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ABSTRACT

This study investigated whether students of physiotherapy experienced the concepts "health," "movement," "function," and "interaction" differently during formal education and after some professional experience. Data were gathered by interviewing two groups of physiotherapy students at Linkoping University (Sweden) Faculty of Health Sciences, with the first interviews conducted before graduation and the second after 18 months of professional experience. Interviews were analyzed according to a phenomenographic approach and using the principles of contextual analysis. The study found that while there was some variation in students' perceptions of the concepts of health, movement, and function, the most common perspectives after completing formal education were holistic or mixed; this pattern remained most common also after 18 months of professional work. Students' perceptions of the concept of interaction were divided into four categories of communicative and problem-solving approaches: two integrated styles, mutuality and technicalism, which are respectively patient-centered and physiotherapist-centered; and two separated styles, authority and juxtaposition, which are respectively physiotherapist-centered and patient-centered. Both integrated and separated perspectives were reported after completion of formal education; after 18 months of professional practice, however, the dominant style became mutuality, the integrated patient-centered approach. The student-interview guide is appended. (Contains 150 references.) (CH)

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Akademisk avhandling

som med vederbörligt tillstånd av filosofiska fakulteten vid Linköpings universitet för avläggande av filosofie doktorsexamen kommer att offentligt försvaras på institutionen för pedagogik och psykologi, Eklundska salen, torsdagen den 22 maj 1997, kl 13.00

Abstract

The aim is to describe and analyse physiotherapeutic learning through formal education and professional experience. The investigation focuses on the students' ways of experiencing the concepts of *Health, Movement, Function* and *Interaction*. Two groups of physiotherapy students at the Faculty of Health Sciences in Linköping, Sweden, were interviewed on two occasions respectively. The interviews were carried during the second and last term of the formal programme and after 18 months of professional experience. Data were analysed according to the phenomenographic approach and to the principles of contextual analysis. The students' conceptions varied qualitatively, but an analysis of the internal relationships between the concepts revealed that the most common perspectives after completing the formal education were *consistently holistic* or *mixed*. This pattern was also most common after 18 months of professional work. The subjects' ways of experiencing the *Interaction* within a patient encounter were described in four main categories; *Mutuality, Technicalism, Authority* and *Juxtaposition*. *Mutuality* and *Technicalism* denoted an integration of the communicative and problem-solving processes, the former category from a patient-centred and the latter from a physiotherapist-centred perspective. *Authority* and *Juxtaposition* denoted a separation of the processes, the former from a physiotherapist-centred perspective and the latter from a patient-centred perspective. Both separated and integrated perspectives were common after completing the formal education. After 18 months of professional practice the *Mutuality* category dominated.

Key words: Physiotherapy, problem-based learning, formal education, professional experience, discourse, basic concepts, qualitative analysis, phenomenography, conceptions, contextual analysis.

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Acknowledgements

Five years ago, I started out on a very particular journey of discovery as a postgraduate student in Education, on my way to become an educational researcher. My ideas about the destination of the journey were from the beginning high-flying, optimistic and not very clearly defined. I did not imagine then what experiences of both joy, strain and pain the travelling would mean, but today, when I have reached the destination of this part of the journey, I feel that I would like to express my appreciation and gratitude to some persons who have in different ways contributed to guide me along the road, to keep me on track, and helped me to reach my goal.

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Chapter 1

Introduction

The origins of the study

The focus in this thesis is development of physiotherapeutic competence through formal education and professional experience. The background and origin of the research project stems from my own experiences of physiotherapy and the process of professional transformation. Being a physiotherapist for ten years, deeply involved in clinical work and patient care, made me ponder on the pedagogical process of physiotherapy and its effects on the patients' health. This interest in the pedagogical aspects of physiotherapy led me into studies in Education and then to a formal teacher training. My professional role was, thus, transformed from being a physiotherapist to becoming a teacher and my work as a faculty member of the Physiotherapy Programme at Linköping Faculty of Health Sciences. The challenges of the overarching educational approach of problem-based learning to the development of the physiotherapy curriculum inspired my interest in the discourse of physiotherapy in general. It also evoked a curiosity and a serious interest in what the physiotherapy students really learn from the programme. This was my point of departure when embarking on the next phase of my transformation process, from being a teacher to becoming an educational researcher.

The rationale of the study

The obvious main issue prior to the onset of the research project was my pondering over an eligible way of tackling the problem, since the choice of research method is no way a neutral issue. Research methods are always associated with certain perspectives, which also has consequences for the internal logic of the research as regards the formulation of research questions and the kind of results produced through the research process (Larsson, 1993). A common idea about internal logic in research is that "the research questions should drive the data collection and analysis rather than vice versa" (Howe & Eisenhart, 1990, p. 6.). Larsson (ibid.), argues that the internal logic in research should also be characterised by the research questions harmonising with the general assumptions about research and the

nature of the phenomenon under study, the data collection and the analysis procedures. In the following, I will outline a birds-eye perspective of my considerations regarding these issues in relationship to the present thesis.

General assumptions about the nature of the phenomena under study

The scope of this study is the development of professional competence in physiotherapy through formal education and professional experience. Professional competence is a complex phenomenon that can be studied from different perspectives. The assumptions about the phenomenon, which will be further elaborated in chapter 2, are based on an integrative perspective on competence, drawing on the thoughts about personal knowledge, introduced by Polanyi (1958) and further developed by several philosophers and authors in recent decades (Schön, 1983; Molander, 1993; Rolf, Ekstedt, & Barnett, 1993; Sandberg, 1994; Svensson, 1996).

According to this perspective, theoretical and practical knowledge are intertwined aspects of knowledge in practice. The practitioner brings his personal judgement to the interpretation of the unique, professional situation. On the basis of this judgement, the professional practitioner acts in accordance with the different kinds of role frames, appreciative systems, overarching theories, discourses and repertoires characteristic of the profession.

The characteristic domain of knowledge is transformed through the curriculum of the professional education and conveyed to the students both overtly and tacitly. During the course of the educational program, the students' task is to make the core of the professional competence comprehensible to themselves.

Bendz (1995) studied the impact of education on student nurses' knowledge in practice. She defines nurses' knowledge in practice as an inseparable unit which can be studied in an external as well as an internal context. In the external context, practical knowledge is manifested in some kind of action, while practical knowledge in the internal context is manifested in the knowledge, attention, and ability to understand in relation to the action.

The impact of professional education on knowledge in practice should thus preferably be studied within what Bendz calls the internal context, since the educational objectives are not that the students should learn to reproduce the "correct actions or procedures" given a certain situation, but rather that the students should learn to reflect on and understand the reasons for their chosen actions. The

specific actions are framed by the unique situation, but the thinking and reasoning transcends the situational conditions. Mere observations of the actions of a professional practitioner would thus not reveal the core of his competence.

Throughout the educational process, the students are supposed to gradually replace a perspective of everyday-life with a physiotherapeutic perspective of phenomena that are central to the profession. This process also continues through experiential learning in the profession after their formal education is completed. Reflection on their thinking is an important condition for the development of a critical attitude and for change and development in the students' ways of conceptualising phenomena, emphasised within the curriculum. The professional knowledge also develops through the practitioner's reflection on his thinking and actions and is, in turn, also important for the development of the unique competence of the profession *per se* (Rolf, 1993).

We know, however, from previous research on the impact of higher education (Marton, Dahlgren, & Säljö, 1977; Marton, Hounsell, & Entwistle, 1986) that this assumption is not a matter of course and that there can be a wide variation in what the students actually learn from their education. Knowledge about how physiotherapy students conceptualise central phenomena pertaining to the profession could be of importance to faculty members from a didactic perspective (Dahlgren, 1989; Marton, 1986) Difficulties or misconceptions could be revealed and clarified and thus be of importance to the educational process and outcome.

General assumptions about research

The assumptions about the nature of professional competence as accounted for above imply that the impact of professional education has to be studied in terms of content-oriented categories of what is learnt, through the learner's conceptions of the educational content. The theoretical discourse of physiotherapy, conveyed through formal education and professional practice, is interpreted and conceived of by students in clinical settings and their conceptions of this make up the units of analysis. Awareness of the "grammar of difficulties" (Dahlgren, 1986), within physiotherapeutic learning could also contribute to the theoretical discourse of physiotherapy and to the articulation of the central concepts of the profession. Studying learning from the learner's perspective also implies a qualitative research approach. Inherent in the phenomenographic approach is also the assumption that learning can be studied in terms of change

in conceptions. Thus, a phenomenographic approach (Marton, 1981; Marton, et al., 1986; Marton, 1992; Marton, 1994; Marton, 1995; Marton & Booth, in press) was considered to be consonant with the nature of the research questions in this study.

General purpose

The general purpose of the study is to make a systematic attempt at obtaining a more comprehensive insight into the impact of formal education and experiential learning in physiotherapy and, more specifically, as concerns physiotherapy students' conceptions of *health*, *movement* and *function*, which are three central concepts in the discourse of physiotherapy and in the physiotherapy curriculum. The target of inquiry also comprises the students' ways of experiencing the therapist-patient encounter, since a fourth concept considered central to physiotherapy, is *interaction.*

The main questions examined in this study are:

- *What conceptions do physiotherapy students and, later on, physiotherapists have of the concepts of movement, health, and function?*
- *In what ways do these students and physiotherapists experience the interaction in the patient encounter?*
- *How do the conceptions and ways of experiencing change through the course of the educational programme and the first years of working-life experience?*

Design and data collection

The empirical part was designed as a longitudinal study and the data collection has been carried through via semi-structured interviews. In order to delimit the period of data collection, interviews were carried out on two occasions with two cohorts of physiotherapy students respectively. The first cohort were interviewed at the beginning and at the end of the educational programme, and the second cohort at the end of the programme and after 18 months of professional work, respectively.

Data analysis

The interviews were transcribed verbatim and subject to a qualitative analysis according to the principles of phenomenography and contextual analysis. The analysis results in a pattern of descriptive categories, which is considered to be a way of depicting the outcome of the educational programme as regards the aspects chosen in the study. In several phenomenographic studies, the qualitative analysis is combined with quantitative aspects, e.g. the distribution of subjects over the categories on the different interview occasions is used as a way of describing the impact of education, see, for instance, Alexandersson (1985) and Dahlgren (1989). This is also the structure of the present study.

Disposition of the thesis

The aim of the introductory chapter was to display the internal logic of the study in terms of how the different parts of the thesis relate to and harmonise with each other. My perspective of the nature of the phenomena under study is further elaborated in *chapter 2*, where the problem area is also delimited. The core of physiotherapy, as transformed in terms of pedagogical approach, objectives, structure and content of the intended curriculum at the Faculty of Health Sciences in Linköping, which is the educational setting for the subjects in this study, is outlined in *chapter 3*.

The general assumptions about research and the methodological considerations applied in this study are further developed and described in *chapter 4*. The design of the empirical study, together with a detailed description of the data collection and analysis procedures, is described in *chapter 5*. The qualitative analysis of the interviews as regards the attained curriculum in terms of the interviewees' conceptions of the concepts of health, movement and function is presented in *chapters 6, 7 and 8*, and in each chapter is followed by a quantitative analysis of the change in conceptions of these concepts after 18 months of education or working-life experience. A meta analysis of the results, focusing on the relationships between the concepts and the empirical patterns of combinations of conceptions, is provided in *chapter 9*. In *chapter 10*, the ways of experiencing the patient encounter are described, followed by a quantitative analysis of changes in these ways. A general summary is presented in *chapter 11*, and the results are, finally, subject to a general discussion in *chapter 12*.

Chapter 2

The core of physiotherapy

The aim of this chapter is to display and elaborate my perspective on the nature of the phenomenon of professional competence in relation to physiotherapy. I will provide a condensed description of the history and development of the physiotherapy profession in Sweden in order to show how physiotherapy became part of a general discourse about professional competence. After a closer look at the discourse of professional competence in general, I will return to the characteristics of the physiotherapy profession. The current discourse about the body of knowledge within the profession will be reviewed together with some empirical studies on the professional role of the physiotherapist with relevance to the present study.

Physiotherapy in a historical perspective

The early history

The idea of physiotherapy and exercise as a means of improving health and relieving pain can be traced far back in ancient history. (For an extensive elaboration on this issue see Broberg, 1993; and Lundbladh, 1993). The oldest notions about movement and massage as therapy are found in the Veda books. The therapy was carried out in the temples by the priests. The first origin and fragments of the physiotherapy profession can possibly be traced back to Herodicus, 400 B.C., who founded a school for special therapists who used gymnastics and massage for curative purposes. Through early history, though, the use of these methods have been closely connected with the medical profession. Hippocrates recommended massage and movement as therapeutic methods for physicians in order to reinforce the healing power of nature. Physical therapy became a part of the medical therapeutic arsenal and remained so, known for a long time as mechanotherapy.

The idea of soundness and physical exercise as a means of improving nationalism and health among the population also grew stronger in Europe during the 16th and 17th centuries. Several philosophers and authors, e.g. Rosseau, Pestalozzi, Basedow, Guts Muths, and Jahn have made important contributions to this philosophical movement which also influenced the development of phys-

ical education and physiotherapy in the Nordic countries (see e.g. Annerstedt, 1991, for a thorough description).

The origins of physiotherapy and physiotherapy education in Sweden

The origins of physiotherapy in Sweden, as described by Lundbladh *et al.* (1993) are associated with Per Henrik Ling (1776-1839), known as "the founding father of Swedish gymnastics". In 1813, Ling started the Kungliga Gymnastiska Centralinstitutet, KGCI,[1] for the purpose of teacher training in physical education. Ling divided physical exercise according to its different purposes in four main areas; pedagogical, military, medical and aesthetic. By 1820, Ling had designed about 2000 exercises for pedagogical purposes, the so-called Ling system. The exercises were based on the anatomical properties of the human body and were called daily exercises. Each exercise was to be performed with military rigor with the maximum of movement. The underlying philosophy was that the systematic training of exercises for all the muscles would bring the body into a state balance and harmony, which was the goal of the training.

The training system was also used for medical purposes. Ling's philosophy was that physical balance and harmony, which were disrupted by illness and dysfunctions could be restored through physical exercise. His thoughts were later further developed by his son Hjalmar Ling (who continued the work at KGCI after his father's death in 1839), and by his disciple and collaborator Gabriel Branting.

The educational programmes at KGCI covered three directions; the pedagogical/medical direction, the strictly pedagogical, and the military direction. The fourth dimension of Ling's classification of physical exercise according to its purpose, aesthetical physical exercise, was never realised in any educational programme at KGCI. The pedagogical/medical educational programme comprised three years for men and two years for women. In both cases, successful completion of the programme qualified for work as a teacher in physical education as well as work as a physiotherapist. The first time physiotherapy is mentioned as a profession in its own right was in the 1887 statutes of KGCI.

[1] The Royal Central Institute of Gymnastics, my translation.

The influence of the medical profession

The control of the medical profession over the physiotherapy education and profession was clearly expressed in a proposal from the Swedish Medical Society and implemented on the premises formulated in the 1887 statutes of KGCI; 1) only those who had successfuly completed the pedagogical/medical educational programme were allowed to practice physiotherapy, and 2) physiotherapy treatment had to be prescribed by a physician.

The 1887 statutes also made it possible for physicians, who had qualified in physiotherapy at KGCI, to open private institutes for the education of physiotherapists. Arvedsons Gymnastiska Institut (AGI) in Stockholm and Sydsvenska Gymnastikinstitutet (SGI) in Lund were examples of such institutes. Gradually, physiotherapy education became more alienated from the training of teachers in physical education at KGCI and more closely linked to the faculty of medicine as a result of practical physiotherapy education moving into the hospitals. In 1959, the final separation from KGCI took place with the establishment of physiotherapy education at the Karolinska Institute. At the same time, the SGI in Lund was authorised by the government and thus supervised by the medical faculty.

Making medical prescription a necessary condition for physiotherapy treatment was maintained for 100 years. The physiotherapy profession was for a long time technically defined by the medical profession and identified by a set of methods used to treat different medical diagnoses. There was no official responsibility and the physiotherapists were not required to provide analysis or documentation of the physiotherapeutic process. This does not necessarily mean that physiotherapists did not make judgements or analyses, but that physiotherapy for a long time was subordinated the medical paradigm. The physiotherapeutic competence was, thus, mainly practical and experience-based and lacked theoretical articulation based on the unique premises of the profession.

The national reform of the universities and colleges in 1977 finally recognised physiotherapy education, along with other programmes within the health care area, as academic programmes within the university, with the responsibility to articulate and develop the core of their own unique fields of knowledge. The academic development of the physiotherapy profession and education has continued in recent decades. The undergraduate programme has been extended twice, in 1977 by one term to comprise two and a half years. In 1993, physiotherapy education was extended again to comprise three years. Today, physiotherapists are educated at seven

universities and colleges in Sweden, at both undergraduate and postgraduate levels.

Physiotherapy as a part of a discourse of professional competence

When summarising the historical development of physiotherapy in Sweden, it can be seen that the profession has its origins in a practical, experience-based knowledge tradition which has been influenced by a science-based knowledge tradition as a result of its close connection with the medical profession. Not until recent decades has the physiotherapy profession itself started to define its core of knowledge. This description also has similarities with the development of the profession from an international perspective. Bergman (1989) pointed out, with reference to different authors (Dyer, 1982; Hislop, 1975; Peat, 1981; Williams, 1986), that physiotherapy is regarded as an intellectual handicraft, including both a scientific and an artistic dimension which are equally important. Thornquist (1990) remarks that awareness of the two different roots of the profession is important for the development of the core of physiotherapy in order to recognise and discuss the reasons for physiotherapeutic actions.

The prerequisites of the physiotherapy profession, as well as of several other allied health professions, have been changed in recent decades. The physiotherapy profession has developed towards increased professionalisation, in that the members of the profession are authorised by society and internally controlled by ethical codes. Physiotherapists have gained more autonomy in their work and their theoretical knowledge base is developing (Bergman, ibid.). These features are traditionally considered to be characteristics of an established profession (Parsons, 1968; Etzione, 1969).

The current intraprofessional discourse and process of professionalisation have concerned the need to explore and develop the theoretical underpinnings of physiotherapy. This is also partly due to the financial and organisational changes within the health care systems which is encouraging a competitive market economy, putting pressure on the health care professionals in the multidisciplinary teams to articulate their core competencies (Richardson, 1993). The physiotherapy profession has thus become part of a general discourse of professional competence, with a need to justify what the unique characteristics of physiotherapy are and what the responsibilities of the profession towards society are considered to be.

Describing the body of knowledge and the nature of the competence of a profession is one key to delineating its unique characteristics. The nature of professional competence or professional knowledge in general in relation to the common classification of knowledge in Western philosophy has been subject to extensive discussion, from both theoretical and empirical perspectives, by several philosophers and other authors in recent decades, i.e. Ryle, 1949; Polanyi, 1958; Polanyi & Prosch, 1975; Schön, 1983; 1988; Benner, 1984; Rolf, 1989; Rolf, *et al.*, 1993; Molander, 1993; Sandberg, 1994; Bendz, 1995; Higgs & Titchen, 1995; and Svensson, 1996. In the following, I will briefly highlight the main characteristics of this discussion and its relevance to the perspective on professional competence in physiotherapy adopted in this study.

Perspectives on professional competence

The perspectives on professional competence have changed throughout history. Traditional perspectives, influenced by a theoretical knowledge tradition and the ideals of positivism, take as their point of departure a dualistic perspective of knowledge as a product, transferable from research through education into professional practice (Rolf, *et al.*, 1993). In this perspective, professional competence is science-based, meaning the application of scientific theories to defined problems in the professional practice. According to Sandberg (1994), the dualistic ontology, transferred to the perspective on competence, comprises a division of the phenomenon of competence into two separate entities, the worker and the work. The positivistic epistemology, in this instance referring to an objective, knowable work beyond the worker, has lead up to descriptions of work activities independently of the worker who accomplish them. Rationalistic approaches, thus, identify and describe human competence as constituted by two independent entities, a list of attributes possessed by the worker externally related to a list of work activities (ibid., p. 16).

Svensson, (1996) argues similarly that the traditional perspectives on competence could be described as *behaviouristic*, focusing on the activities or behaviour of the individual or *psychometric*, focusing on the qualities or characteristics of the individual. Svensson, (1996) and Sandberg, (ibid.) instead argue that the concept of competence should be viewed as relational, holistic and contextual. In this perspective, competence is not just work tasks to be fulfilled or at-

tributes of the individual to be applied to the tasks, but a quality of the relation between the individual and the actual situation.

Rolf (1993) argues that professional competence should be viewed as a social praxis or process, where know-how is practised and renewed through reflection by the professionals. Emphasis is placed on these processes as practical activities and, thus, acknowledges the influence of a practical knowledge tradition. These practical activities are in part common to research, education and professional practice (ibid). The social praxis is also imbued and influenced by the professional discourse, the ways a certain profession regards and accepts as valid forms of reasoning (Säljö, 1994).

