitenkaan olevan pelkästään asiantuntija- tai asiakaslähtöinen prosessi vaan moniulotteisempi vuorovaikutusrakennelma, jossa asiakas voi olla ohjaavan fysioterapeutin kanssa tasavertaisemmassa suhteessa kuin opiskelijan, jos opiskelija on fysioterapian toteuttajana. Nämä havainnot haastavat ohjaavia fysioterapeutteja suunnittelemaan asiakkaan kanssa toteutuvat oppimistilanteet ja niissä toteutuvan ohjausvuorovaikutuksen etukäteen ja pohtimaan niitä vuorovaikutuksen keinoja, joilla asiakkaan "ääni" saadaan kuuluville.

Vaikkakin tutkimus toi esille, että ohjauskeskusteluissa rakennettiin mekanistista ja teknisesti orientoitunutta fysioterapiaa, havaittiin myös puhetta teoreettisia perusteluja etsivästä fysioterapiasta. Lisäksi identifioitiin tutkintarepertuaari, jossa rakennettiin fysioterapiaa opiskelijan työharjoittelussa syntyneiden kokemuksien kautta. Analysoitaessa tarkemmin opiskelijan oppimiskokemuksiin liittyviä keskusteluepisodeja havaittiin, että ohjauskeskustelua käytiin sekä opiskelijan että ohjaajan tekemillä aloitteilla, jotka myös suuntasivat keskustelun sisältöä. Keskustelut opiskelijan oppimiskokemuksista etenivät edellisessä käytännön oppimistilanteessa toteutuneita, opiskelijan tekemiä fysioterapiatoimenpiteitä seuraten. Aineistosta tulkittiin myös repertuaari, jossa oppimisen merkitystä rakennettiin ideoimalla uusia fysioterapiaratkaisuja toteutuneisiin asiakastilanteisiin. Lisäksi oppimisen merkitys liitettiin ohjauskeskusteluissa opiskelijan ammatillisen kasvun prosessiin, jota opiskelija itse analysoi. Vaikka aineistosta ei noussut esille keskusteluja, joissa opiskelijan oppimiskokemuksia

olisi nostettu abstraktimmalle keskustelun tasolle tai pyritty siirtämään muihin samankaltaisiin fysioterapiatilanteisiin, ohjauskeskustelutilanteet näyttäisivät kuitenkin mahdollistavan fysioterapiasta keskustelun teoriaa käytäntöön yhdistäen ja opiskelijan oppimiskokemuksien käsittelyn hänen itsearviointi- ja reflektiotaitoaan tukien. Tällaisen ohjauskeskustelun käynnistäminen ja ylläpitäminen haastaa ohjaajat olemaan tietoisia, miten ja millaisin ohjausaloittein itsearviointia ja kriittistä reflektiivisyyttä opiskelijassa tuetaan.

Vaikka otetaan huomioon laadulliseen tutkimusotteeseen liittyvät näkökulmat ja tutkimusaineistosta nousevat rajoitukset, voidaan sanoa, että tutkimus onnistui välittämään uudenlaisen ja aiemmin vähän tutkitun näkökulman fysioterapiaopiskelijoiden työharjoittelun ohjausvuorovaikutukseen ja työharjoittelun merkitykseen fysioterapian asiantuntijuutta rakentavana oppimisympäristönä. Asiakkaan tavoitteet ja voimavarat huomioiva sekä teoreettisiin perusteisiin ankkuroituva fysioterapia vaativat opiskelijalta teoreettisen tiedon linkittämistä käytännön työtilanteisiin ja oman toiminnan kriittistä itsearviointia sekä reflektointia. Teorian ja käytännön yhdistämistä ja oman työn kriittistä arviointitaitoa voidaan tukea ohjauksella. Ohjaus taas voidaan ymmärtää pedagogisena taitona, toimintana, jossa voi kehittyä. Työharjoittelun ohjaajille suunnattu systemaattinen ja mahdollisesti pakollinenkin ohjaajakoulutus vahvistaisi ja monipuolistaisi työharjoittelun ohjaajien ohjausosaamista ja näin ollen heidän rooliaan opiskelijan ammatillisen kasvun ja asiantuntijuuden kehittymisen tukijana. Työharjoittelun merkityksen tiedostaminen ja ymmärtäminen osana fysioterapiaopintojen opetussuunnitelmaa vahvistaa opetussuunnitelman tavoitteiden täyttymistä. Myös työharjoittelun ohjaajien tiivis mukanaolo opetussuunnitelman kehittämistyössä kirkastaa työharjoittelun ja siellä tapahtuvan ohjauksen merkitystä ja antaa näin ollen ohjaustyölle ja oppimistilanteiden suunnittelulle uusia ulottuvuuksia.