Characteristics of the theoretical knowledge tradition

Propositional or theoretical knowledge is derived through academic scholarship and science. It encompasses book knowledge and formal relationships between concepts or constructs and formal statements concerning interactional and causal relationships between events. The characteristic of the theoretical knowledge tradition is *dualism;* knowledge is knowledge about an object, separated from the subject. Typically, the theoretical knowledge tradition includes a primacy of theory, which is achieved through thinking, observation and experimentation. The generation of knowledge is, thus, separated from its application to practice. Knowledge about an objective reality can be attained and findings can be generalised in the ambition to establish the eternal truth although, at the same time, the perspective also comprises the conviction that this can never be achieved completely. The theoretical knowledge tradition also carries with it the conviction that knowledge can be formulated in ordinary and mathematical language (Higgs & Titchen, 1995).

Characteristics of the practical knowledge tradition

Non-propositional or practical knowledge, on the other hand, is derived primarily through practice or experience, and has traditionally had a lower status than the propositional knowledge within the academic world. Molander (1993) characterises the practical knowledge tradition as more or less a repudiation of dualism, knowledge requires a participating subject in dialogues with other subjects. Typically, this tradition includes a primacy of practical knowledge, based on living traditions, role modelling, practice, personal experience and experiment. The generation and application of knowledge are unseparable. The practical knowledge tradition also carries with it the conviction that knowledge is knowing-in-action, living know-

ledge in the world. Knowledge is not manifested in the subject's mind as a representation of an external world, but leads from question to answer and from task to fulfilment within different human activities. There is a tacit dimension of knowledge, even if words and mathematical language are often helpful tools.

Schön (1983) argues that the theoretical knowledge tradition has contributed heavily to the dominant perspective on professional competence as the application of scientific theory and technique to the field of practice ever since the professional educational programmes were established at the universities at the beginning of the 20th century. Schön refers to this perspective of knowledge as technical rationalism, and argues that it is insufficient to describe how professionals think in action. From the dualistic perspective of technical rationality, the problems of the professional field are instrumental and the professional practice is a process of problem-solving. Problems of choice or decision are solved through selection from available means, of the ones fitting established ends. Schön builds his criticism on similar thoughts which had earlier been put forward by Polanyi (1966). Polanyi criticised the theoretical knowledge tradition for neglecting the fact that knowing comprises a tacit dimension that functions as an active shaping of experience and tacitly integrates theoretical and practical knowledge.

The physician's diagnoses and treatment of diseases are a commonly used example of or prototype for a science-based technical practice. Schön's point is that the situations in practice do not present themselves to the professional practitioner as well-defined problems with given solutions. The situations in practice are instead unique events in which the professional has to interact, interpret and problemise to form a problem that s/he can handle. Schön refers to this interpreting and problemising as *naming* and *framing* the problem. By *seeing* the unique and unknown situation *as* something familiar, and by *doing as* s/he did in a similar situation, the professional is able to handle the situation.

From this point of view, knowledge is not manifested in the subjects' minds as a representation of an external world, but exists as a relation between questions and answers in a context of meaning which, in action, leads from task to fulfilment within different human activities (Molander, 1993) In her study of nurses practical knowledge, Bendz (1995) argues that the intention of the actions and how the nurse thinks about what she is doing directs the accomplishment of the task and is decisive for the character and quality of the actions. Bendz, here drawing on the thoughts of Ryle (1949), therefore argues that the nurse's practical knowledge is not equal

merely to her way of accomplishing certain practical caring actions, since a task can be performed correctly due to coincidence, without the subject being conscious of whether the action was correct.

The context of professional discourse

Another perspective of the characteristics of professional competence focuses on the professional discourse. Every profession has its own frames of understanding, its own tacit rules for how arguments are made and with traditions for what counts as valid forms of reasoning (Säljö, 1994) As participants in the educational process of the physiotherapy programme, the students gradually become members of the cultural and discursive community which could be considered the voice of physiotherapy. The norms for what is regarded as important and relevant are not made up by the professional himself, but constitute the socially shared and institutionally congealed framework within the limits of which the professional can act out his role (Mishler, 1986).

Schön (1983) describes this as differences in the constants that various professionals bring to their reflection-in-action. These constants are a) the media, languages and repertoires that practitioners use to describe reality and conduct experiments, b) the appreciative systems they bring to the problem-setting, to the evaluation of inquiry and to reflective conversation, c) the overarching theories by which they make sense of phenomena, and d) the role frames within which they set their tasks and through which they bound their institutional settings. Schön (ibid.) argues that constancy of appreciative systems is an essential condition for reflection-in-action. It is what makes possible the initial framing of problems.

According to Rolf *et al.*, (1993) drawing on Polanyi (1958), this could be regarded as a "theory of knowledge" of the individual and the institution, which often has a tacit function. Having a tacit function does not mean that the knowledge is not possible to articulate, but that the knowledge functions tacitly. The learning process is also influenced by these frames of understanding. When the individual makes the professional reality comprehensible to himself, the learning process becomes systematically structured according to the tacitly functioning knowledge. The structure and justification of the actions taken thus have a cognitive correspondence. Rolf *et al.* argue that it is often possible to verbalise parts of this tacitly functioning theory of knowledge (ibid. p. 36), and that the analysis of the tacit knowledge can contribute to the individual's self-awareness, which is essential to the development of professional competence.

Mishler (1984), claims that there exist two voices in health and medical care. One is the voice of medicine and the other the voice of the life world, representing the technical-scientific assumptions of medicine, and the natural attitude of everyday life respectively. In making explicit the idea of voice, Mishler's point is that a voice represents a particular assumption about the relationship between appearance, reality and language or, more generally, a voice represents a specific normative order. Mishler has also convincingly shown that the voice of medicine dominates in the professional encounter between physician and patient (ibid.).

Agar (1985) claims that there are three characteristics of the discourse within an institutional framework that differ from a natural conversation. First, the institutional representative must *diagnose* the client. This is accomplished in order to find out why the client is in contact with the institution, expressed in the possible ways of describing people, their problems and the possible solutions that the professional frames provide. Another part of institutional discourse is the *directives*. They are one of the goals of the diagnosis; the institutional representative directs the client to do certain things. A third part of the institutional discourse according to Agar, (ibid.) is the *report*. A report is the summary of the institutional discourse that the institutional representative produces, in a physiotherapy framework represented by the patient records.

Professional competence from a physiotherapeutic perspective

Theoretical models of physiotherapy

In recent decades, considerable effort has been put into defining the realm of physiotherapy and its basic concepts. (Hislop, 1975; Dean, 1985; Rose, 1986; Tyni-Lenne´, 1987; Pratt, 1989; Engelsrud, 1990; Grönblom-Lundström, 1991; Kukkonen, 1991; Jette, 1994; Richardson, 1993; Broberg, 1993; Roberts, 1994; Schön-Olsson, 1994; Cott, Finch, Gasner, Yoshida, Thomas, Scott, *et al.*, 1995;). Roberts (ibid.) claims that three overarching theoretical perspectives have influenced theoretical models of physiotherapy; the biomedical perspective, the perspective of holism, and the social perspective.

The *biomedical perspective* encompasses the concept of normality, emphasises freedom from disease and restoration of health and is closely connected to the theoretical knowledge tradition. The biomedical or analytical perspective focuses on the particular parts of

the human organism and considers their structure and function. A study of health pursued from an analytical perspective uses mainly concepts from biology, chemistry and statistics. It involves inspecting organs and tissues, studying their function and measuring their rate of change, as well as calculating the relative frequency of the values obtained (Nordenfeldt, 1987, p.12). From a physiotherapeutic point of view, this would mean that the therapy is mainly directed towards the malfunctioning parts of the patient's body apparatus, disregarding the social and mental consequences of the dysfunction. According to Richardson (1993), the medical perspective has been pervasive in many of the theoretical models in physiotherapy. It has been argued that the medical perspective is not sufficient for physiotherapy practice, since the health of many of those who attend physiotherapy cannot be restored, but instead they need help in establishing a good quality of life (Richardson, ibid.).

An alternative to the medical model is the *holistic model*, meaning the treatment of the whole person, including mental and social factors, rather than just symptoms of a disease. The holistic perspective concentrates on the emotions of the individual and his functioning in a social context. A study of the nature of health from a holistic perspective uses concepts borrowed from everyday language, psychology, anthropology or sociology. Examples of such concepts are well-being, pain, depression, ability, adaptability, disability and handicap (Nordenfeldt, 1987). Holism has become increasingly attractive as a model upon which physiotherapists can claim their practice is based (Roberts, ibid.). The holistic perspective suggests a different meaning of health from that of the medical model, which will be evident from the elaboration later in this chapter.

The *social model*, drawing on the works of Illich *et al.* (Illich, Zola, McKnight, Caplan & Shaiken, 1977) builds on the concept of disability as being socially determined rather than belonging to an individual disabled person. This particular perspective has its origin in the support of contemporary disability organisations in their campaign for civil rights. Here, physiotherapists are included as part of the problem faced by disabled people, and not as part of the solution. If disability is determined by society, then resources must be redirected towards making society less disabling. The social model is thus less suitable for the development of theories and models for physiotherapy treatment of the individual and will not be further elaborated on here.

The basic concepts

A unifying theory of physiotherapy, based on a well-defined philosophy of care has been suggested as a basis for the profession. (Richardson, 1993) This is not self-evident, since the interpretation of the meaning of the basic concepts differs according to which overarching perspective dominates. Richardson suggests that the impact of the interaction between health and human movement on the ability to perform functional activities could be defined as "the scope of the general problem addressed by the discipline of physiotherapy" (fig. 1). Several authors have suggested that the concept of movement is one of the core concepts of physiotherapy (Hislop, 1975; Kukkonen, 1991; Tyni-Lenne´, 1987). A common conclusion, though, is that the meaning of the concept is not clearly articulated (Broberg, 1993; Broberg, 1995; Moe-Nilssen, 1994). According to Broberg, different perspectives of the concept of movement are often intertwined in physiotherapy literature, and the relationships between the concept of movement and other closely related concepts such as function and health are not articulated. This is perhaps also illustrated by Richardson's model. It is a general model that points out the territory of physiotherapy without clarifying the relationship between the concepts.

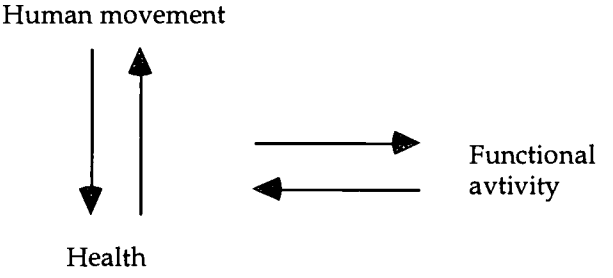

Fig. 1. The interaction between health and human movement and the ability to perform functional activity (Richardson 1993, p. 319)

In the following, I will provide two examples of how the suggested basic concepts of health, movement and function are used in two theoretical models of physiotherapy which differ with resepct to which overarching perspective they are based on. The models used for this purpose are; Hislop's (1975) hierarchy of systems for study and analysis of human structure and function as they relate to physiotherapy and Tyni-Lenné's (1987) movement hierarchy in

physiotherapy as related to a notion of man inspired by systems theory.

Hislop's model

According to Hislop, the basic postulate of physiotherapy is pathokinesiology, which is the study of anatomy and physiology as they relate to abnormal human movement. Physiotherapy in this context contains a body of scientific and empirical knowledge that can be applied to the treatment of a wide variety of human movement disorders. With this basic postulate, we can see the influence from the medical model and its relation to normality. Hislop describes a hierarchical pattern which she uses to define physiotherapy as an applied science.

Each level of this hierarchy is a subsystem of the level above, as well as being a system in its own right. Information flows freely up and down the system, and there are simple and complex feed-back loops for interlevel and intralevel exchange. All the structures express their function in motion; e.g. Brownian movement at the subcellular level, blood flow at the tissue level, reflexes or postural adaptation at the systems level, and purposeful work or play at the person level.

According to Hislop, the *person* level is in itself a natural system as well as being part of the larger hierarchy. At the person level, man expresses himself in all things from primitive emotions to the most abstract theory with and through motion. Without motion there is no communication, no interpersonal reaction, no development of society.

Motion is thus the basic concept in this model, referring to both intra- and interpersonal levels. The realm of physiotherapy in this hierarchical system is between the motion disruptions that occur at a tissue level and those that manifest themselves in a most complex manner at the person level.

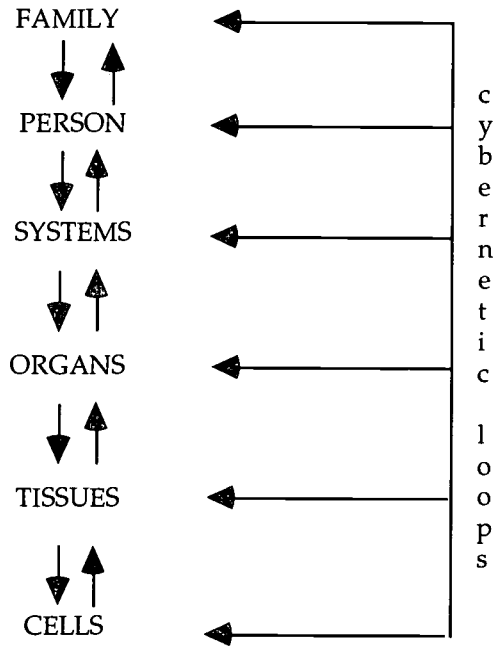

Fig. 2. The hierarchy of systems for study and analysis of human structure and function as they relate to physiotherapy (Hislop 1975, p. 1071)

In Hislop's model, health is defined as homeostasis, the smooth functioning of these interrelated systems, whereas disease results from any disruptive force which upsets the balance within one level or between levels. When motion is altered at any level, homeostasis is disrupted and adaptations must take place to restore some degree of balance. Disruption at one level can also influence alterations at all levels, Hislop puts forward a severe burn as an example of wide tissue destruction which causes endocrine responses, which give rise to such stress signs as gastric ulcers. Interruption of the normal functioning of the skin leads to scarring, contractures, and body fluid imbalance. At the person level, there is some decrease or loss of function of the part or of the person as a whole. Emotional responses are reflected at the person level and these, in turn, have a disrupting influence on the dynamics of the family.

The idea behind the homeostasis perspective of health is a heritage from the classical tradition in medicine that goes back to Aristotle and later Galen (Nordenfeldt, 1987). In this perspective, health is conceived as a bodily state in accordance with Nature. It is

the idea of a balance between opposing elements and forces, a natural or normal state within the living organism. Accordingly, the purpose of physiotherapy is to restore motion homeostasis to the person or his subsystems or to enhance the adaptive capacity of the organism in case of permanent impairment or loss.

Analysing the process described, we notice similar thoughts which have been put forward and further developed in different models of the disablement process, all resting upon the medical model (Nagi, 1965; WHO, 1980; Nagi, 1991; Verbrugge & Jette, 1994; Jette, 1994;), where the process of disablement is described as a sequence from disease or pathology through impairment and functional limitations or disability to handicap, indicating that disruption at one level may have repercussions on other levels. Jette (ibid.) has suggested that the disablement scheme could be valuable when clarifying the basic concepts in physical therapy research and practice, the concept of movement dysfunction could be related to the concepts of impairment, functional limitation and disability.

Tyni-Lenné's model

Tyni-Lenné (ibid.) builds upon Hislop's hierarchical model when she defines the realm of physiotherapy as a field of knowledge that studies human movement prerequisites, capacities and behaviour. Tyni-Lenné relates the movement hierarchy to the view of man as a natural system, as does Hislop. An important difference between the two models is that where Hislop defines movement from a pathokinesiological perspective, Tyni-Lenné's model is based on Pörn's holistic model of health. (Pörn, 1984a; Pörn, 1984b; Pörn, 1986; Pörn, 1988) Health is defined here as a person's ability to act in relation to his or her goals or aims in life, provided his or her physical and mental resources, and the surrounding in which he or she acts, are in a state of equilibrium. A consequence of this perspective is that the model also includes society as the highest level of the hierarchy. Tyni-Lenné argues that Hislop's definition of the realm of physiotherapy between the levels ranging from tissue to person, excluding the person's interaction with the surrounding society, is thus no longer sufficient as a description of modern physiotherapy.

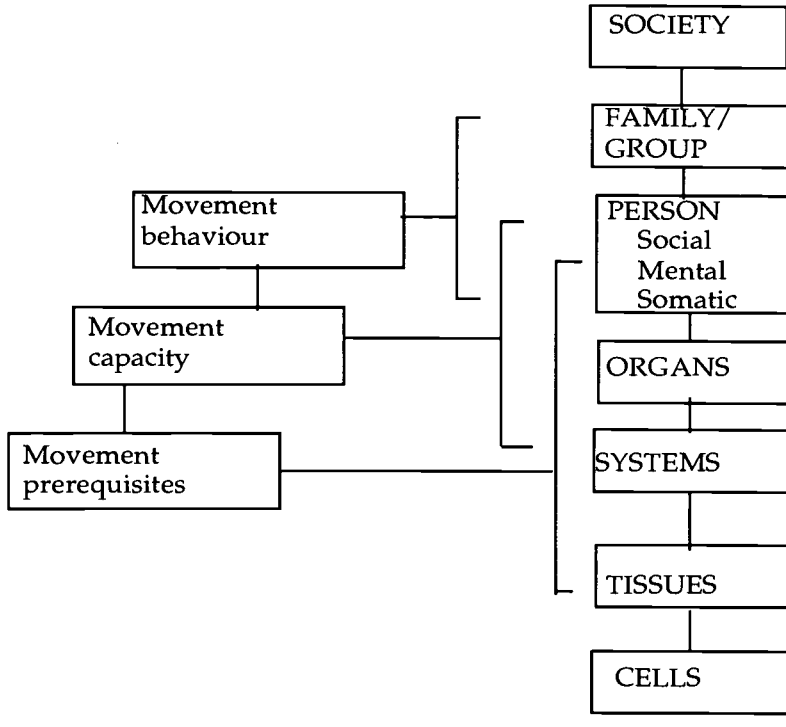

Fig. 3. The movement hierarchy in physiotherapy as related to a system theory view of man. Man as a natural system modified after Hislop and Brody (Tyni-Lenné 1987, p. 88)

The *movement prerequisites* comprise the anatomical, physiological and psychological conditions which are necessary for human movement. Concepts used at this level of physiotherapy are e.g. joint stability, mobility, muscle tone, muscle strength, endurance, co-ordination, perception. From a physiotherapeutic perspective, according to Tyni-Lenné, even pain can be regarded as a parameter among the prerequisites of movement. Tyni-Lenné relates the movement prerequisites to the levels *tissues* to *person* in Hislop's model of man as a natural system.

Movement capacity is the possible human movements resulting from neurophysiological maturation and developed by the interaction between the child and its surroundings. Movement capacity has three variables; postural adjustments, self-initiated motor tasks and/or locomotion, environmentally driven tasks. Movement capacity relates to the levels *systems* to *person* in Hislop's model.

Movement behaviour is the automatic adjustment of movement capacity and/or adjustment of the environment in relation to the

intrapersonal action resources and central goals of the individual. In Tyni-Lenné's model, movement behaviour is a necessary but insufficient condition of health. Emphasis on the resources and central goals of the individual as central is also a characteristic feature of the holistic perspective. The concepts of health and movement are thus connected and partially defined in terms of each other.

As a consequence of choosing health as the basic concept for the model, the concept of movement is defined in positive terms. Instead of defining the basic postulates as pathokinesiology like Hislop, Tyni-Lenné defines the conditions considered necessary for human movement on three levels of the system of man. The concept function is not explicitly used in the model, but the three levels of the hierarchy itself can be interpreted as descriptions of different kinds of functional activity.

The demand for a task-oriented and goal-directed perspective of movement as a basis of physiotherapy intervention as in Tyni-Lenné's model, has recently also been supported by several other authors (Gordon, 1987; Gentile, 1992; Higgins, 1991; Mulder, 1991; Schmidt, 1991). Characteristic of this perspective is an emphasis on the situational and contextual dependence of human movement. Physiotherapists should, accordingly, pay more attention in treatment and training of patients, to the goals of the individual as well as to the context in which the individual is supposed to function. According to these thoughts, movements are patterns or strategies, purposive as a part of goal-directed problem-solving. A movement is the result or product of the processes of interaction between perception, cognition and motor action. Perception and cognition are necessary and integrated components of the individuals interacting with their surroundings for the purpose of achieving a goal.

I have now given a summary of the use of the basic concepts within the theoretical discourse of physiotherapy and shown that the interpretation of their meaning differs according to different perspectives. Below, some empirical studies of professional competence in physiotherapy practice will be described.

Empirical research on physiotherapy practice

The body of empirical research focusing on physiotherapy practice is somewhat diversified as regards research perspectives. In the following, I will review some studies from four different perspectives with particular relevance to the present study.

The sociological perspective

Firstly, the *sociological perspective* features vocational strategies among physiotherapists. Bergman (1989) described different strategies among physiotherapists concerning how they interpreted their professional role. She presented four ideal types; the treater, the consultant, the doubter and the innovator. The treater was characterised by giving priority to patient treatment, taking the view that the physiotherapist is responsible for care by means of physiotherapy, but also based on her own interest. The consultant was characterised by a deliberate desire to work as an adviser and expert physiotherapist, rather than to work with treatment, in an experienced non-hierarchical setting. The doubter was characterised by giving priority to patient treatment, even when suspecting that combining patient treatment and research would promote professional knowledge as well as patient work. The innovator was characterised by a deliberate desire to work with management and research as well as with treatment, with the goal of promoting both patient work and professional authority.

Bergman's results show that the professional physiotherapists vary in their interpretations of their professional role, mainly depending on the bounds of the institutional settings within which they worked, and that the individual physiotherapist must be prepared to play a broadly defined professional role. The results also reveal that the dominance of the medical profession still prevails, many physiotherapists have difficulties claiming their specific professional interests and thus become subservient to organisational demands rather than being able to organise and carry out their work in a way that is believed to be more beneficial to their patients and clients.

The influence of the institutional bounds on the physiotherapists' interpretation of their professional role has also been shown by Thornquist (1994b), who demonstrated that different clinical settings influenced the professional's attention in patient encounters. Thornquist videotaped physiotherapists in natural working settings and interviewed them in order to uncover their thinking about the diagnostic process in physiotherapy and to identify possible differential frames of reference. The project encompassed three categories of physiotherapists; manual and psychomotor therapists, working at privately owned institutes, and district (visiting) therapists, employed by the municipality to make contact with old people in their homes. Thornquist found that the three categories of therapists used different approaches and operated within different interpretative frames throughout. They directed their attention towards different

aspects of the patient's body, function and life situation, they interpreted information differently, they concluded their examinations in different ways and suggested different treatments.

The manual therapists interpreted their findings within a biomechanical frame of reference, i.e. the body was examined as a body object, as extrinsic to the self and in accordance with the biomedical model. The psychomotor therapists, in turn, regarded the patient as an embodied subject from what Thornquist calls a psychological perspective. They were concerned with the body as a conveyor of the person's life and history, i.e. with the present body as a kind of mirror of yesterday's life. The visiting therapists, on the other hand, were concerned with the relationship between the individual and her surroundings. They were first and foremost concerned with the person's ability to participate in daily activities and social life, i.e. they considered the patient primarily from a social perspective. Thornquist's conclusion is, however, that the differences in therapist approach could not be explained merely by the bounds of the institutional settings but that, rather, the differences were rooted in the therapists' interpretation of their professional role, i.e. their conceptual frames of reference.

The novice-expert perspective

A second direction of research on professional competence in physiotherapy is the *novice-expert perspective*, building theoretically on Dreyfus' (1986) model of skill acquisition which posits that in the acquisition and development of a skill, a student passes through five levels of proficiency: novice, advanced beginner, competent, proficient and expert. Benner has applied this model to nursing (Benner, 1984). These different levels reflect changes in three general aspects of skilled performance; 1) A movement from reliance on abstract principles and rules to the use of past concrete experience as a basis of the choice of actions 2) The learner's perception of the demand situation changes and the situation is seen less and less as a compilation of equally relevant bits, and more and more as a complete whole in which only certain parts are relevant. 3) There is also a passage from detached observer to involved performer. The performer no longer stands outside the situation but is now engaged in the situation.

The expert-novice research as regards physiotherapy comprises descriptive studies of the variations between expert or master clinicians and novice physiotherapists as regards their work within different clinical settings, and how the development of expertise in physiotherapy is constituted. (Jensen, Shepard, & Hack, 1990;

Shepard & Jensen, 1990; Jensen, Shepard, Gwyer, & Hack, 1992; Martin, Thornberg, & Shepard, 1993; Shepard, 1993). The rationale of the expert/novice studies is that knowledge of the expert physiotherapist's competence could provide a tool for designing educational programs "that would foster physiotherapy behaviours and skills similar to those used by the masters" (Shepard, 1993, p. 18), or to "structure and guide the professional development of novice clinicians entering the field of physiotherapy" (Martin, *et al.*, 1993, p. 12).

In the case of the variation between master and novice clinicians, four studies including observation of treatment, audiotaping of treatment sessions, interviews with clinicians and patients and reviews of patient records were carried out. A total of 14 master clinicians and 13 novice clinicians practising in orthopaedic outpatient and rehabilitation inpatient settings were studied. Master clinicians were defined as therapists who had been in practice 10 or more years and who were nominated by a group of peers as being master clinicians based on their experience and expertise. Novice clinicians were defined as therapists who had been in practice less than one year and who worked in the same type of setting as the master clinicians. Summary case reports were developed based on observational, audiotaped and interview data. Differences were described in five attribute dimensions of knowledge and performance that distinguish between experts and novices (Table 1). One attribute dimension regarding confidence in predicting patient outcomes was related to differences in knowledge and four attribute dimensions regarding the ability to control the environment, the evaluation and use of patient illness and disease data, the focus of verbal and nonverbal communication with patients, and importance of teaching hands-on care were related to differences in improvisational performance in the patient encounter.

Table 1. Knowledge and performance attribute characteristics that distinguish between the therapeutic intervention of novice clinicians and master clinicians (Jensen, *et al.*, 1992, p. 718)

Therapeutic intervention

Knowledge			Improvisational performance		
Attribute	**Master**	**Novice**	**Attribute**	**Master**	**Novice**
Confidence in predicting outcomes	Comfortable schema for interpreting data and predicting outcomes	Collecting data and hoping to find a clear direction, seeking help from colleagues	*Ability to control environment*	Interruptions controlled	Interruptions not controlled
			Focuses verbal and non-verbal communication	Intense patient-centred encounters	Medley of approaches to gather data and maintain rapport
			Evaluation and use of patient illness and disease data	Dynamic elicitation and use of data specific to the patient	Focus on finding the right data
			Importance of teaching hands-on care	Reliance on teaching as an essential clinical skill	Focus on patient report and hands-on skills

Additional studies in this field regarding the identification of characteristic events and processes that affect the professional growth of expert physiotherapy clinicians within neurological and orthopaedic practice in Sweden have been carried out (Martin, *et al.*, 1993). The results of a multiple case study of 11 expert clinicians showed that certain types of experience were noted as important growth factors. Cited as most powerful was the experience of having a mentor or

role model in their professional work and the experience of going through a personal crisis. Reflection over education and experience also appeared to be a powerful theme that led to a more patient-centred philosophy and shifted the role of the physiotherapist from "doing for" the patient to guiding the patient. This also lead to self-confidence which is considered a prerequisite of innovation and necessary risk-taking. The authors suggests that expert practice is the result of reflection and reflection may be critical to the ongoing development of expertise.

The cognitive perspective

Thirdly, there are also some studies aligned with the tradition of research on thinking and reasoning and the nature of expertise from a *cognitive perspective*, focusing on the characteristics of physiotherapists' clinical reasoning and the nature of expertise relevant to physiotherapy The cognitive perspective refers to the thinking processes associated with clinical practice rather than emphasising the decisions made or the actions or steps involved in patient management. The rationale behind this perspective is the idea that the understanding of the cognitive components of clinical reasoning should enable physiotherapists to critically evaluate their own reasoning. With this knowledge, educational activities could be designed to facilitate improved reasoning.

In the medical education literature, clinical reasoning is described as a process of hypothesis generation and testing or hypothetico-deductive reasoning. This process involves collecting and analysing information, generating hypotheses concerning the cause or nature of the patient's condition, testing these hypotheses and determining the optimum diagnostic and treatment decisions based on the data obtained (Higgs, 1992). (For a comprehensive review of research on clinical reasoning and problem-solving in medical and health care, see also Sjöström, 1995).

From a physiotherapeutic point of view, it has been suggested that physiotherapists adopt clinical reasoning processes similar to those of their medical counterparts (Payton, 1985; Dennis & May, 1987; Thomas-Edding, 1987), but it has also been argued that physiotherapy actually places grater emphasis on treatment and subsequent evaluation than the medical models which emphasise diagnosis (Higgs, ibid.). Many models also lack, according to Higgs, recognition of patient involvement in decision-making, which is a widely supported philosophy in the health care field.

Another difficulty with the hypothetico-deductive models, according to Higgs, is that they give the impression that clinical

reasoning is largely a sequential process which is considered to be a too simplistic conception. Jones suggests that clinical reasoning is instead a cyclical process which emphasises the interrelationships between the various phases of clinical reasoning (Jones, 1992). Jones showed that physiotherapists generate working hypotheses in a number of areas, not just diagnoses (Jones, 1992; Jones & Butler, 1991) but related to the source of the symptoms and dysfunctions, contributory factors, precautions and contra-indications for physical examination and treatment, prognosis, and treatment.

Mattingly & Fleming (1991a; 1991b; 1993) studied clinical reasoning in occupational therapists and propose similarly that the process in this context is not framed by a biomedical perspective, but oriented towards the world of human meaning. Mattingly & Fleming suggest that although their study focused on occupational therapists, the results may be relevant to other professionals such as physiotherapists.

Occupational therapists' fundamental task is to treat the illness experience. The illness experience refers to the meaning that a disability takes on for a particular patient, i.e. how disease and disability enter the phenomenological world of each person. Thus, Mattingly & Fleming (ibid.) argue that clinical reasoning is much more than the identification of a problem and the application of propositional logic in order to select a solution. Instead, it is a complex process where multiple factors in the problem complex are observed and interpreted, practical hypotheses are generated and integrated. The actions are in turn selected and combined from a broad range of potential actions that would yield the best resolution of the particular situation. This task is proposed to be guided by practical theories, residing largely in the tacit dimension.

The communicative perspective

A fourth line of research pertains to a *communicative perspective*, focusing on the process of interaction between physiotherapist and patient. This research perspective aims at articulating the socially and professionally constructed basis on which therapies are chosen and co-operation is built - the tacit knowledge of the professional discourse (Engelsrud, 1990; Thornquist, 1992; Thornquist, 1994a; Thornquist, 1994b) The focus of the research is thus shifted from the pure diagnostic activity in clinical reasoning to the underlying professional frames of reference. Thornquist proposes that attention not be restricted to either clinical reasoning or communication but, instead, be directed towards the relationship between communication and diagnostic approaches in order to understand how a health

problem is defined. The complexity and social organisation of the process of interaction cannot be ignored. Videotaped encounters between two patients and their physiotherapists were analysed in depth to uncover the interactive process. The result of the analysis showed that the practices of the two therapists were clearly based on two different frames of reference, though both therapists were concerned with the patient's functional problems.

A *dualistic* frame of reference was identified where the diagnostic interest comprised joint mobility from a biomechanical perspective. Parts of the body and their local functioning were thus isolated, and the whole body isolated from its historical and social context. Characteristic of the interactive process was that the physiotherapist imposed her perspective on the patient, neglecting non-verbal body language, and thereby closed and delimited the course of interaction.

A *phenomenological* perspective of the patient as an embodied subject, regarding the body as an expression of the person's life and history was also discerned as a frame of reference. The initiative in the encounter shifted between the physiotherapist and the patient respectively. Characteristic of the interactive process was that the physiotherapist had an accepting attitude towards body language from the patient and that this was integrated in the process, thus opening and expanding the course of interaction.

A field study of physiotherapists working in primary health care showed similar results (Abrandt, 1996). Two physiotherapists' encounters with a total of 15 patients were observed. Two interpretations of the physiotherapists' encounter with patients were discerned; a dualistic and medical, organ-oriented and a dialectic, interaction-oriented perspective, respectively.

Similar results were also obtained by Westman-Kumlien & Kroksmarks (1992), who showed in a study of first encounters between 10 physiotherapists and their patients that two main perspectives of the therapeutic relationships dominated among the physiotherapists. The subjects were interviewed about their ways of thinking and acting in their first encounter with the patient. The phenomenographic method was used and data were analysed qualitatively. Different categories of conceptions with reference to the preparations before the encounter, the course of the encounter, and the strategy within the encounter were found, pertaining to two main perspectives: 1) the relationship was based on a dialogue aimed at discovering the patient's own conceptions of his/her problems and strategies to solve them and 2) the relationship was not based on a dialogue, but the physiotherapist perceived herself as the

authority. Findings that point out the authoritative role of the physiotherapist were also obtained in Engelsrud's (ibid.) and Ek's (1990) studies of physiotherapy treatment sessions.

Summary

The journey through the diversified perspectives of professional competence can be regarded as the background and framework of my understanding of the nature of the phenomenon and of the perspective adopted in this thesis. The point put forward here is that theoretical and practical knowledge are two intertwined aspects of professional competence. The practitioner brings his personal judgement to the interpretation of the unique, professional situation. On the basis of this judgement, the professional practitioner acts in accordance with his interpretation of the different constants in terms of role frames, appreciative systems, overarching concepts, discourse and repertoires that are embedded within the profession. These constants are both explicitly and tacitly conveyed through the educational process and the professional experience. The tacit function of these aspects of knowledge could be made explicit through reflection, and thereby enhance the development of the body of knowledge within the profession.

The summary of the core of physiotherapy showed that the origin of the profession in two knowledge traditions has influenced the theoretical frame works of physiotherapy models and the basic concepts as well as how physiotherapists interpret their professional role in physiotherapy practice. The context of the institutional and professional discourse is not univocal, but diverse. In the following chapter, we will scrutinise how this professional discourse of physiotherapy is transformed through the curriculum of the physiotherapy programme.

Chapter 3

The educational programme: A problem-based approach

In this chapter, I will provide a description of how the core of physiotherapy is reflected in the formal physiotherapy curriculum. I will also reflect upon my experiences as a faculty member and a participant in the development and implementation of the curriculum prevailing at the time of the investigation. The programme will be described in terms of pedagogical approach, objectives, structure and content of the intended physiotherapy curriculum at the Faculty of Health Sciences in Linköping, which is the educational setting for the subjects in this study. This description aims at revealing the character of the professional discourse as transformed through the curriculum and encountered by the students during the course of the educational programme.

The Linköping Faculty of Health Sciences

Since 1986, the Faculty of Health Sciences in Linköping comprises a joint organisation for medical research and education of medical and allied health care professionals. Six study programs are provided; laboratory technique, medicine, nursing, occupational therapy, physiotherapy, and social care management. (For a description of the history and origin of this reform see e.g. Bredänge, 1991; Rahimi, 1995; and Kjellgren *et al.*, 1993.) Besides being a renewal as regards the organisation of the education of health care professionals, the coming into being of the Faculty of Health Sciences was also a renewal with respect to the educational content and the pedagogical approach. Emphasis is placed on concepts such as holism, prevention and primary health care, problem-orientation, teamwork and integration as well as enhancement of self-directed learning in the students.

General objectives

In accordance with the renewal of the organisation, the Faculty of Health Sciences has adopted an overarching policy for all the educational programs. The aims are to take part in the international striving towards change in professional health care education pro-

grammes as dictated by future demands. Accordingly, all study programmes at the Faculty of Health Sciences should be characterised by

- a humanistic perspective on man
- a holistic perspective of health and disease
- a close connection between education and clinical practice, social care, preventive work and research
- an emphasis on the training of teamwork between the different health care professionals

The overarching policy also comprises a joint pedagogical approach. Since 1986, problem-based learning (PBL) has been implemented as the method and perspective of learning for all the study programs at the Faculty of Health Sciences, inspired by models from the Limburg University in Maastricht, Netherlands and Mac Master University in Hamilton, Canada (Kjellgren, *et al.*, 1993). In the following, I will provide a condensed general description of the characteristic features of PBL and its application as regards the physiotherapy programme at the Faculty of Health Sciences.

Characteristic features of PBL

The essence of problem-based learning could be described in the form of three distinctive features. Firstly, real life situations constitute the starting point for the learning; secondly, the learning is self-directed; and thirdly, the basic work form is the small tutorial group (Kjellgren, *et al.*, 1993).

Real life situations, or vignettes, as starting points for the learning are utilised to help the students to gain a picture of the context in which the knowledge is to be applied. The students' questions and problem formulations in relation to the objectives of the curriculum constitute the basis of the learning task. The vignettes are not identical with the problem, but the problem is generated from them. Normally, we think about a problem as something problematic that calls for a solution. In PBL, the concept problem has a wider and less problematic connotation. It is used to denote the class of questions that can be formulated concerning a situation or a concept, and of which some are relevant to the education at hand. The problem-solving process constitutes the means as well as the objectives of the learning process.

This means that the learning is *self-directed* and the students themselves must take responsibility for their learning. They have to decide what learning gaps they need to fill, what information they have to acquire to answer the questions related to the starting point. It also means that they have to integrate aspects from different areas of knowledge, as they relate to the case, problem or situation they wish to resolve.

In problem-based learning, problem-solving is integrated with the learning process to enhance self-directed learning and problem-solving skills which are essential components of the professional competence, irrespective of the precise branch of the profession in which the students will practice in the future. The problem-solving process initiates learning, the students identify their prior knowledge and pose questions for which they actively seek the answers. Relevance to the goals of the learner is considered to be a powerful driving force for active learning and reflection, and for increasing motivation and responsibility for the learning. The students are supposed to learn how to formulate problems and to find information, how to apply the knowledge the acquire and how to evaluate their work (Silén, Normann, & Sanden, 1989). There is no mandatory literature, the students are free to choose literature which is relevant to the problems formulated. The objectives of the course and a list of relevant literature are also provided in goal documents for each term of the programme and function as the students' guide in the learning process.

The basic working method in PBL is the *tutorial group*. 5-7 students work together in a group with a tutor (Kjellgren, ibid.). The tutorial group is the arena where the learning and problem-solving processes are made public. The students are supposed to learn how to interpret the group process, how to provide and receive constructive feed-back. Every group session is concluded with an evaluation of the work in the group.

Traditional forms of teaching, such as lectures, laboratory work, training of skills and seminars are also used, but have been adjusted to support and stimulate the self-directed work in the tutorial groups. A special form of work is the resource event. A resource event is a session in which the students may get assistance with their work by being able to discuss their questions with and get answers from experts within the particular area of study.

PBL as a shift of perspectives

PBL represents a shift from the traditional perspective of education, with a focus on the teacher and the teaching methods, to a perspective that places the students' learning in the fore. The student's role changes with respect to increased responsibility for active commitment in his/her studies and learning. PBL also has consequences for the teacher's role, the selection of content, the organisation of the curriculum and the education as a whole (Albanese & Mitchell, 1993; Barrows, 1986; Boud & Feletti, 1991; Kjellgren, *et al.*, 1993; Silén, *et al.*, 1989). This shift of perspectives is often a challenge to previous experiences, both within the faculty and for students, of educational perspectives and settings based on traditional roles as teacher and pupil.

As regards communication in teaching, two approaches are discernible in a general sense; an action-oriented and an interaction-oriented approach. (Dahlgren, 1989). The action-oriented approach represents a traditional conception of the teacher as the speaking person and the student as the listener. The interaction-oriented approach means that the frame of reference of the teacher's work is instead the students' ways of thinking and conceiving of the syllabus. In PBL, the teacher's role changes from the traditional action-oriented perspective to an interaction-oriented tutor's role. This change is most prominent as regards the teacher's role in the tutorial sessions (Boud & Feletti, 1991; Kjellgren, *et al.*, 1993).

The implementation of PBL also has consequences for the organisation of the curriculum. Traditionally, the identity of an area of teaching is disciplinary; that is, the established borders between specialisms of research are also maintained in teaching (Dahlgren, ibid.) In PBL, real life situations are taken as a point of departure for the learning. This requires an organisation of the curriculum, where different fields of knowledge of something that appears as a problem, an event or a phenomenon which in reality is thematically organised. The principle of thematic organisation is also a characteristic of the curricula at the Faculty of Health Sciences.

As regards the selection of content, Dahlgren (1993) argues that the education system has traditionally attempted to be representative with regard to the different disciplines. Quality in education has sometimes been regarded partly as dependent on the extent to which the discipline has been covered by the teaching. It is, however difficult to preserve the idea of total representation of the disciplines in the curricula. The increasing pace in the production of new knowledge through scientific research would thus cause that the curricula would be crammed with content that could only be dealt

with on a superficial level. An alternative to the idea of representation is Wagenschein's (1974) notion of exemplary learning. Dahlgren (1989) describes the central idea of exemplary learning as an attempt to gain a deeper understanding of some of the core concepts in a field and to deal not only with research results but also introduce methods of inquiry that even reach as far as the epistemology and ontology of a scientific area.