Tutkimuksessa tehtyjen havaintojen pohjalta esille nousseita haasteita ja kysymyksiä työharjoittelusta ja ohjauksen merkityksestä voidaan laajentaa fysioterapiakoulutuksen lisäksi muihinkin ammattikorkeakoulujen koulutusohjelmiin. Jatkotutkimusta työharjoittelun merkityksestä asiantuntijuuden rakentumisessa kuitenkin tarvitaan. Työharjoittelun ohjaajien ja opiskelijoiden omat tulkinnat videokuvatuista ohjaustilanteista syventäisivät tutkimuksen tuloksia ja tulkintaa. Tällaiset haastattelutilanteet toimisivat myös reflektion käynnistäjinä, kun tavoitteena olisi oman työ- ja oppimistilanteen analysointi videolta. Toisaalta olisi myös kiinnostavaa analysoida opiskelijan ammatillisen kasvun vaiheen vaikutusta työharjoittelun ohjaukseen esimerkiksi seuraamalla pitkittäistutkimuksena yhden opiskelijan työharjoittelujenprosessia ja haastattelemalla hänen ohjaajaansa. Näin ohjauksen moniulotteisuus ja monimuotoisuus avautuisi laajemmin. Ohjauskulttuureiden kansainvälisiä välisiä eroja olisi myös mielenkiintoista selvittää, jotta eurooppalainen opetussuunnitelmien harmonisoituminen myös työharjoittelun näkökulmasta mahdollistuisi.

Avainsanat: fysioterapia, työharjoittelu, diskurssianalyysi, vuorovaikutus, ohjaus, asiakkuus, oppiminen

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Appendix 1

GENERIC COMPETENCES OF POLYTECHNIC GRADUATES

Generic competences	Description of the competence, first-cycle graduate	Description of the competence second-cycle graduate
Learning competence	* is able to self-evaluate one's competences and define his/her development and learning needs * recognises one's learning style orientation and is able to conduct studies independently and develop one's learning strategies * is capable of collaborative learning and sharing knowledge in teams and working communities * is able to operate in changing environments and to recognise and utilise available learning opportunities and scopes for action * Is able to plan, organise and develop one's actions	* is able to self-evaluate one's competences and expertise in a versatile and systematic way and to define one's development and learning needs * is equipped for life-long learning and understands and self-directs one's learning process * is able to study together and share one's learning and expertise in different expert teams and networks * is able to work initiatively and to anticipate changes and needs for change * is able to plan, organise and develop one's actions
Ethical competence	* is able to apply the value systems and ethical principles of the subject field in one's conduct and tasks * takes responsibility of one's own actions and works according to the jointly agreed principles and measures * Is able to apply the principles of sustainable development in one's actions * is able to take other people into account in one's actions	* is able to apply the value systems and ethical principles of the subject field in one's conduct and tasks as an expert and a developer of working life * takes responsibility of one's own actions and works according to the jointly agreed principles and measures * is able to apply the principles of sustainable development in one's actions and knows the social responsibility of one's organisation * is able to cater for others in one's actions and make decisions considering an individual, community and a society at large

Communicative and social competence	* is capable of listening to others and communicating in writing, speech and visually using different communicative styles * is able to function in the communicative and interactive situations typical of the field * understands the principles of group and teamwork and is able to work together with others in multidiciplinary teams * is able to utilise information and communications technology at one's work	* is able to listen to others and communicate in writing, speech and visually with different target groups * is able to manage in different communicative and interactive situations and to organise and create professional networks * understands the principles of group and team work and is capable of working together in multidisciplinary teams also as a team-leader * is able to utilise information and communications technology at one's work
Development competence	* is able to retrieve and analyse information of one's subject field, to critically evaluate it and to perceive entities in a holistic way * knows the basic principles and methods of research and development work and is able to conduct small-scale research and development projects applying the existing knowledge of the field * knows the principles of project work and is able to work in projects * adopts an initiative and proactive approach to work and is capable of problem solving and decision making at one's work * understands the principles of profitable and customer-focused operations and possesses entrepreneurial skills	* is able to retrieve and analyse information of one's own subject and neighbouring fields and to critically evaluate and holistically perceive it as well as to generate new knowledge * masters the methods of research and development work and is able to independently carry out R&D projects of one's field * knows the intricacies of project work and is able to to work in projects and manage them * works initiatively and proactively and is able to start and implement change processes * is capable of creative and innovative problem solving and decision making at one's work * is able to start profitable and customer-focused development projects * is able to guide and mentor others