The notion of exemplary learning could in this context also refer to curricula as at the Faculty of Health Sciences which are built around a limited number of concepts, phenomena or problems. The vignettes chosen as starting points for learning aim at directing the students towards themes and areas of knowledge central to their future professions. Exemplary learning is also necessary in PBL in order to allow the students the amount of self-directed and independent study that is needed. It is thus recommended that compulsory and elective sessions of the different educational programs at the Faculty of Health Sciences not exceed 15 hours per week in order to avoid crammed schedules.

Experiences of the process of curriculum development

The national physiotherapy curriculum was confirmed by the Swedish National Board of Universities and Colleges (UHÄ) on 20 April, 1983, and the first local curriculum in Linköping was implemented in 1984. The renewal of the pedagogical approach and the overall organisation of the educational structure and content in 1986 made it obvious to the faculty members of the physiotherapy programme that the traditional curriculum, strongly influenced by the medical curriculum, had to be abandoned. The discipline-based curriculum had to be transformed into a thematically organised curriculum. The revision work was carried out by the faculty members in accordance with the overarching educational philosophy by applying the PBL method to the problem. Extensive faculty discussions and meetings regarding the rethinking and rewriting of the curricular structure were carried out. The result of this first revision of the curriculum was implemented in 1988.

The characteristics of the new curriculum were that the disciplines was replaced with themes such as Respiration and Circulation, Musculo-skeletal function, Neuro-muscular function, etc., each theme focusing on different fields of the physiotherapeutic area of

professional work. The different themes encompassed approximately one term of the programme respectively. The subsequent experience of the implementation of the new curriculum evoked, however, continuing discussions among faculty members about the need for further development. These discussions concerned two main problems; firstly, was the thematic structure and content of the curriculum really emphasising the central theoretical concepts unique to physiotherapy, or was it just preserving a traditional classification of physiotherapy? The second problem was the temporal organisation of the themes according to the terms. The different themes of each term did not recur in the programme once they had been completed. In what ways could an alternative organisation of the themes enhance continuity and progression in the students' learning throughout the course of the programme?

These discussions were the incentive for the second revision of the local physiotherapy curriculum which was confirmed by the Faculty Education and Research Board, Faculty of Health Sciences on 30 May, 1990. The local curriculum applies from the academic year 1990/91 and was in force at the time of the data collection. The intentions at the onset of the second revision were to make the central theoretical concepts even more explicit and to reorganise the structure in such a way that the different themes would recur with different foci in all the terms, instead of being completed with each term.

Again, the faculty members tackled the problem with a problem-based approach and worked as a tutorial group in order to find out how the goals of the revision could best be achieved. Defining the central concepts of physiotherapy proved to be a difficult and in no way self-evident task, which is evident from the elaboration of these issues in *chapter* 2. The faculty finally agreed to build the new curriculum around the concepts *movement, health* and *interaction* as a basis for the physiotherapy education al programme, thus reflecting the core concepts of the physiotherapy profession. In the following, I will give the results of the work in the form of a description of the structure and content of the revised curriculum.

The intended physiotherapy curriculum 1990/91

This curriculum comprises 100 credit points (University Certificate in Physiotherapy, local, curriculum, Faculty of Health Sciences, Linköping University). One credit point corresponds to one week's full-time studies. The academic year is 40 weeks and a term is 20

weeks. In accordance with the problem-based approach, the traditional disciplinary based organisation of the educational content has been abandoned. The syllabus is instead thematically organised, which will be evident from the following description of the structure and content of the programme.

The general objectives

The aims of the programme for a University Certificate in Physiotherapy are that the physiotherapy programme should provide education for physiotherapeutic work in hospital care and primary health care, as well as for visiting work and preventive care. The general objectives of the curriculum are that the students should acquire and develop

- knowledge and skills in the physiotherapy process, its methodology and scientific theory
- self-knowledge and knowledge about the possibilities and restrictions of the human body, to be able as a physiotherapist to judge and value human physical and mental resources
- knowledge and skills in physiotherapeutic treatment methods and the relationship to science and proven experience
- the ability to recognise, investigate and judge the need for physical therapy with curative and preventive aims
- the ability to prevent, examine and treat dysfunctions in the respiratory and circulatory system, the nervous system as well as musculo-skeletal and psychiatric dysfunctions
- the ability to analyse, describe, evaluate and document physiotherapeutic activity
- preparedness to be able to identify the need for and to initiate development of the physiotherapeutic methods for investigation, judgement and treatment of dysfunctions. (ibid., p. 2).

Structure and content of the programme

The structure and content of the physiotherapy curriculum is based on three overarching concepts considered central to physiotherapy; Movement, Health–Ill-health and Interaction. The overarching concepts recur throughout the course of the educational programme and are further integrated in subsequent themes, which will be described below. The curriculum is divided into a basic part, compris-

ing 20 credit points and a continuing part, comprising 80 credit points. An overview of the curriculum is provided in fig 4.

Basic part (20 credits)	Continuing part (80 credits)			
Term 1 (T1)	Term 2 (T2)	Term 3 (T3)	Term 4 (T4)	Term 5 (T5)
1-10 credits	21-40 credits	41-60 credits Part I:	61-80 credits Part II:	81-100 credits
Man and Society (10 credits)	Human Body and Movement: Normal function Physiotherapy in Preventive Health Care	Human Body and Movement: Dysfunction Physiotherapy in Hospital Care	Human Body and Movement: Dysfunction Physiotherapy in Hospital Care and Primary Health Care	Human Body and Movement: Dysfunction Physiotherapy in Primary Health Care
11-20 credits				
Alternative courses; Natural Science or Care (6 credits)	Field studies			Clinical Practice in Primary Health Care
Body and Movement: Normal function Physiotherapy and Society (4 credits)	Auscultation within Primary Health Care	Clinical practice in Hospital Care	Clinical Practice in Hospital Care and Primary Health Care	

Fig. 4. Overview of the local physiotherapy curriculum, applied as from the academic year 1990/91, Faculty of Health Sciences, Linköping University

Basic part

The basic part, 1-20 points, of the programme comprises the courses Man and Society, alternatively Nursing or Natural Science, Human Body and Movement; Normal Function, and Physiotherapy and Society.

The introductory course, Man and Society, integrates students from all the programs in the Faculty of Health Sciences. The aim of

this course is not only to introduce the students to problem-based learning and to a scientific attitude, but also to introduce a common frame of reference relevant to their future work as different types of health professionals. Aspects affecting the health of the individual are studied as well as the interaction between people of various ages and between man and society. Interaction and teamwork is also trained in the tutorial groups.

Depending on educational background before entering the programme, the students are then required to attend either a course in basic health care or natural science. The aim of this course is to provide the students with basic knowledge in these areas, which are considered necessary for their continuing studies.

The aims of the concluding course in the basic part, Human Body and Movement: Normal function are that the students should acquire a basic knowledge of anatomy and physiology as regards the movement apparatus of the human body, as well as skills in the analysis and judgement of normal human movement. Physiotherapy and Society aims at introducing the students to the role of the physiotherapist in different fields of practice. The history and future visions of the role of the physiotherapy profession in society is also studied.

Continuing part

The continuing part, 21-100 points of the curriculum, comprises four terms. The objectives are structured according to the overarching concepts Movement, Health and Interaction, which are further transformed and integrated in the theme Human Body and Movement which occurs with different foci in the different terms.

In term 2, the focus is on normal function. The aims are that the students should acquire knowledge and skills as regards the human prerequisites, abilities and restrictions of movement in a life-span perspective. The aim is also to develop knowledge and understanding of the interplay between the human body, the soul and the environment and the importance of movement and activity. Besides the theoretical studies, field studies and auscultation in Primary Health Care is included. The objectives of the term with respect to the overarching concepts require the students to be able to:

MOVEMENT

- obtain basic knowledge of human senso-motor learning and development through the human life-span
- acquire knowledge and understanding of anatomical, physiological and psychological conditions necessary for human movement

- develop awareness and a sense of the potential and limitation of one's own body as regards movement and physical exercise
- acquire knowledge and skills in movement analysis and evaluation of function

HEALTH–ILL-HEALTH
- deepen knowledge of how life style and the living conditions affect the ability to function
- acquire knowledge of the financial and personnel resources in society as regards health promotion
- acquire knowledge of the effects of physical exercise and activity

INTERACTION
- develop awareness of one's own personality, reactions, attitudes and perspectives of Man
- develop and understanding of the meaning of interaction between people
- develop knowledge and skills as regards communication, verbal as well as non-verbal
- develop awareness and a sense of tactile communication and the importance of touch
- develop the ability to lead physical exercise in groups

In term 3-5, the theme Body and Movement is studied with a focus on dysfunction. The aim is for the students to achieve basic competence in physiotherapy in hospital care and primary health care. In addition to the theoretical studies, supervised clinical practice in different clinical settings in hospital care and primary health care is included each semester. The objectives include and build upon the objectives from the previous terms, which does not mean that the same content is repeated, but that the students are supposed to further develop and deepen their knowledge and skills. New objectives with respect to the overarching concepts as regards term 3-5 are that the students are required to be able to:

MOVEMENT
- acquire basic /deepen/ knowledge and skills as regards prevention and rehabilitation of musculo-skeletal, neuro-muscular, respiratory, circulatory and psychiatric dysfunctions
- deepen their knowledge and skills as regards analysis and evaluation of movement with respect to different prerequisites and abilities of movement

HEALTH
- acquire /further/ knowledge of illness and dysfunction -aetiology, their symptoms, course and epidemiology as a basis of physiotherapeutic interventions

- deepen their knowledge of how environment, life style and living conditions affect health of the individual as a basis of physiotherapeutic intervention

INTERACTION
- acquire further knowledge of communication
- understand and apply the physiotherapy process. Practice the ability to see and evaluate the clients' needs, resources and goals. Become aware of their own resources and goals and evaluate if these goals are in concordance with those of the patient and possible to realise.
- develop empathy and a therapeutic relationship
- practice a pedagogical ability

The overarching objectives of the curriculum are further elaborated in goal documents, so-called study guides for each term. The aim of the study guides is that they should function as steering documents for the students' self-directed learning.

Clinical practice

From term 2-5, theoretical studies are integrated with periods of clinical practice in different clinical settings in hospital care and primary health care. During the clinical practice periods, the students are tutored by registered physiotherapists working in the field in question.

In term 2, the focus is on Body and Movement: Normal function. The clinical practice in this area consists of recurrent auscultative field studies in primary health care. The field studies comprise different foci, e.g. the intentions and goals of primary health care, the preventive and curative role of the physiotherapist in this area, communication and interaction, normal motor development, normal ageing, etc.

Term 3-5 focuses on Body and Movement: Dysfunction. Term 3 comprises six weeks of clinical practice in e.g. surgery, orthopaedics, reumatology. The clinical practice in term 4 comprises four weeks in neurological or geriatric rehabilitation and three weeks of elective clinical practice in hospital care. A period of two weeks comprises auscultation in habilitation. The fifth and last term of the programme includes three weeks of elective clinical practice, one week in occupational health care and, finally, six weeks in primary health care. The aim of the elective periods is to enable the students to assemble broad and basic experience of physiotherapy in different areas throughout the course of the programme. The elective practice

periods are thus required to be chosen as complementary additions to previous clinical experiences.

Experiences of the implemented curriculum

The implementation of the new curriculum was, from my own experience of being a participant in this process, characterised by a striving towards achieving coherence and progression in the recurrent themes throughout the programme. The faculty group encountered difficulties with the structure of the new curriculum compared with it predecessor. The previous structure, with one theme covering one term, organised the work of single faculty members within the frames of their special area of interest and in only one term of the programme. The new structure of the curriculum allocated the responsibility for the different themes and construction of objectives and vignettes to a group of faculty members working over several terms.

The shared responsibility made it more difficult to have an overall view of the progression in the programme, theoretically as well as in clinical practice, since the previous organisation with a single faculty member working basically within the framework of one semester only was maintained. On the other hand, the new structure required increased interdisciplinary co-operation both between the faculty members and between faculty and clinicians, which was in concordance with the overarching goals of PBL. The striving for co-operation, coherence and theoretical stringency in the programme evoked discussions among faculty members which also highlighted the need for further exploration of the theoretical discourse of physiotherapy. This area of further development among the faculty members was thus prioritised by the management, and in 1993-95 several faculty members attended courses on theoretical models of physiotherapy.

The students' experience of the implemented curriculum is represented here by their evaluations of the programme, given in both cohorts at the end of the last term, group I on 7 June, 1993, and group II on 16 January, 1994. Programme evaluations are made in all the programmes at the Faculty of Health Sciences according to a common model, inspired by Engel (Kjellgren, *et al.*, 1993). The students are required to state their opinions retrospectively about the organisation of the programme, the working methods, the examination forms, and their opinions about the theoretical as well as the clinical practical parts of the syllabus. They are also required to

reflect upon their professional identity and future professional role. The procedure of the evaluation can briefly be described as follows;

Each student notes five positive and five negative experiences of the programme according to the overarching themes and the general objectives of the curriculum. All aspects are presented, displayed on the black board and subsequently categorised. The evaluation proceeds in small group discussions where the students discuss the negative aspects and give suggestions of possible changes. Finally, the results of the evaluation are documented and discussed by the students and faculty members together.

The results of the programme evaluations carried out by the two student groups pertaining to this thesis share some common features. I will give a brief account of these features here.

Regarding the organisation of the programme, both groups said that the programme had been imbued with a holistic view and that the working methods had given insights into group dynamics, the ability to think critically, question and discuss. Furthermore, the students stated that they had learned how to search for information, and how to take responsibility for their studies, and thus developed independence and self-knowledge. In both groups, however, the students criticised the study guides for being unclear and the objectives difficult to understand. The lists of suggested literature were also criticised for not being up to date. A large proportion of the opinions about the theoretical content concerned how the different themes had been distributed and prioritised throughout the programme. A characteristic the evaluations of both groups have in common is that the students wanted the different themes to be more comprehensive. This could be interpreted as meaning that a broad picture of the realm of physiotherapy is provided by the educational programme, but to some extent at the expense of the level of theoretical advancement. Lectures were criticised for not being science based, physiotherapeutic methods were criticised for lacking theoretical models as their basis, etc. from both groups, but particularly from Group I. Common to both groups are also the demands for raised standards in general as regards examination requirements. Both groups were generally satisfied with the clinical practical parts of the programme, but critical of the skills training in the educational setting. The students found the PBL approach not so feasible when it came to learning practical skills. The students wanted the skills training to be carried out in a more traditional way, with demonstrations, practice and feed-back. As regards reflections on professional identity, both groups felt confident about assuming the professional role of physiotherapist. For group I, the period of clini-

cal practice in primary health care during the latter part of the last term had contributed in an important way to strengthening professional identity.

Summary

The core concepts of the physiotherapy discourse are mirrored and transformed via the problem-based curriculum. The intended curriculum together with the reflections on the implemented curriculum is one way of describing what is conveyed by means of the formal education, but it is insufficient to provide an understanding of the attained curriculum, i.e. the impact of the education in terms of how the basic concepts of the professional discourse are actually conceived by the students. It is also difficult to know in what ways the process of theoretical development among the faculty members during the period of curriculum development, affected the way in which the different theoretical perspectives were actually implemented in the educational process. In this respect, we also know little about the professional work and its impact on the physiotherapists' conceptions of the core concepts of the profession. The focus in the present thesis is the specific perspective of learning in physiotherapy that comprises the students' and later on physiotherapists' conceptions of *movement*, *health* and *interaction*, which are regarded as central concepts in the professional discourse. Another concept included in the focus of this thesis is *function*. Due to its recurrent and frequent use within the different themes of the curriculum, the concept *function* was also considered to be a central concept in physiotherapy and thus included in this study. The concepts regarded as central are bound by close ties to the professional discourse of physiotherapy in general, as described in *chapter 2*. Furthermore, they constitute the overarching structure of the formal physiotherapy curriculum in Linköping, and, as a consequence, also the overarching structure of this thesis. Describing conceptions of these overarching concepts will provide one fundamental depiction of the attained curriculum, i.e. how the professional discourse, or the voice of physiotherapy, is understood by the students.

Chapter 4

Research perspective and method

In this chapter, I will attempt to clarify and display the internal logic in the study. The characteristics of the phenomenographic approach and the ontological status of conceptions as the basic unit of phenomenography will be described and discussed in relation to alternative research strategies. Furthermore, I will describe the considerations regarding the design and choice of interviews as the method of data collection. The rationale for the content of the interviews will be discussed as well as the role of the interviewer during the interviews. Finally, considerations regarding the units of analysis and the analysis procedures will be described and discussed.

The phenomenographic approach

Origin and basic assumptions

Phenomenography is a research approach which was developed by Marton, Säljö, Dahlgren, and Svensson at the University of Gothenburg in a series of studies of learning in higher education carried out in the early 1970s. The analyses were initially performed in order to obtain a description of the processes and outcomes of meaningful learning from the perspective of the learner. As regards the processes of learning, these were later interpreted as indicating the existence of a surface and a deep-level approach connected, respectively, to an atomistic and a holistic approach. These approaches could be described as a referential dimension as regards the focus of attention and a structural dimension as regards the organisation of the learning material during the learning process. (Säljö, 1975; Svensson, 1976; Marton et al., 1977) A basic assumption is that individuals vary with regard to how they understand different phenomena in the surrounding world, and that describing the variation as an outcome space is a valuable research enterprise (Marton, 1981). The phenomenographic approach focuses on the kind of learning that can be described as a change between qualitatively different ways of experiencing something, learning has occurred when the subject is capable of experiencing a phenomenon in a new, qualitatively different way. The aim of the analysis is to arrive at a description of similarities and differences concerning

how a certain phenomenon in question is actually conceived of by people (Marton, 1981; Dahlgren & Fallsberg, 1991).

The concept "phenomenography" was introduced to the international research community in 1981 when the phenomenographic approach was presented both as a program for future research and as a description of characteristics of the research hitherto accomplished (Svensson, 1989). Phenomenography is the empirical study of the qualitatively different ways in which various phenomena in, and aspects of, the world around us are experienced, conceptualised, understood, perceived, and apprehended (Marton, 1994). The words "experience", "perceive" and so on are used interchangeably. The point is to suggest that the limited number of ways in which a certain phenomenon appears to people can be found, for instance, regardless of whether they are embedded in immediate experience of the phenomenon or in reflected thought about the same phenomenon. The dominating method of data collection has been semistructured interviews.

The phenomenographic object of inquiry

A key issue in phenomenography is the nature and ontological status of conceptions, which is the object of the research. Marton claims that

> ... the basic unit of phenomenography is experiential, non-dualistic, an internal personal person-world relationship, a stripped depiction of capability and constraint, non-psychological, collective but individually and culturally distributed, a reflection of the collective anatomy of awareness, inherent in a particular perspective. (Marton, 1995, p. 171).

The experiential ontology of conceptions means that there is no other world to us humans than the experienced world. Human experience is also framed by the object of attention, what we discern as figural in the situation and what constitutes the ground in which the figure is embedded. The individual not only conceives of different aspects or parts of isolated phenomena, but also organises and relates what is conceived to constitute a whole. This could be described as the structural aspect of the experience. Closely linked to the structural aspect is the referential aspect, the meaning; when we discern the parts and the whole and their relationship, we also see the meaning. The delimitation from and relating to a context make up the "external horizon" of the phenomenon. The delimitation and relating of parts make up the "internal horizon" of the phenomenon.

The external and internal horizons together make up the structural aspect of the experience. There is a corresponding referential aspect in the meaning inherent in the experience (Marton, 1994). A non-dualistic and internal person-world relationship means that both subject and object constitute each other; i.e. neither the subject nor the object would be the same without the relation between them. In this way, the subject and object are not independent, they form a unity that reflects both the experienced phenomenon and the experiencing subject. The essence of the non-dualistic standpoint is that we cannot describe a world which is independent of our descriptions or of us as describers (Marton, 1995, p. 173).

Contextual analysis

An experience or a conception of a phenomenon, i.e. the internal relation between subject and object, could also be described as a way of delimiting an object from its context and relating it to the same or other contexts, and as a way of delimiting component parts of the phenomenon and relating them to each other and to the whole. Svensson has described this approach as contextual analysis (1985). The results of a contextual analysis are both categorisations and relations between categorisations in the form of combinations or patterns of categories. This means a combination of explorative and interpreting features on the one hand, and analytic features on the other hand (Svensson, 1989). On a general level, contextual analysis shares these features with the phenomenographic approach, but the object of study does not necessarily have to be conceptions as it is in phenomenography. Contextual analysis can be adopted in other types of data and for other purposes, as when the approach was first presented by Svensson in his thesis (1976) about the functional relationship between study skill and learning. Svensson delimited instances of study skills in different situations, and related study activity to levels of understanding and academic performance.

The dilemma of context

The term context is derived from the Latin *contextus*, the past participle of *contextere*, which means to weave together or join together (Scharfstein, 1989). Context is that which surrounds, or environs, the object of our inquiry and helps by its relevance to explain it. The environment may be of any sort, i.e. temporal, geographical, cul-

tural, cognitive, emotional (ibid., p. 1). When we argue that a condition of understanding anything well is to grasp it in its context, we must also be aware that that which is referred to as context in the research process is always selected from an organic totality of contexts. We can never account for the totality of context since, on a general level, everything is the context of everything else. In such a case, the attempt to be thorough in understanding context leads to a total contextualization, which would be equivalent to total relativity. "If we assume that nothing can be understood outside its particular context, the same must be true of the doctrine itself, that nothing can be understood outside its context and the context of the doctrine must have *its* contexts; and so on" (ibid., p. 69). Scharfstein argues that choice of context depends on one's aim, which is never simply neutral. The way of accounting for context in the research process could thus be regarded as related to ontological and epistemological issues. Scharfstein argues that what is seen as relevant aspects of context will affect and even change our definition of the research problem. Therefore, the justification of the contexts we accept, modify, or abandon in the research process is both a justification of ourselves and of the aim we have chosen. Thus, we must be clear about this issue while researching and writing.

The phenomenographic conception of context

In phenomenography, the descriptions of "conceptions" or "ways of experiencing" refer fundamentally to a relation that is internal in nature; the object as it is experienced by the subject. Similarly, the context is ultimately defined by what the participants take it to be (Ekeblad & Bond, 1994). Marton & Booth (in print) argue that a situation is always experienced with a socio-spatio-temporal location - a context, a time and a place - while a phenomenon is experienced as abstracted from or transcending such anchorage. The meaning of the phenomenon is linked to other experiences of similar situations which preceed the present situation. We cannot separate our understanding of the situation that lends meaning to the phenomena and our understanding of the phenomena that lend meaning to the situation. The situation is understood in terms of the phenomena involved, but we are aware of the phenomena from the point of view of the particular situation. Marton argues that although situation and phenomena are inextricably intertwined in experience, as researchers we may opt to focus on one or the other.

The conception of context within contextual analysis

The concept "context" has a specific meaning in contextual analysis that is consonant with the non-dualistic ontology of conceptions within phenomenography. Traditionally, we think of context in terms of external relations between an outer context and the individual. Different variables within this outer context could be studied in terms of their effects on the individual. In contextual analysis, the context is what is conceived by the individual, and the analysis aims to construct internal relations between aspects of the conceived phenomena within its context. "The distinction between internal and external relations is the most fundamental distinction to be made, and it is central to the definition of contextual analysis"(Svensson, 1985, p. 8). Contextual analysis "first of all considers the individual as the most immediate context as regards interpretation of data. Thus the analysis must give descriptions of relations between specific data within the individual" (ibid., p. 5).

The contextual and analytic components of contextual analysis

Typically, contextual analysis is a combination of on the one hand analytic features and, on the other, explorative and interpretative features. The analytical aspect means the delimiting of parts and wholes of a phenomenon from a conceived context. The contextual aspect means that the specific meaning of the delimited parts is searched for in the particular context from which they are delimited. Contextual analysis also means that no classifications or delimitations are made *a priori* from some general criteria, but are motivated by and discerned from the meaning of the specific data (Svensson, 1989).

The analysis procedure comprises a cumulative comparison that leads to a description of the internal relations between and within the delimitation of parts and wholes of the phenomenon. The meaning of the parts is related to the whole of the phenomenon as conceived, and the meaning of the whole of the phenomenon is related to the conceived context and to how the parts are conceived and internally related.

Contextual analysis has been adopted in several phenomenographic studies, albeit with somewhat different conditions (see, for instance, Theman, 1983; Gerrewall, 1992; Dahlberg, 1992; Alexandersson, 1994; and Bendz, 1995). In Bendz's study (ibid.), of how knowledge in nursing practice is manifested in clinical situations, student nurses and later on registered nurses were inter-

viewed, and the transcripts were later subjected to a contextual analysis.

The clinical situation was described as a phenomenon through the subjects' own description and delimitation of aspects in the situation that were important to them. These aspects could concern e.g. the way the nurses conceived of a patient, his needs or reaction and their own actions. The meaning of the clinical situation was thus constituted through the meaning of the component parts of the clinical situation (p. 64).

Phenomenography in relationship to phenomenology

Although phenomenography did not stem from phenomenology, but developed as an empirical approach in educational research, the approach has many connections with phenomenology and phenomenological psychology which have been subject of discussion for almost two decades. (See, for instance, Alexandersson, 1981; Dahlin, 1991; Hasselgren, 1989; Kroksmark, 1986; Kroksmark, 1987; Marton, 1992; Marton & Booth, in print; Uljens, 1993 for more extensive elaborations on this issue).

Phenomenology and phenomenography share the object of research, human experience and awareness. They also share the epistemological standpoint, that knowledge of the world has to be searched for through descriptions of the world, although they differ from an ontological standpoint. Phenomenologists admit a reality independent of consciousness, but claims that knowledge of such reality can only come through consciousness of it (Giorgi, 1994). In phenomenography, this distinction is not essential since the focus is upon the world as experienced. This world is both objective and subjective simultaneously (Marton, 1992).

Phenomenology and phenomenography also differ as to purpose. In phenomenology, the search for essences or the most invariant meaning of a phenomenon is central, while in phenomenography the aim is not to find the singular essence, but the variation and the architecture of this variation in terms of the different aspects which define the phenomena (Marton & Booth, in print). Still, this difference in some sense is also a similarity, since the simultaneous awareness of all the critical aspects of a phenomenon comes close to the phenomenological notion of essence. Marton & Booth claim that in phenomenography, though, this awareness is temporary and

transitional since the set of qualitatively different ways of experiencing a phenomenon is finite, but not closed (ibid.). New ways of seeing the phenomenon could be discovered.

Critique of the phenomenographic approach

Phenomenography has been criticised for the heavy reliance on interviews as the single source of data, and for being context- and subject-neutral. The social and cultural practices within which discourse is embedded are often overlooked in phenomenography, which makes it difficult to recontextualize the findings to discursive practices in educational settings. The mode in which conceptions of the world are studied needs to be further clarified since discourse data give access only to what people say (Säljö, 1994).

Another aspect of this criticism has been that, even though conceptions have been understood in terms of man-world relations, both the man and the world are forgotten in the course of the empirical analysis. The researcher should pay more careful attention to both the population and the context, both during the analysis and when generalising results (Uljens, 1993). On the other hand, it has been argued that this type of criticism reflects an externalist point of view or a dualistic standpoint, based on the assumption that individuals, situations and conceptions are externally related to each other (Ekeblad & Bond, 1994). From this point of view, the context that participants are "exposed to" would be definable separated from what the participants take it to be, as is the phenomenon. Ekeblad and Bond (ibid.) argue that if we pre-define the context, rather than asking ourselves how the participants constitute it, we change the relation from that which was internal to one that is external and thereby also change the purpose of the research. Ekeblad and Bond portray the distinction between the external and the internal perspectives as one between explanation of educational phenomena versus experiential understanding of educational phenomena, and it relates to the ontological and epistemological approaches to research. The question about context is, however, complex and problematic, as is evident from the elaboration previously in this chapter.

The reliance on interviews as the single source of data in phenomenography, as well as in alternative qualitative research strategies in general, has been subject to discussion and criticism in educational research literature. Several authors argue that the rationale for the interviews, the analysis and the coding procedures are often

implicit and not open to public inspection (Constas, 1992; Francis, 1993; Hasselgren, 1993). Again, on the other hand, arguments have been put forward against this criticism which concerns the subjectivity of the researcher. Mishler (1984) argues that since the researcher is the instrument in qualitative analysis, the distinctive features of coding and the respective ranges of reference for each coding category, as well as the contextual grounds for interpreting strings of speech as instances of specific categories, are all governed by "rules" that usually are not, and often cannot be, made fully explicit. Giorgi (1994) argues that the criticism is related to the issue of "mixed scientific discourses" because of the traditional attitude towards subjectivity as something wrong or bad that should be eliminated from the research process. The interplay between the researcher and the object of inquiry is dialectic, the researcher could try to bracket his preconceptions and assumptions, but at the same time, a prerequisite of understanding is that the researcher interprets the data (Ödman, 1979). Giorgi's' point (ibid.) is that subjectivity cannot be eliminated from qualitative analysis, and should not be, but subjectivity in the pejorative sense can be transcended. What matters is, instead, how the subject is present, it is important that the researcher refrains from subjectivism. Hammersley and Atkinson (1995) continue along the same line of reasoning when they write about reflexivity as an aspect of all social research and as a necessary feature of a qualitative researcher. Hammersley and Atkinson argue that rather than

> ... engaging in futile attempts to eliminate the effects of the researcher completely we should set about understanding them (ibid., p. 18).

This means that the researcher should recognise his role as an active participant in the research process. In Hammersley's and Atkinson's words, the researcher is the research instrument *par excellence.* The fact that the researcher may influence the context he is researching thus becomes central to the analysis, and should be exploited for all it is worth. Hence, my own role as an interviewer and my considerations regarding the interviews as well as the analysis procedures will thus be described further on in this chapter. I will first, however, clarify how the phenomenographic perspective is applied in relation to my object of inquiry.

The phenomenographic perspective in relation to the present study

The phenomenographic perspective in relation to my object of inquiry is the assumption that the students' ways of experiencing the patient encounter and their conceptions of health, movement and function, which are all central features of the educational objectives and of the physiotherapeutic profession, are constituted through the students' delimitation of these concepts from and relating them to the context of physiotherapeutic discourse. Another way of stating this argument is, building on Molander's (1993) point, that there is no knowledge embedded in the concepts themselves, there is something to know only if one understands the concepts and the contexts of meaning which the concepts usually apply to (ibid. p. 42).

This line of argument is also my point of departure for interpreting the nature of the phenomenon professional competence. (See also the elaboration in chapter 2, building on the thoughts of Ryle, 1949; Polanyi, 1958; Schön, 1983; Rolf, et al., 1993; Sandberg, 1994; Svensson, 1996.)

From this interpretative point of view, competence is neither to be viewed as external attributes of an individual nor as an ability or capacity within the individual. It is viewed as a relation between the individual, the situation and the socially constructed and shared system of rules, values and knowledge embedded in the professional discourse. The conceptions or ways of experiencing are thus in one sense collective, since the students share the educational and professional frames of reference. Within this common perspective, however, we know little about the individual variation in how the students actually conceive of the phenomena in question. This variation could be depicted through the phenomenographic and contextual analysis, and be of importance to the process and outcome of physiotherapy training.

The context of meaning in the present study is a situation of practice, framed by the norms and values embedded in the physiotherapeutic discourse and transformed by the curriculum of the physiotherapy programme. The actions carried out and referred to by the subjects are purposive actions within a life-world experience, framed by a meaningful professional context. Molander (ibid.) states that it is not an issue of whether a certain "internal" or "mental" content of mind corresponds in the right way to an "external" action, as a dualistic perspective of knowledge would put it. According to Molander, there is no reason for dualistic thinking in terms of "in-

ternal" and "external". We can gain an insight into actions and their intentions only through reflection on the wholeness of actions. Through reflection, we can also gain an insight into how the physiotherapeutic discourse is understood by the subjects.

Limitations and delimitations of the study

The scope of the study is the impact of formal education and working-life experience on the development of professional competence in physiotherapy. This is delimited to certain aspects, namely, the students' conceptions of the most central concepts of the physiotherapy discourse as reflected in the curriculum of the physiotherapy educational programme at the Faculty of Health Sciences in Linköping, Sweden. The study obviously does not aim at comparing the impact of a problem-based curriculum with the impact of a traditional curriculum, but the results could contribute to the understanding of how the educational objectives in a problem-based curriculum actually are conceived of by the students, and how these conceptions develop during the course of the educational process. Knowledge of this could be of importance to the planning, process and outcome of physiotherapy education.

Another delimitation is that what is accounted for as central concepts in physiotherapy in this study is determined by the researcher through the discourse of the physiotherapy community and by means of the local curriculum. An alternative way of approaching the problem could have been to let the students themselves define the most central concepts in physiotherapy, which might have contributed to the professional discourse in a different way.

The results of the study are also delimited in time to how conceptions develop during the course of the educational programme and the first years of working-life experience. Nor do the results reveal the development of hands-on skills in terms of mastering different technical skills of treatment in physiotherapy, which is another aspect of competence in physiotherapy that is not dealt with in this study. Furthermore, a reasonable assumption is that competence in physiotherapy continues to develop as a result of further experience and postgraduate education. However, describing the characteristics of expertise in physiotherapy goes beyond the scope of the present study.

An important question for the limitations of the study is to what extent the results are transferable to other contexts of physiotherapy education. This is partly dependent on what Larsson (1993) calls a heuristic criterion of validity. The heuristic criterion concerns the

rhetorical qualities of the research, to what extent the results lead to a new understanding of the investigated phenomenon, and to what extent the reader can be convinced by the arguments put forward in the interpretation. Another criterion of validity important for the transferability of the results is the discourse criterion, that the results can be recognised and withstand critical scrutiny from other members of the discursive physiotherapeutic community.

Considerations regarding the design of the study

The question about the impact of higher education on students has been addressed by researchers in several ways during the last 60 years or so. Different approaches as regards choice of methodology and objects of study are discernible in the available research (Table 2). In the following, I will use and elaborate Alexandersson's (1985) description of the main characteristics of the approaches and position my choice of design in relation to this.

Table 2. Research approaches for studies on impact of education (Alexandersson, 1985)

	Focus on changes in			**Categories**		**Impact described**	
	Specific abilities	Structural aspects of thinking	Content related aspects	Predefined	Generated through the analysis	Quantitatively	Qualitatively
Psychometric	x			x		x	
Evaluative			x	x		x	
Developmental		x	x		x		x
Learning		x	x		x		x

Early studies (Husén 1950; Härnquist, 1968), within a *psychometric perspective*, focused on the development of intelligence as an impact of education and showed the relation between the level of education and change in specific abilities. The results revealed that the higher the level of education, the greater extent of positive change in rela-

tion to the whole group. On the other hand, groups with low levels of education showed relative negative changes.

The *evaluative perspective* pertains basically to the American tradition of studying the impact of college on students in terms of change in attitudes, values, political orientation, acquisition of specific factual knowledge (Feldman & Newcomb, 1969; Pace, 1979; Pascarella & Terenzini, 1991). The methodological characteristics of this tradition constitutes an emphasis on predefined dimensions, operationalised in questionnaires. In the case of studies of long-term effects on knowledge acquisition, the use of retrospective self-reports is common, graduates are typically asked to indicate the extent to which their undergraduate experience influenced a number of educational objectives, related to the content of the courses. The impact is described in quantitative terms. It is argued that this constitutes consistent evidence that the college experience increases both general and specific knowledge (Pascarella & Terenzini, 1991).

Studies within a *developmental perspective* focus on the longitudinal development of structural as well as content-related aspects of thinking, e.g. concerning awareness of the nature of scientific knowledge such as in Perry's classical scheme of intellectual and ethical development in college students (1970). He described how undergraduate students during their years of studies appear to change their perspective from a dualistic one, comprising a definite view of knowledge as the truth, to a relativistic one, recognising the pluralistic nature and perspective dependence of knowlege. The third stage in Perry's scheme is that of commitment, where the students commit themselves to a certain perspective that becomes their personal view.

Another example of impact studies within the developmental perspective is Hasselgren's (1981) study of the impact of formal education on pre-school student teachers' ways of apprehending children at play which showed that the students develop from a fragmentary or partialistic to a chronological apprehension or from a chronological to an abstracting apprehension during their education. These changes were not found in a control group of physiotherapy students.

Dahlgren (1989) interviewed students of business administration at the beginning and at the end of their education about their conceptions of economic phenomena such as the most prominent contemporary economic problem and the cause of famine in the underdeveloped countries. He found that the students to a large extent change from an initially held political, distribution-oriented perspective to a more depoliticized efficiency perspective.

Bendz (1995) interviewed nursing students at the beginning of their education, three times during their practical training and once after two and a half years of professional experience. Bendz found four different ways of identifying clinical situations among the students and a characteristic pattern of development. Initially, the students I) observe the clinical situation without direct participation, II) take part in the clinical work without relating to the specific needs of the patient in question, or III) identify a specific task they want to learn or carry out. In these three categories, the students do not conceive of the patient as a unique individual. In the fourth category, the students instead focus on the patient and identify the situations from the point of view of the patient. The characteristic pattern of development was from the categories I-III at the beginning of the study to category IV at the end.

Characteristic features of studies within the developmental perspective, according to Alexandersson (ibid.), are that the patterns of the results show systematic, stable and slow changes. This depicts an impact not influenced by temporary fluctuations in knowledge acquisition, but instead a result of the subjects' confrontation and processing of the educational content. Methodological characteristics are also that the impact is described in qualitative terms and that the result patterns are described in categories not *a priori* defined, but generated by the qualitative analysis.

The phenomenographic approach pertains to studies of impact within a *learning perspective*, which focus on learning in terms of the conceived content of the education, i.e. how basic phenomena within the educational programmes are understood by the students. The phenomenon of learning is viewed as qualitative changes in conceptions of the content. This approach differs from the evaluative in that the basic assumption is that meaningful learning has to be studied in terms of what the students actually learn from the educational programmes and not in quantitative terms of how much the students learn. Several studies within this perspective have shown that the impact of higher education on students as regards the understanding of basic concepts in different disciplines such as e.g. biology (Brumby, 1979), economics (Dahlgren, 1978) or physics (Johansson, Marton & Svensson 1985; Svensson 1989) is less impressive than indicated by the results pertaining to the evaluative perspective.

There are also some classical studies within the learning perspective that have pointed out the impact of the educational context on students' strategies in social and academic life and shown that the framework of both the campus and the formal and hidden curricu-

lum affect the ways they go about their learning activities (Becker, Geer, & Hughes, 1968; Miller & Parlett, 1974; Snyder, 1971).

When positioning my choice of design in relation to the previous account of different traditions as regards the study of the impact of higher education on students, the conclusion that the design of this inquiry pertains to the *learning perspective*, in that it rests on the assumption that meaningful learning has to be studied in terms of what is learnt, through the learners' conceptions of the educational content. Inherent in the phenomenographic approach is also the assumption that the impact of education can be studied in terms of how conceptions change, which is also within the scope of my study. This implies a longitudinal design and also points out the relationship to a *developmental perspective.*

The design of the present study comprises two interview occasions with two different groups of subjects and is thus a combination a cross-sectional and a longitudinal study. The interviews with the students in Group I were carried out at the end of the first year of the educational programme and the second interview at the end of the last term of the programme. The group II students were interviewed the first time in their last term of the educational programme, and the second time after 18 months of working-life experience.

The design could also be described as two-fold, of which step 1 comprises a qualitative analysis that results in a pattern of descriptive categories, commensurable to all data. The descriptive categories were generated from the data and not *a priori* defined. In accordance with the phenomenographic perspective, this is considered to be a way of depicting the learning outcome as regards the chosen aspects of study. Step 2 of the design comprises an analysis of the impact of physiotherapy training and experience in terms of change in conceptions. In several phenomenographic studies, this is conducted by combining the qualitative analysis with quantitative aspects, e.g. the distribution of subjects over the categories on the different interview occasions is used as a way of describing the impact of education (Alexandersson, 1985; Dahlgren, 1989) This is also the structure of the present study.

Inherent in the longitudinal design is the assumption that the students encounter the aspects chosen for investigation, i.e. the central concepts of the curriculum, during the educational process and that this constitutes an impact on their ways of conceiving them. The description of the curriculum and the students' ways of experiencing their education through evaluations can shed some light over how this exposure was conducted. However, we know little of how

the central concepts were integrated within the different practices which the newly graduated students encountered in their first experiences of working-life.

The rationale of interviews as the method of data collection

If we consider and accept the non-dualistic standpoint and regard the nature of the object of research as an internal man-world relationship, which has been argued for previously in this chapter, this provides a consistent argument in favour of the interview as the dominating method of data collection in phenomenographic studies in general, as well as in this study. Mere observation of the students' performance would not be an adequate research strategy. However, observations or video-tapes could be used as devices for stimulated recall in the interview situation. (see e.g. Alexandersson, 1994). This strategy has also been partially adopted in this study, video-tapes were used to stimulate recall of a patient encounter in the interviews with students at the term 2 level of the physiotherapy programme, while free recall of a patient encounter was the point of departure of the interviews with the students at the graduate level and after 18 months of experience. The reasons for this was that the students' first clinical experience of a patient encounter during the educational programme is an interview session, where the students videotape themselves and their patients.