Organisational and societal competence	* knows the socio-economic interdependence of the organisations in one's subject field * knows the possibilities of societal influencing for the development of one's field * knows the basic principles of organisational management and leadership and has abilities for supervision tasks * knows the methods of working life and is able to operate in work communities * is able to plan and organise activities	* knows the socio-economic interdependence of the organisations in one's subject field * knows and is able to utilise the possibilities of societal influencing * knows the organisational and work cultures and is able to participate in intra-organisational and inter-organisational coordination, development and management * is able to evaluate the operations of a work community and to plan, organise and develop activities in the changing situations in working life * is able to perceive holistically wide entities and cause – effect relationships as well as to operate in demanding situations requiring versatile competences even when there are constraints of information
Internationalisation competence	* possesses spoken and written communicative competence at least in one foreign language necessary for one's work and for professional development * understands cultural differences and is able to work together with people coming from different cultural backgrounds * is able to use international sources of information of his/her own field * understands the effects and opportunities of internationalisation in one's own field	* possesses the written and spoken communicative competence in one or two foreign languages necessary for one's work and for professional development * understands cultural differences and is able to operate in diverse international environments * is able to apply international knowledge and competences in one's own field * possesses an overview of the position and importance of the profession in the international environment

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Appendix 2

SUBJECT SPECIFIC COMPETENCES 05/2006
Degree programme in Physiotherapy, Subject specific competences
Description of the competence
Bachelor of Health Care (Physiotherapist)

Physiotherapeutic assessment and clinical reasoning
- is able to assess and analyse human functioning, especially mobility
- knows how to, with the help of assessment and clinical reasoning, construct a physiotherapy plan together with the client and considering his/her needs
- knows how to evaluate the outcomes of physiotherapy

Counselling and guidance competence
- is able to use various guiding and teaching methods to promote and maintain an individual's/group's functioning and health
- knows how to use the principles of motor learning when guiding human movement and functioning
- is able to apply the methods of therapeutic exercise when guiding a group
- knows how to plan and guide health- and functioning related physical exercise

Therapeutic competence
- knows how to individually apply evidence based knowledge when planning physiotherapy
- is able to support client participation and to create an interactive therapeutic relationship
- knows how to plan and implement therapeutic exercise using the knowledge of patho-exercise and neurophysiology and biomechanics
- is able to use the methods of thermal and electrotherapy utilizing their physiological and therapeutic effects
- is able to implement manual therapy appropriately and justifiably

Collaboration and social competence
- is able to work independently and participate in interprofessional collaboration in different teams, groups, expert nets, and service chains as an expert of physiotherapy
- is an active member of society to promote and develop services considering the national and international challenges within rehabilitation, physical education, social and healthcare
- is able to draft expert's reports and written statements

Technology competence

- is able to use technological possibilities when planning, implementing and evaluating physiotherapy
- is able to apply technology when assessing mobility and functioning
- is able to use assistive devices and their technology in supporting mobility and functioning
- is able to plan accessible environments participating in interprofessional collaboration
- is able to use ergonomic methods in proportioning environmental factors to clients' resources and needs

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(The Subject Specific competencies for Degree Programme in Physiotherapy. 2006. http://www.ncp.fi/ects/materiaali/Fysioterapian%20koulutusohjelman%20kompetenssit%20042006.pdf.) Accessed 13th February 2008.

Appendix 3

Transcription symbols:

CE:	Clinical educator
PT:	Physiotherapist
S:	Student
P:	Patient
[word]	overlapping talk
(1.0)	silence in seconds
(.)	short silence, under one second
WORD	talks louder than the background
(--)	unclear words
= =	following talk without pause
/actions/	actions happening at the same time seen from the video