The data collection context

The point of departure for the research interviews in this study was the interviewees' recall of an encounter with a patient. The reason for this was to propose a possibility for the students to relate to a meaningful context, in which they could speak from their life-world experiences, and not just give answers to abstract and decontextualised questions. Through the recall of the patient encounter, a physiotherapeutic context is also implied for the questions about the meaning of the concepts of movement, health, function and interaction, which are central in physiotherapy. The physiotherapeutic discourse could thus be considered to contribute to the collective body of awareness in the group of physiotherapy students. As learners, the students have to make the inherent meaning in the professional framework comprehensible to themselves. The different ways of conceiving this could be captured and articulated through the voice of the life world, the students' own reflections, in the context of recall of a life-world experience, embedded in the social and cultural practice of physiotherapy. However, the implication of a physiother-

apeutic context also brings with it assumptions that are taken for granted through the professional discourse, which are important for the researcher to be aware of in order to discover something new from the analysis. In this case, the taken-for-granted assumptions have been brought into the interview context by the interviewer through the framework of the interviews. Simultaneously, the recall of the patient encounter brings the lived experience of the interviewees into the interview context. The interview context could be considered as the field of tension between the taken-for-granted assumptions of the professional discourse reflected in the curriculum and the context of the lived experience of a patient encounter where internal relations within and between conceptions of different aspects and phenomena can be revealed (Fig. 5).

Hence, by introducing the context of the patient encounter, the subjective meaning of the professional discourse is, hopefully, uncovered in a more genuine sense. The focus of the analysis of the questions regarding the patient encounter has been on aspects and phenomena transcending the different situations in which the experiences are moulded.

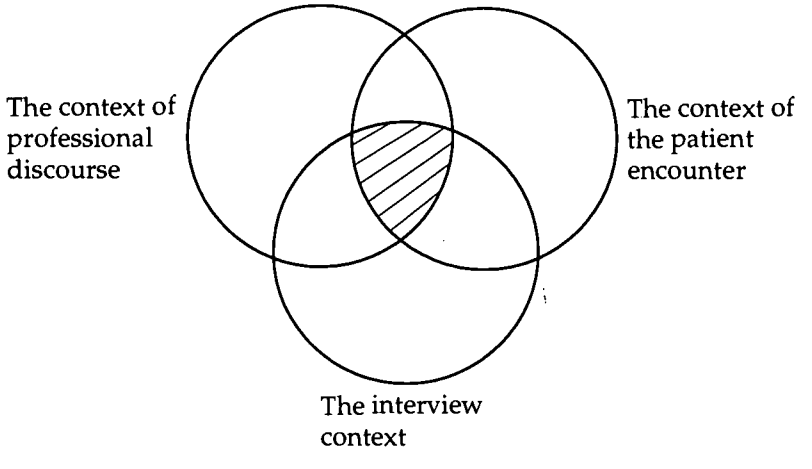

Fig. 5. The interview context as the field of tension between the context of the professional discourse and the context of the patient encounter

The physiotherapy process model described by Tyni-Lenné (1987) is one way of making some of the assumptions about the voice of physiotherapy explicit. The physiotherapy process (Fig. 6) describes how physiotherapy affects peoples' health, especially their move-

ment ability and their movement behaviour (ibid., p. 91). Through the interaction between patient and therapist, physiotherapy activates the innate resources of the individual. Conditions of progress in the process are problem-solving, choices between different alternatives and decision-making. The physiotherapy process can thus be described as a synthesis between the processes of interaction, problem-solving and decision-making. Tyni-Lenné argues that the model is applicable on both macro and micro levels, it can be utilised to describe a series of treatments as well as a single treatment session. Thus, the physiotherapy process model was the rationale of the interview questions.

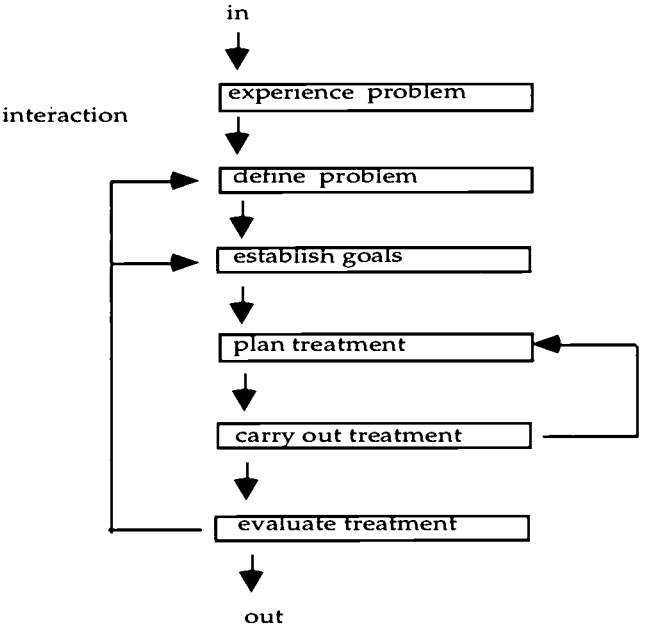

Fig. 6. The physiotherapy process model (Tyni-Lenné 1987)

The role of the interviewer

A critical aspect of the interview method is the role of the interviewer. As I have mentioned earlier, the second-order perspective means that the phenomenographer's aim is to see the experience through the eyes of the interviewee. The interview has to be carried out in the form of a dialogue, the descriptions of experiences and understanding are jointly constituted by interviewer and interviewee. Since phenomenography is empirical research, it is important to make it clear that the interviewer is not studying his or her own

awareness and reflection, but that of the subjects (Marton, 1994). In the recent debate in educational research literature, questions have been raised about the need for clarification of what prompts were used in the interview and what the interviewer estimated to be their effects. Another question concerns the need to clarify in what ways the conduct of the interview leads the interview to focus on the aims of the study in question (Francis, 1993). These "leads" should be reported and their effectiveness and effects should be estimated in such a way as to inform the reader about how the analysis of the data and the reporting of the findings was affected. There should also be some indication of how the interviewer tried to ensure that the interviewee reported on the targeted experience rather than on reflections on other events of learning of which he or she has been reminded. In the following, the considerations regarding my own role as interviewer and the conduct of the interviews will be outlined.

The disposition of the interviews

From the outset of the investigation the content of the interviews comprised three main areas, two of which are included in this thesis. The interview questions are provided in appendix 1. The first main area concerned the patient encounter. As stated above, all interviews started with an open question about a patient seen recently. The physiotherapy process model was subsequently used as a structure for the interview questions regarding this area. The second part of the interview concerned the basic concepts of the physiotherapy curriculum. The final part of the interview concerned the educational setting and different aspects of problem-based learning. The results of this part of the interview will be analysed and described separately in a future study.

The role of the interviewer

My own experience as a physiotherapist and a physiotherapy educator could be viewed both an asset and an obstacle in the interviews. It helps me understand the situations the students and therapists are referring to, but it could also bias my probing regarding what features of the answers that strike me as important and meaningful. Sharing the physiotherapeutic frames of reference with the subjects could also lead the students to leave out information which is implicit in the situation and tacitly understood by a physiotherapist, but would be important to make explicit in order for others than physiotherapists to understand.

If the probing is conducted in a non-reflective way, there is a potential risk that the interview ends up by confirming my own frames of reference. Being aware of this risk, my ambition was that all probing should be conducted in such a way as to avoid my own knowledge influencing the subjects answers. I would like to emphasise, that since the interview is performed as a dialogue constituted between the interviewer and the interviewee, it is not possible to foresee exactly how the interview will develop and what issues will be dealt with. I did, however, try to establish some guidelines for my probing which I found successful as a means of keeping the dialogue going. The following four probing strategies were used during the main study.

Probing strategies

i) *Repeating* After the first spontaneous halt in the answer to the question, the last sentences of the interviewees' utterance was repeated verbatim, in a questioning tone, followed by silence from the interviewer.

ii) *Request for clarification* If the repeating probe was insufficient to obtain an elaborated answer, the interviewer asked for clarification by asking "what do you mean by that"?

iii) *Request for elaboration* In the case of both the above-mentioned strategies being insufficient, the interviewer made an explicit request for elaboration of the answers; "can you tell me more about that?"

iiii) *Request for confirmation* A fourth strategy for making the subjects elaborate on their answers was conducted by summarising and returning the subjects' answers in a questioning form. The subjects could then confirm that the summary was the essence of what they had meant, or correct the interviewer by elaborating further on their answers.

In most cases, the first probing strategy was successful. It led the subjects to elaborate on their answers, alternatively to answer the question in another way to ensure that they had made themselves understood. The example below illustrates a part of an interview where the use of two probing strategies finally led to an elaborated answer from the subject;

E: What does the word function mean to you?
S: Function is ... well, to manage things, to be able to move. To manage what you want ...
E: To manage what you want?
S: Yes, to manage what you want to do ...
E: What do you mean by that?
S: To hang up your washing to dry ... No, but really, not just that, but ... function is ... When I first think of function, it means that you can manage a thing like hanging your washing up without a pain in your arms, but it could also mean that you are able to function socially in society ... That you are able to leave your house, that you can manage to sit on a chair for an hour or something ... I mean, you can suffer from lower back pain that forces you to rise from your chair and move about ... in that case your function is disturbed on two levels. I mean, it is not only that you can't manage to sit, but your discussion or conversation with the person you are visiting is also disrupted. (I:5-1)

The second example shows the use of the fourth probing strategy; the interviewer summarises the subject's answer and returns it in a questioning form. The subject corrects the interviewer's summary and elaborates further on the answer;

E: How do you know if you have succeeded in your treatment?
S: Well, if you have established a goal, you can see if you have achieved that ... That's pretty obvious, then if you have succeeded. But it's also a discussion with the patient that is kind of ... objective ...
E: You told me that the discussion with the patient was an objective way of evaluating whether the patient had achieved the goals established?
S: I mean that it is objective if you have achieved the goals set, but you can also know if you have succeeded in your treatment by talking to the patient ... That is a subjective way, of course. If they are kind of ... satisfied with what they have achieved. Maybe we haven't achieved the goals, but we both know that this is what we will accomplish. We have tried what ever possible to achieve the goals, but maybe it is not possible ... If we agree that this result is what we are going to achieve, and we are satisfied with that. But otherwise, you know if you have succeeded when you have achieved the goal you have established. (II:PT-10)

The rationale of the analysis procedures

Reflections on change in the process of analysis

During the course of time, my approach to the qualitative analysis changed and developed. I started with the analyses of the meaning of the concepts movement, health and function, which seemed to be an appropriate way of beginning. The answers to these questions made up units of analysis that were fairly well delimited and com-

fortable to handle according to the established phenomenographic analysis procedures, as will be elaborated on in chapter 5.

The analysis then proceeded to the questions regarding the patient encounter and I started out by trying to analyse the answers to each question separately. It soon became obvious that this strategy was a blind alley. It was not self-evident that the data obtained could best be analysed and described according to this procedure. The descriptive categories yielded an atomistic and scattered picture of different features of the encounter between students and patients, and I failed to describe the phenomenon in an intelligible way.

When returning to the interviews and scrutinising the answers to the questions in a sequence, it was clear that the students had a story to tell about their encounter with the patient that was fragmented by the analysis. I realised that I would have to expand the unit of analysis in order to capture the structure and meaning of the experience. I then edited the isolated answers into continuous narratives which allowed the students' experiences of the patient encounter as a whole to emerge more clearly. The editing did not change the sequence or organisation of the interview framework, but instead of analysing the answers to the interview questions as statements separated from the context that produced them, I worked with the compiled narratives as the units of analysis. Again, this brings into focus the question of reflexivity. It is important not to neglect the effects of the interviewer on the production of the narratives, and I have made an attempt to clarify this in the previous paragraphs.

Editing the answers into narratives made it possible to relate the content of each specific answer to the meaning in the context of what else was said during the interview, but it also called for a more interpretative approach in the qualitative analysis. In this phase of the work, I turned to literature on narrative analysis for guidance (Mishler, 1986).

Narrative analysis

A general assumption of narrative analysis is that telling stories is one of the significant ways individuals construct and express meaning. Mishler (ibid.) has shown that narratives may occur in research interviews situations as the form in which an interviewee talks in response to closed as well as open-ended questions. Narratives may also be elicited by direct questions about the interviewees' experiences. Mishler's point is that these narratives can be analysed systematically to generate meaningful findings. A review of previous narrative research shows, according to Mishler, much

diversity as regards methods and procedures, and there is no standard method of narrative analysis. Different investigations bear a general family resemblance to one another but differ in theoretical orientation, in types of research questions and in method.

Mishler characterises narrative research according to a framework of linguistic functions, analytically distinct, but interdependent, all simultaneously present in any stretch of talk. These are (1) the *textual function*, concerning the structure of a text and how different parts of the text in terms of "units of linguistic expressions" are internally connected through various syntactic and semantic devices, principally by means of a relation of temporal order. A second line of narrative research is (2) the *ideational* or *referential* meaning of what is said, focusing on the organisation of accounts in terms of coherence. A narrator's intentions and narrative strategies used to produce a coherent story are central topics of inquiry. Referential meaning, i.e. content expressed through themes and their relations is fundamental to analysis and interpretation. A third approach to narrative analysis is (3) the *interpersonal*, referring to the role relationships between speakers who are participating in the talk. Within this approach, interviews are conceptualised as jointly produced discourses, and questions about the effect of the narrative researcher on the respondents' stories in the special contexts of interviews are central.

Contextual analysis as narrative analysis

I found that aspects from the different approaches described above could be of use for my purposes and that some of the aspects could be brought together and synthesised by means of contextual analysis, especially the interpretation of meaning by means of the search for internal relations within the narratives. As previously stated, contextual analysis, as described by Svensson (1989), is a combination of on the one hand analytic features, and on the other, explorative and interpretative features. This approach harmonises with the phenomenographic tradition and was thus adopted in this phase of the analysis. The analytical aspect of contextual analysis means the delimiting of parts and wholes of a phenomenon from a conceived context. The contextual aspect means that the specific meaning of the delimited parts is searched for in the particular context from which they are delimited. In this case, the narratives constitute the immediate context in which the delimitation of parts and wholes are made. An account of the different phases of the analysis is provided in chapter 5.

According to Mishler (ibid.), analysis of interview narratives requires that the investigator relies on the intuitive grounds of shared cultural understandings in the interpretation of meaning. This also requires that the investigator "add to" or supplement the text by means of a step that Labov and Fanshel (1977) refer to as "expansion". In this process, the analyst brings together all information that will help in interpreting what is said during the interview. To accomplish this expansion of meaning, the analysts uses her or his "best understanding" by e.g. referring to other material as well as to presumably shared knowledge between the participants or by introducing material from other parts of the interview or from general knowledge of the world (Mishler, 1986, p. 95).

Chapter 5

The empirical study

Design

The study comprises two cohorts of physiotherapy students at the Faculty of Health Sciences in Linköping, the spring cohort -91 and the autumn cohort -92, each comprising 24 students. Six students in each cohort are studying via modified distance studies. The present study focuses on the 18 students in each cohort who follow the regular physiotherapy programme and the distance students are thus excluded. All students consented to participating in the study.

Group I (autumn cohort -92)

The students in this group were interviewed on two occasions during the physiotherapy programme, the first time in May, 1993, at the end of the second term (T2). The second interview was conducted in November, 1994, at the end of the last term (T5). One student from the autumn cohort -92 was excluded prior to the study. The student in question had completed five terms of the medical programme and at the time of the first interview just switched over to the physiotherapy programme. At the time of the second interview, three students were excluded. Two of these students had transferred to the medical programme and one was excluded due to study intermission. Fourteen students participated in both interviews, 12 females and 2 males.

Group II (spring cohort -91)

The students in this group were interviewed once during the physiotherapy programme at the end of the last term (T5) in May, 1993. The second interview was conducted after they had spent 18 months as clinical practitioners (PT:)s in November 1994. One student from the spring cohort -91 was excluded prior to the investigation due to study intermission and one student could only participate in the first interview for personal reasons. Sixteen students participated in both interviews, 12 females and 4 males.

Prior to the main study, in November, 1992, seven pilot interviews were conducted with physiotherapy students at different levels of the physiotherapy programme; terms T2, T4 and T5. A description

of the data collection periods in relation to the course of the educational programme and to the period of working-life experience as registered physiotherapists is provided in fig. 7.

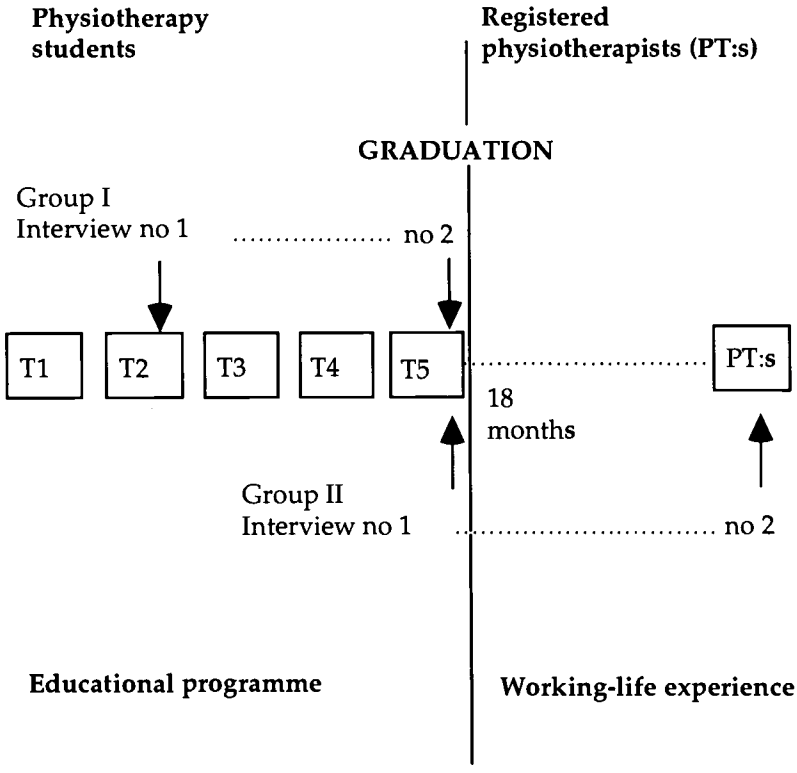

Fig. 7. The data collection periods in relation to the course of the educational programme and the period of working-life experience

Data collection

The first opportunity to capture the physiotherapy students' experience of a patient encounter was during the second term of the programme (T2). This level of the education is pre-clinical and the students have not yet gone through any periods of clinical practice. The students are thus novices in physiotherapy practice and only familiar with the physiotherapy process at a theoretical level. However, the ability to interact with patients is, as described previously, considered an important part of the physiotherapy process and professional competence, and is thus emphasised throughout the pro-

gramme by means of recurrent learning events where practice in communication skills is involved.

In the part of the programme of current interest, the students videotape themselves during their first experience of an interview with a patient in a clinical setting in primary health care. The videotapes are then discussed in small groups of students together with their tutors.

For the purposes of this study, the videotape was also used on the first interview occasion with group I. The aim was to stimulate recall of the patient encounter. The interview started with an open question; *what's on your mind after watching this?* The respondents were free to bring up any subject that came to mind when reviewing the situation, and allowed to continue at length without any interruption. A physiotherapeutic context was then implied via the interview questions and moulded with students' life-world experiences of the encounter by linking the questions to the actual patient the student had been telling me about. The interview thus expanded the educational objectives of the videotape exercise to also comprise how the novice students conceived of their role and task as presumptive physiotherapists applied to the experienced situation. The interviews with the novice students were performed in the educational setting during the same week the students had accomplished the task.

The students' experiences of patient encounters gradually increase during their education by means of recurrent periods of supervised clinical practice each term. I chose the last period of clinical practice during the programme as the time for a second interview with group I in order to capture the impact of the educational programme on the students' ways of experiencing the patient encounter. This time was also the first interview occasion with the students in group II. The last clinical practice period takes place in the latter part of the last term (T5). The students participate in a 5-week period of supervised clinical practice in different primary health care settings. At this level, the students work independently with patients and consult their supervisor for advice if needed. The starting point of the interviews with the T5 students was their free choice and recall of an encounter with a patient they had seen during the actual week when the interview was performed. The interviews with the T5 students started with the question; *You have recently seen a new patient. Can you tell me about that?* and followed the same pattern as the interviews with the T2 students. All interviews with the T5 students were performed on site in the different clinical settings during the last two weeks of the clinical practice

period. The second interview with group II was performed 18 months after graduation. The former T5 students, now registered physiotherapists (PT:s), were interviewed under the same conditions as on the first interview occasion, the free choice and recall of a patient recently seen who was new to them. The interviews were performed on site at their workplaces in different clinical settings.

Data analysis

All the interviews were conducted in Swedish, tape-recorded and later transcribed verbatim. The transcriptions were then subjected to qualitative analyses. A phenomenographic analysis procedure, as described below, was adopted in the analysis of the meaning of central concepts in physiotherapy. Contextual analysis procedures were applied in the analysis of the questions regarding the patient encounter. The translation of representative excerpts in order to convey to the reader their proper meaning in English is an intricate task, and was thus handled with great caution.

Changes in the students' ways of conceiving the central concepts within physiotherapy and their ways of experiencing the patient encounter between the two interview occasions were analysed quantitatively. The distribution of subjects over the categories in both groups on the two interview occasions are shown and discussed adjacent to the qualitative analyses.

The phenomenographic analysis

The answers to the questions about the concepts of movement, health and function were analysed according to the phenomenographic procedures. The phenomenographic analysis comprises several steps which lead to the forming of descriptive categories that denote the variation in conceptions of the phenomena under study. Despite the nature of qualitative analysis, which in reality is a constant interplay between the various steps of the analysis, and not slavish compliance to a predetermined sequence, Dahlgren and Fallsberg (1991) have made an attempt at describing and labelling the steps in the process. In the following, I will describe the process through the qualitative analysis procedures according to these steps:

1. *Familiarisation.* In this initial phase, the researcher reads the transcriptions carefully with the aim of getting acquainted with the texts in detail. This is also necessary in order to make any corrections or amplifications. As regards my study, I did not transcribe the interviews personally. This made it necessary in some cases to go back to the tape recordings and listen through what was actually said in order to correct the transcriptions when I could not understand what had been written by the transcriber.

2. *Condensation.* The most significant statements are selected to give a short version of the entire dialogue concerning the phenomenon under study. In finding the core statements in the answers, the researcher again has to be aware of his/her own preconceptions in order to ensure that the condensation really focuses on what the interviewee brings into the discussion. A strategy for handling this phase, which is also adopted in my study, was described by Rahimi (1995). Rahimi suggests that associations which a) come early in the comments, b) are repeated several times and c) are very explicitly expressed, should be considered as being the characteristics of the answers.

3. *Comparison.* I then compared the selected significant dialogue excerpts in order to find sources of variation or agreement. Steps 2 and 3 also require the researcher's attention both as regards the variations of what aspects of the phenomenon are brought into the discussion and as regards the variation in how these aspects are dealt with. The rationale of this process is grounded in the non-dualistic perspective of the life-world; the conceptions are an internal man-world relationship that reflect both object and subject. The analysis of how the mind is directed thus helps the researcher to simultaneously see more clearly what aspects of the phenomenon are thematized and vice versa, by clarifying what aspects are brought into focus, the different ways of experiencing are more clearly discernible.

4. *Grouping.* Bearing the result of the previous steps in mind, the next feature of the analysis was to group answers which appeared to have similarities. Based on this grouping, the categories that form the result were developed in the next step.

5. *Articulating.* The essence of the similarities within each group of answers were preliminary described. Steps 4 and 5 were revised several times before the analysis was considered satisfactory.

6. *Labelling.* The various categories were denoted by constructing a suitable linguistic expression that captures the essence of the articulation. The analysis this far yielded a description of the different ways of experiencing the phenomena under study, which in phenomenographic terminology is called the outcome space.

7. *Contrasting.* The categories obtained were compared with regard to similarities and differences at a meta level. The outcome of the empirical analyses was recontextualised by means of a discussion of related theoretical perspectives within the professional discourse of physiotherapy and within the educational objectives.

The contextual analysis

As regards the questions about the patient encounter, the answers formed narratives that were analysed according to the principles of contextual analysis. The contextual analysis procedure comprises a cumulative comparison that leads to a description of the internal relations between and within the discerned parts and whole qualities of the phenomenon. After several readings, three aspects common to all narratives were discerned, namely 1) the students' experiences of the communicative process with the patient; 2) the students' descriptions of the patient's problem and the physiotherapeutic treatment, and 3) the students' descriptions of the relationship between themselves and the patient. The meaning of the delimited aspects is searched for in the analysis and furthermore interpreted via the context of each narrative as a whole. The characteristics of the whole narratives are, in turn, constituted by the internal relations between the delimited aspects within the narratives. In the following, I will account for the different phases of the analysis and make an attempt to show how the delimitation of aspects proceeded and how their internal relations were described.

Phase 1. Data reduction
The first step in the analysis procedure was to reduce the full account shown in the transcriptions as regards the part of the interview concerning the patient encounter into "core narratives". All follow-up questions and probes from the interviewer were omitted to allow the narrative to appear.

Phase 2. Delimiting of significant aspects within the whole narratives. The analysis proceeded by means of thorough and repeated read-

ings of the narratives in order to get a grasp of their meanings as whole entities he narratives were read with an open question in mind, *"what is this all about?"* The first preliminary analysis showed that the narratives could be characterised roughly as focusing either on the communication with the patient or on the management of the patient's problem.

In order to check the results of the first analysis, the narratives were reread, this time searching through the narratives categorised as focusing on patient communication for any evidence that they were also concerned with the solving of the patients' problem. Likewise, the narratives preliminary categorised as concerned with the management and solving of the patient's problem were studied for any evidence that they were also concerned with patient communication. This closer re-analysis revealed that there were expressions concerning problem-solving within the group of narratives that were categorised as focusing on patient communication, as well as expressions concerning patient communication within the problem-solving category. These results led me to consider patient communication and problem-solving not as characteristics of the narratives as whole entities, but as two significant qualities of the whole narratives which could be internally related. The re-analysis also gave the impression that there were differences in the ways the students talked about patient communication as well as in the ways the problem-solving as described. Hence, a second re-analysis was performed in order to uncover the character of these differences. This analysis yielded the delimitation of the third aspect, the student-patient relationship.

Phase 3. Description and categorisation of the whole narratives

In this phase, the narratives were described in detail and categorised as whole entities. The meaning of the whole of the narrative is interpreted in relation to the conceived context and to how the aspects delimited in phase 2 were conceived of and internally related. This part of the analysis thus combines the analytical and contextual features of contextual analysis, and has similarities with steps 3-6 according to the phenomenographic analysis procedure. The analysis generated four qualitatively different categories of descriptions. The categories are exemplified with a condensed transcription of one narrative, a "core narrative", characteristic of the category. In addition to the characteristic narrative examples, shorter excerpts from other narratives are also provided to depict the variation within the category.

Phase 4. Description of internal relationships across the pattern of categories

The next step in the analysis again focuses on and reveals the internal relationship between the discerned significant aspects in relation to the characteristics of the categories as wholes, but this time across the pattern of categories obtained. The delimited aspects and their internal relations are utilised in order to compare the categories obtained with regard to similarities and differences.

Presentation of the results

The presentation of the results follows a general structure which is common to chapters 6, 7, and 8. This structure is described as follows: The units of analysis are the answers to the question *"what do you think of when I say movement?"* The descriptive analysis displays the outcome space in terms of the category system obtained. The typical features of the different conceptions are described and exemplified by quotes, characteristic and representative for each category. The descriptive analysis is followed by a contrastive analysis, where the similarities and differences within the category system are described and related to relevant theoretical perspectives. (For a detailed description of the steps of the analysis, see chapter 4.) Finally, the impact of the educational programme and professional experience is described in terms of change in conceptions between the two interview occasions. Accordingly, the results of the analyses are presented in the following chapters firstly, by means of descriptive categories of conceptions comprising the results of step 2-6; and secondly, by a contrastive analysis comprising step 7 according to the phenomenographic analysis procedure. Each individual is considered to represent one main conception of the concept in question and thus contributes to one category only.

The categories are arranged from A to D according to two principles; a) The conceptions most elaborated on and most compatible with the educational objectives were grouped in category A. The outcome space should, however, not be considered as strictly hierarchical. Rather, the relationship between the B, C and D categories should be considered to be horizontal since it is not possible to determine their internal ranking. b) The contrastive analysis revealed, however, similarities and differences between the categories at a meta level which also contributed to the internal arrangement of the categories.

Each category of conceptions is illustrated with quotations from the interviews. The most characteristic units of meaning of the con-

ceptions in both groups and on both interview occasions were chosen to illustrate the categories. The quotations are coded in such a way that the first figure identifies which of the groups the quotation belongs to, the second figure identifies the term during which the interview was performed, and the third figure identifies the individual student. The code I:2-11 would thus mean group I, term 2 and student number 11.

The impact of the formal education and professional experience is described as changes within the category system. The qualitative analysis is thus combined with a quantitative analysis with respect to the distribution of subjects over the different categories on the two occasions.

In the three subsequent chapters 6, 7 and 8, the meaning of three of the core concepts in the physiotherapy curriculum, movement, health and function as conceived by the students will be explored. A meta analysis of the internal relationships between the concepts is provided in chapter 9. The meaning of the fourth central concept, interaction, is described in chapter 10 as students' ways of experiencing the patient encounter and is analysed according to the principles of contextual analysis.

Chapter 6

Results: Conceptions of Movement

Descriptive analysis

The analysis of the answers to the question *What do you think of when I say movement?* reveal that the subjects conceive of movement in four qualitatively different ways that could be labelled *A. Movement is a prerequisite of functional activity and independence; B. Movement is an emotional expression; C. Movement is a shift in position;* and *D. Movement is a sign of life.*

A. Movement is a prerequisite of functional activity and independence

In this category, the meaning of movement is conceived a condition for the fulfilling of the goals of the individual. From one point of view, movement means the ability to move the body and extremities. This is an innate prerequisite of functional activity in a pragmatic way. The ability to move, separated from the practical use of the movement is meaningless for the individual. The concept of movement is thus partially defined in terms of functional activity. This aspect of the purpose of movement is exemplified by some of the subjects' answers;

> If you move an arm passively, then you have the motion, but if you can't move it by yourself, then the movement isn't functional. You can bring about the movement, but you can't use it ... (I:2-11)

> I automatically connect movement to the concept function. If function is your ability to accomplish different things, then movement is the original ... inborn possibility to move ... (II:5-13)

> You work with the patients movements to achieve some goal you have decided ... and when you get there, you work with movements to maintain function (II:PT-10)

In some of the answers, the purpose of movement is conceived in a wider context as a fundamental condition of independence. All task-oriented human activities are in a general sense depending on movement. The ability to move and to control your body means autonomy. This is also connected to the ability to mobilise your own

resources. The ability to move is crucial to the ability to fulfil your intentions in a satisfying way.

> Well, that you have enough ability to move to be able to manage your own life ... Movement is joy, freedom, quality of life ... To be able to walk as you want, ride a bike, go fishing if you want to. To have the ability to move is very important. (I:2-2)

> It could mean the whole body moving, or just an arm..this could be of equal value ... I mean, if a patient is paralysed, but have the ability to move one arm, it could mean a lot of freedom for this patient (II:5-15)

> It could be any movement, from the ability to run or jump, or if you are paralysed, the ability to wink or turn your head ... It could be a very small movement, but still be very important for the patient (II:PT-14)

B. Movement is an emotional expression

As to the second group of answers about the meaning of the concept movement, the students' conceptions also represent a emotional, psychological perspective. Movement is connected with a positive body image, the quality of life, joy and beauty. In this sense, the concept of movement is also connected to a person's self-confidence and positive feelings about his body.

> I'm not sure, but I think that having the capacity to move makes you self assured ... I think that it is an expression of joy ... I don't think that you would become totally depressed if you couldn't move, but anyway ... I think it is an expression of joy (I:2-1)

C. Movement is a shift in position

Characteristically, the answers within this category describe the concept movement in mechanical terms as locomotion or shift of the body position in the room. The physical body is the frame of reference. There are no clear connections to the individual's intentions or purposes with the movement. Locomotion is described as different ways of human movement, like walking or running or the extremities movements related to the body. Another way of describing the concept is in biomechanical terms as a reaction to a force that changes the equilibrium state of a physical body. The examples below illustrate the category;

> Movement is locomotion in the room that is accomplished by a force that is stronger in one direction than the others. If the forces are equal in all directions, there is equilibrium, and then there is no movement (I:2-17)

> I immediately think of locomotion ... shift in position in the room in comparison with something is movement (I:2-14)

> The way you move, how the joints are working, if the range of motion is sufficient for the movement, how you move ... (II:5-2)

D. Movement is a sign of life

In this category, the conceptions are characterised by the thought of movement as biological processes on different levels within the body. There are movements within and between the cells, respiration is movement as well as the movement of the extremities or the whole body. Since the whole body comprises movement on different levels, movement is described a fundamental condition of life. Where there is no movement, there is no life. Typical answers are,

> It is everything ... the body moves ... and within the body, movements within the cells (II:5-17)

> Everything that concerns life ... some kind of internal movement ... Movement is some kind of prerequisite of life (II:5-12)

> It's the fundamental thing ... Movement means everything to everything we do, almost. Its the thing it's built upon ... Movement is fun, movement is a kind of life ... everything is built upon movement, otherwise it wouldn't be anything ... (I:2-13)

Contrastive analysis

Conceptions of movement with the person as the frame of reference

When contrasting the categories, we can notice similarities between category A; *movement is a prerequisite of functional activity and independence* and category B; *movement is an emotional expression* as regards the frame of reference the subjects refer to. Both categories represent conceptions of movement with the individual person in focus..

The categories differ, however both with respect to the content and structure of the answers. The answers in category A relate different aspects of movement to each other and expands the context by connecting the innate ability to move to the individual person and his/her intentions and goals. The answers in category A are more complex and elaborated than the answers in category B that bring forward only one aspect of movement, in this case as a way of expressing emotions.

Conceptions of movement with the physical body as the frame of reference

There are also similarities between category C; *movement is a shift in position* and category D; *movement is a sign of life* as regards the frame of reference. Both categories denote conceptions of movement with the human body, separated from the intentions and will of the individual in focus. The categories C and D differ with respect to the content of the answers, but the structure of the answers is similar to the description of the answers in category B. Only one aspect of the concept is brought forward, in category B as the biomechanic aspect of movement and in category C as biological processes within the body.

The outcome space from a systems theoretic perspective

The thought of movement as goal-oriented action of the individual or as processes within different levels of the human body, could be related to a systems theoretic view on man as a natural system within the framework of physiotherapy as described by Hislop and Tyni-Lenné (Hislop, 1975; Tyni-Lenné, 1987) (For an extensive elaboration on this issue, see chapter 2).Tyni-Lenné (ibid.) builds upon Hislop's hierarchical model when she defines the realm of physiotherapy as a field of knowledge that studies human movement prerequisites, capacities and behaviour. Tyni-Lenné' relates the movement hierarchy to the view of man as a natural system, just like Hislop. An important difference between the two models is that if Hislop defined movement from a pathokinesiological perspective, Tyni-Lenne's model is based on Pörn's holistic model of health. (Pörn, 1984a; Pörn, 1984b; Pörn, 1986; Pörn, 1988) In agreement with choosing health as the basic concept for the model, the concept movement is defined in positive terms. Instead of defining the basic postulates as pathokinesiology like Hislop, Tyni-Lenné defines the conditions considered necessary for human movement on three levels of the system of man.

The *movement prerequisites* comprises the anatomical, physiological and psychological conditions that are necessary for human movement. Concepts used within this level of physiotherapy are e.g. joint stability, mobility, muscle tonus, muscle strength, endurance, co-ordination, perception. Tyni-Lenne' relates the movement prerequisites to the levels *tissues* to *person* in Hislop's model of man as a natural system. The conception of *movement as a sign of life*, as processes within different levels of man with the body as the frame of reference has resemblance with the movement prerequisites level.

The *movement capacity* are the human movements that are a result of neurophysiological maturation and are developed in the interaction between the child and the surroundings. The movement capacity has three variables, postural adjustments, self-initiated motor tasks and/or locomotion, environmentally driven tasks. The movement capacity relates to the levels *system* to *person* in the model.

The conception of *movement as a shift in position* or locomotion without clear connection to the intentions or goals of the individual has some bearing on the movement capacity level, although the conception held by the subjects in this category is more mechanical than in Tyni-Lennés definition of the movement capacity level. The mechanical aspect of movement is primarily a definition that has its origin in the study of mechanics within the discipline of physics. A mechanical definition of motion that more resembles the one given by the students in the examples of this category is offered by Galley & Forster (1987) as a process involving continuous change in place or position of a body with respect to some agreed frame of reference.

Movement behaviour is the automatic adjustment of the movement capacity and/or adjustment of the environment in relation to the intrapersonal action resources and central goals of the individual. The answers in category A *movement as a prerequisite of functional activity and independence* thus connects the prerequisite level with the behaviour level of Tyni-Lenné's model.

The thought of movement as an innate condition of function and the promotion of fundamental human movement as the general scope of physiotherapy has also been described by Kukkonen (1991) postulates that parts of the movement repertoire is inborn and natural and that this constitutes a basis for the development of motor skills. Fundamental human movement is motor behaviour. It includes daily postures, movements and locomotion at work, at home and during leisure. Fundamental human movement is essential for human health and well-being; for human existence. Similar

to the conception held in category A, *movement is a prerequisite of functional activity and independence of the individual*, movement is not an end in itself, but serves the person's effort to reach various objectives and goals. Kukkonen uses the concept natural movement in her model synonymously to Tyni-Lennés'concept movement capacity.

Changes in ways of conceiving of movement

If we recapitulate the outcome of the contrastive analysis, the descriptions of category A and B, *movement is a prerequisite of functional activity and independence* and *movement is an emotional expression* were considered both referring to the person and his/her intentions and goals as the frame of reference. The descriptions of category C and D, *movement is a shift in position* and *movement is a sign of life* denoted conceptions of movement with the human body, separated from the intentions and will of the individual, as the frame of reference. The structure of the answers in category A were considered more complex and elaborated than the answers in category B-D that bring forward only one aspect of movement. The following table (table 3) displays the distribution of subjects over the category system and also shows individual changes in conceptions between the two interview occasions.

Group I

Table 3. Conceptions of movement. Distribution of subjects over the categories at the two interview occasions

		Term 5					
		A. Prereq. of funct. act.	B. Emotional expression	C. Shift in position	D. Sign of life	Drop-outs	**Total**
Term 2	A. Prereq. of funct. act.	6	1	1	0	1	**9**
	B. Emotional expression	1	1	0	0	0	**2**
	C. Shift in position	0	0	2	1	2	**5**
	D. Sign of life	1	0	0	0	0	**1**
	Total	**8**	**2**	**3**	**1**	**3**	**17**

At the time of the first interview, the person level is the dominating frame of reference for conceiving of movement in group I. This is represented by the categories A and B, comprising eleven students altogether. Category A is the most common category, comprising nine students. The body as the frame of reference for conceiving of movement, is represented by the categories C and D, comprising six students. One of the subjects refused to answer the question at the second interview, which means that the drop out rate is increased on this particular question.

The impact of the course of the educational programme on the conceptions held in group I is small and the outcome pattern is characterised by stability. Nine subjects maintain the conception held at the first interview, while five subjects change their conceptions. Two subjects change towards a more elaborated conception as in category A, while three subjects change towards a less elaborated conception, as in categories B-C. Some excerpts of the answers will be presented below.

The distribution of subjects over the categories at the time of the second interview shows, that six students have maintained the con-

ception of movement as a prerequisite of functional activity and independence, below illustrated by case I-2;

> I:2-2: Well, that you have enough ability to move to be able to manage your own life ... Movement is joy, freedom, quality of life ...To be able to walk as you want, ride a bike, go fishing if you want to. To have the ability to move is very important.
>
> I:5-2: Freedom. Because if you have the ability to move, if you have the ability to move your body, you have freedom to be independent. You manage what you want to achieve. I have the ability to cross the street, I can manage, and be happy about that.

Two students have maintained the conception of movement as a shift in position , exemplified here by case I-6;

> I:2-6: Movement means that the body, or a part of the body shifts position in the room ... or in relation to other parts of the body
>
> I:5-6: Movement? Parts of the body, moving in relation to other parts ... No ..., but ... yes ... in relation to each other.

Five students have changed their conceptions at the second interview. The direction in which the conceptions have changed is not univocal.Two of the subjects have changed towards conceiving movement with the body as their frame of reference. Case I-4 is an example where the frame of reference have changed in this direction:

> I:2-4: It means to have the ability to use your body.. I don't know if I can express it any better ... That you can manage to function, that you can do things ...
>
> I:5-4: It means a shift in position in the room, that you simply move from one position to another, as regards the body...It is something you do that makes you shift from one position to another.

Two students have changed conception in the reverse direction, towards conceiving of movement with the individual's actions and interactions as their frame of reference, illustrated here by case I-13.

> I:2-13: Its the fundamental thing ... Movement means everything to everything we do, almost. Its the thing its built upon

... Movement is fun, movement is a kind of life ... everything is built upon movement, otherwise it wouldn't be anything.

I:5-13: That was difficult ... It is the most central concept we have, but ... ... Movement is something we work with all the time ... everything you do, that you have to manage to survive ... that's what we work with. You have to have the ability to move, otherwise you can't function.

Group II

Table 4. Conceptions of movement. Distribution of subjects over the categories at the two interview occasions

18 months of professional work

Term 5	A. Prereq. of funct. act.	B. Emotional expression	C. Shift in position	D. Sign of life	Drop outs	**Total**
A. Prereq. of funct. act.	3	1	4	0	0	**8**
B. Emotional expression	0	0	0	0	0	**0**
C. Shift in position	3	0	2	1	2	**8**
D. Sign of life	0	0	1	0	0	**1**
Total	**6**	**1**	**7**	**2**	**2**	**17**

The pattern of the outcome in group II differs from the pattern in group I, that was characterised by stability. The results of group II is instead characterised by change. Ten of the subjects change their conceptions of movement from the first interview at the end of the educational programme to the second interview after 18 months of working life experience. Five subjects maintain the conception held at the first interview.

The distribution of subjects over the categories at the first interview occasion (table 4) shows that most of the answers of group II are grouped in two of the categories, the functional activity of the

individual, as described in category A, and the conception of movement as a shift in position, described in category C. The person or the body as the frame of reference for the conception of movement is equally common, comprising eight and nine subjects respectively.

At the second interview, the former students, now physiotherapists, have changed their conceptions in two main directions. Four of the subjects have changed from conceiving of movement as a prerequisite of functional activity and independence to conceiving of movement from a mechanical point of view, as a shift in position. This is illustrated below by case II-16;

> II:5-16: I actually think of a patient, a person that you have in front of you, who needs movement to be able to function ... and thus you have to see the person move when you do your examination
>
> II:PT-16: Some kind of activity, something happens, shifts position, turns ... From my point of view, thinking of my profession, it is ... It usually is some part of the body that you get to move ... Physiotherapy in general ... Some kind of activity where some parts of the body move

Three of the subjects have changed in the other direction, illustrated here by case II:11; from the more mechanical point of view towards conceiving of movement with the individual's actions and interactions as the frame of reference.

> II:5-11: Everything that moves, the body and ... movement ... I think I mean everything that's not at rest ...
>
> II:PT-11: Yes, that is what we are working with ... A movement is also a function, actually ... to help people to get increased ability to move, that is important, because people have to have the ability to move.

Summary

The outcome space regarding the conceptions of *Movement* is characterised by two overarching frames of reference for the meaning of the concept, the individual person and his capacities as in category A; movement is a prerequisite of functional activity and independence and category B; movement is an emotional expression, or the human body, separated from the intentions and will of the individual as in category C; movement is a shift in position and category D; movement is a sign of life.

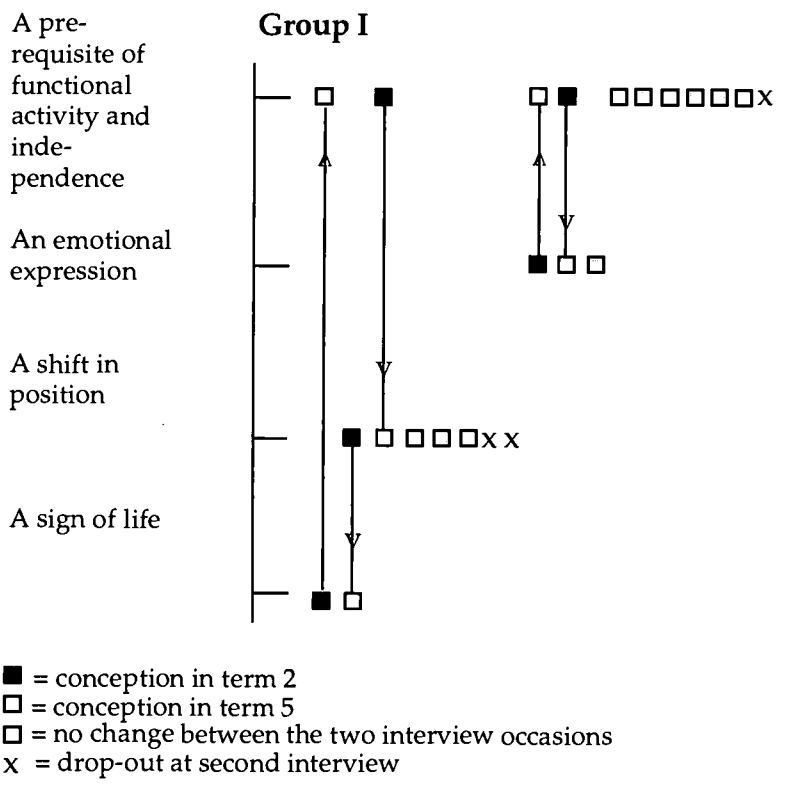

Fig. 8. Individual changes in conceptions of movement between the terms 2 and 5

According to the overarching educational objectives as regards the concepts of movement, we can notice that conceptions of movement with the body as the frame of reference harmonise with the objectives of the first two terms, while the relationship between different movement prerequisites and the ability to function comprising the conceptions with the person as the frame of reference is emphasised in the objectives of term 3-5.

When summarising the results of group I as regards change in conceptions after going through the educational programme, we can notice that the outcome pattern show few changes in conceptions from term 2 to term 5 and is thus characterised by stability. A majority of the subjects refer to the person and his intentions and goals as the frame of reference for conceiving of movement already during the second term and maintain this conception during the course of the programme, as displayed in fig 8. The dominating conception at both interviews is movement as a prerequisite of functional activity and independence.

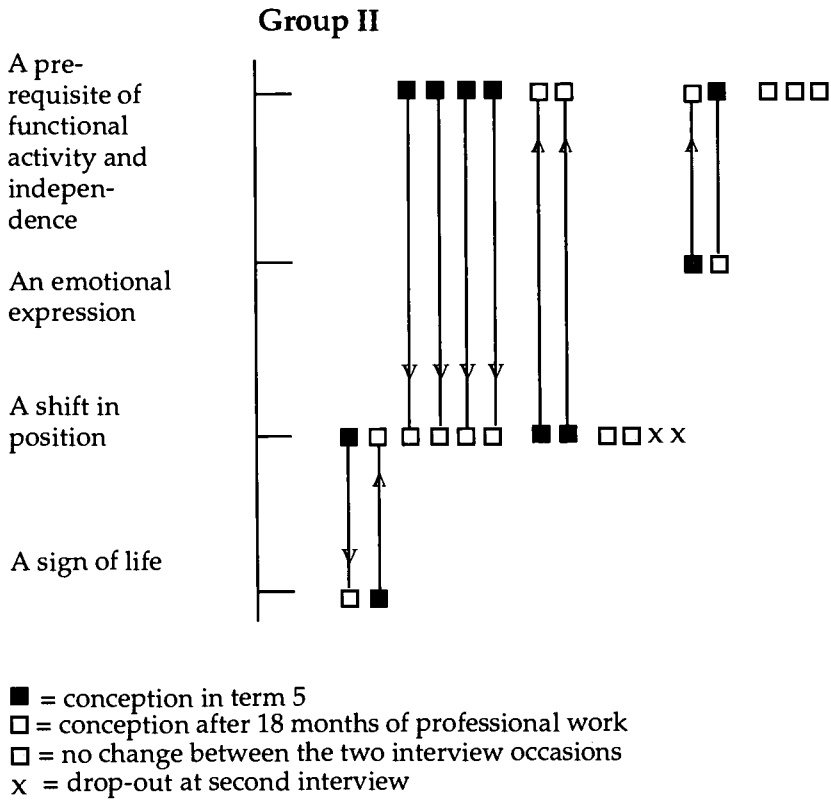

Fig. 9. Individual changes in conceptions of movement between term 5 and 18 months of professional work

In group II, the outcome space after 18 months of professional work was characterised by change. The majority of the answers were distributed over two main categories at the first interview occasion, the conception of movement as a prerequisite of functional activity and independence and the conception of movement as a shift in position. The distribution was maintained at the second interview. This was, however, due to changes in both directions, as displayed in fig. 9.

Chapter 7

Results: Conceptions of Health

Descriptive analysis

The analysis of the answers to the question *"What is the meaning of health to you?"* reveals three qualitatively different ways of conceiving of health that could be labelled *A. Capability of action, B. Passive acceptance* and *C. Well-being.*

A. Capability of action

The *capability of action* category represents conceptions that focuses on the individual's ability to fulfil his personal goals. Salient features of the answers are that the concept of health is conceived within a presence-of-illness perspective, but that the distinguishing characteristic is an emphasis on action; the individual's fulfilment of personal goals and independence. The feeling of well-being and quality of life is thus dependent on the individual's functional ability. You are in good health when you are able to fulfil your personal intentions, even if you are ill or injured in some way. Key descriptors of the statements are active words such as: to manage, to accomplish, to reach your goals. The essence of the answers in this group can be illustrated by the excerpts below;

> To feel well, feel healthy and having a quality of life ... That you can achieve what you intend to. You maybe don't have to be totally physically fit, maybe you have a handicap, but that you can still live a life so that you have a quality of life ... That you reach your goals anyway (I:2-6)

> Health is what the individual ... that you feel good about your situation in life, that you can reach your goals and carry out what you want to do ... You don't have to be ... I mean, you can be handicapped, but be in good health anyway ... if you can accomplish what you intend to without too much strain (II:5-9)

> Health ... yes, I remember that we talked a lot about health during the first term ... but I have another perspective now, I look at health from my patients' points of view..it is when they feel that they can manage in their daily living, despite their different dysfunctions ... (II:PT-13)

B. Passive acceptance

Characteristic of the answers in this category is, similarly, that the health concept is viewed from a presence-of-illness perspective, but in this category, the relationship to a capability of action within the individual is not discernible, health is instead viewed as a matter of *passive acceptance* of the situation, being able to feel well and be satisfied despite a possible disease or illness. Key descriptors of the statements are passive words such as to accept, to be satisfied, making the best of the situation. One T2 student commented:

> That you feel well, physically and mentally, and that you are satisfied with what you do, with your work and with your situation in life ... If you have a handicap, that you accept it and try to make the best of it (I:2-14)

You are in good health when you can accept and be satisfied with your total life situation, despite a possible disease or illness. For example,

> Well, it is that you feel satisfied with the life you're living ... you maybe have pain somewhere, but you can still feel that you are satisfied and that you're living the way you want to (II:5-13)

> That you are satisfied with the life you're living..that you get on well ... What can I say? ... I mean, you could be ill and have your health anyway ... If you've, so to say, adjusted to your environment and your lifestyle (II:PT-4)

C. Well-being

The most characteristic feature of the category *well-being* is that health is viewed from an absence-of-illness perspective The answers are instead characterised by an emphasis on emotional and social relations. There is also an emphasis on the individual's feelings of happiness, well-being and safety. The importance of a functioning social network is stressed. It is vital to have close relations with other people, to feel appreciation and have someone to share your experiences with, positive as well as negative, as expressed by one of the students:

> Health means mental and physical well-being over all ... To feel calm, safe, satisfied with yourself. That you feel well, that you are healthy, that you have people around you who love you, and whom you can love back ... (I:2-13)

Included in the well-being category are also conceptions of health as an emotional experience; from a perspective of absence of disease, when body and soul are in harmony. Body and soul cannot be separated, their relationship is mutual. Somatic disorders affect the way you feel and psychological tension causes somatic manifestations.

> That you feel healthy as a whole ... That you feel well and have friends to talk to ... If you don't feel well physically, it's very likely that you don't feel well mentally, either ... Health is an emotional experience ... (I:T2-10)

> It means that you feel physically and mentally well ... I don't add that harangue which is included in the WHO's definition ... it is hard to grade, so I stay with that ... but basically, physical and mental well-being, that's my definition. (I:5-17)

> Health? That is to feel well, physically and mentally. I was going to say that it means to be happy, that's health, but I think of it more like being physically and mentally well. (II: PT-15)

Contrastive analysis

A helpful tool for discerning the differences between the three categories theoretically is provided when adopting Nordenfeldt's analysis of perspectives of health. According to Nordenfeldt (1987), the nature of health and its relation to disease is viewed in the literature from basically two viewpoints, the *holistic perspective* and the *analytic perspective.* The holistic perspective concentrates on the feelings of the individual and his functioning in a social context. A holistic study of the nature of health uses concepts borrowed from ordinary language, psychology, anthropology or sociology. Examples of such concepts are well-being, pain, depression, ability, adaptability, disability and handicap.

The analytical perspective focuses on the specific parts of the human organism and considers their structure and function. An analytical study of health uses mainly concepts from biology, chemistry and statistics. It involves inspecting organs and tissues, studying their functioning and measuring their rate of change, as well as calculating the relative frequency of the values obtained (Nordenfeldt, ibid., p. 12). Nordenfeldt claims that the analytical and the holistic perspectives do not exclude one another, a serious theory of health must take both perspectives into account. The holistic phenomena of health must be considered, as well as the ana-

lytical phenomena of diseases and impairments. Furthermore, the relation between the two concepts has to be clarified in order to make explicit in what way a disease is related to a person's general state of health.

Capability of action as a holistic conception of health

The conception of health, as described in the *capability of action* category, represents a holistic conception of health as related to the intentions and goals of the individual in his interaction with his environment. This conception is theoretically related to Nordenfeldt's welfare theory of health (ibid.) and the equilibrium theory of health by Pörn (1984a) The basic conception of health offered by Nordenfeldt's welfare theory is the following:

> *A* is healthy if, and only if, *A* is able, given standard circumstances in his environment, to fulfil those goals which are necessary and jointly sufficient for his minimal happiness. (ibid. p. 79)

Health is the basic concept in the welfare theory. Illness is the complement of health. A person is ill to some degree if, and only if, there is at least one vital goal which, given standard circumstances he cannot reach. Health is defined as an ability concept, distinguished from the concepts of excellence such as intelligence, strength, etc.

Health is the ability to reach a certain basic level, the realisation of one's vital goals. Health is also distinguished from happiness. It is by definition an important contributor to happiness, but is not identical with it. What are to be regarded as standard circumstances for ability and the boundaries for minimum happiness must be decided on by the members of society. This is influenced by the social and physical environment as well as by prevailing values. The welfare theory does not separate mind and body, it is a unified theory of health covering both mental and somatic aspects of health.

Pörn (ibid.) defines health in a model where a person's ability to act in relation to his or her goals or aims in life, provided his or her physical and mental resources and the surroundings in which he or she acts is in a state of equilibrium.

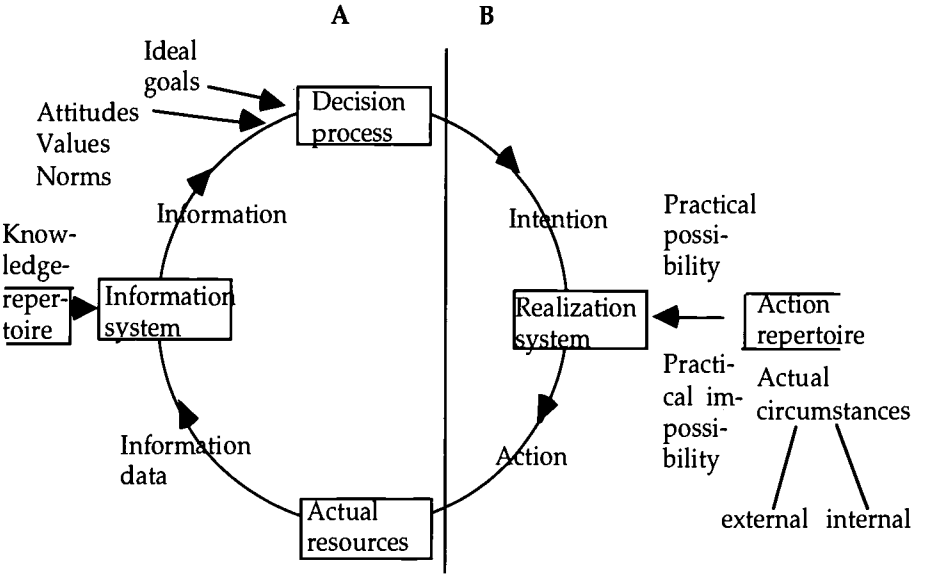

Fig. 10. Pörn's theoretical model of health (the action chain loop) (in Grönblom, 1992, p. 70)

The ability of an individual at a certain point of time to act in relation to his or her central goals in life and in his or her social context is affected by the environment. The individual's knowledge about his or her resources, together with his or her ideal goals, affects the process of deciding how to act. The person prioritises which goal that needs to be achieved most urgently. The decision becomes an intention to act and may lead to the realisation of that decision. The action repertoire and the actual circumstances, external and/or internal, in which the person acts, make the intentional act possible or impossible. The external circumstances are physical, social and cultural and the internal ones are cognitive, biochemical, physiological, emotional and anthropometric.

According to Pörn, disease is defined as a physical and/or mental process that tends to cause ill-health by limiting a person's ability to act. Pörn's concept of "disease" and "health" are not contradictory but complementary. A person can be in good health and still be a bearer of a disease. This occurs when the disease in no way interfers with the person's ability to act in the way he or she desires. Ill-health indicates that one's ability to act is hindered, one's ability to set goals or pass on information about discrepancies between actual and ideal resources is hindered, and that opportunities to act are in some way insufficient.

Passive acceptance as a holistic conception of health

As to the *passive acceptance* category, health could also be conceived of despite presence of a disease. Eriksson (1989) offers a model of health that integrates the individual's feeling of well-being or ill-being with the presence or absence of signs of objective dysfunctions. One of the categories in Erikssons' model resembles the conception of health in the *passive acceptance* category. Eriksson defines health as an integrated status within the organism, comprising mental and physical soundness and a feeling of well-being. It does not necessarily mean absence of disease or infirmity. The concept of health has both a subjective and an objective dimension. The subjective dimension of health is the feeling of well-being and the objective dimension is physical soundness. Well-being is the emotional experience of welfare within the individual. The mental aspect of soundness comprises the individual's ability to adjust to his actual life situation and his ability to attain a healthy life style.

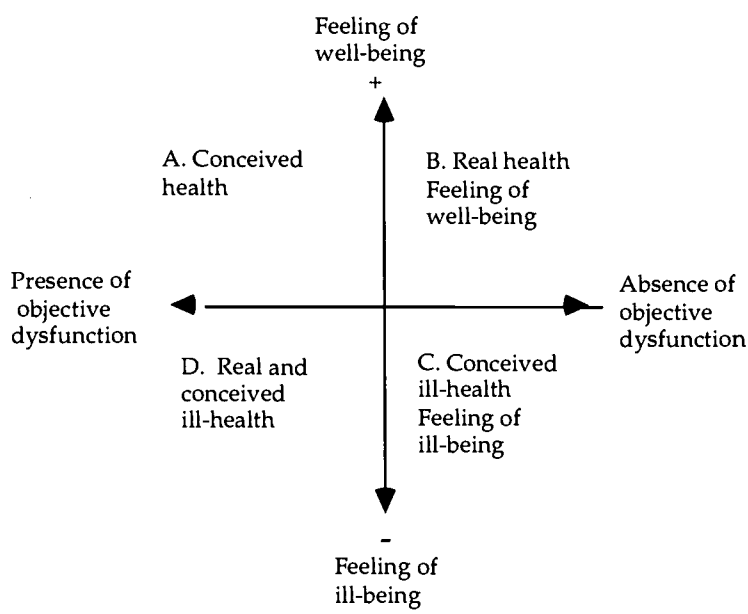

Fig. 11. The positions of health (Eriksson, 1989, p. 46)

According to Eriksson (ibid.), the possible positions an individual can take in different situations are shown in figure 2. Position A in the figure means that the person shows objective signs of dysfunctions, but still feels well. The human being in position A is often conscious of having a disease or illness, but has accepted the situation and can still experience a feeling of well-being. Position B

means both the feeling of well-being and the absence of objective signs of dysfunctions. This position resembles the definition of health proposed by the WHO (ibid.). Position C means a conceived state of illness, but the person shows no signs of objective dysfunctions. Position D means real and conceived ill-health. The person feels ill and shows signs of objective dysfunctions.

The empirical analysis shows that the students in the *passive acceptance* category conceive of health according to position A in Eriksson's model. Eriksson's model can be regarded as a holistic perspective of health, the basic concept is health, and disease is defined both in terms of presence or absence of objective dysfunctions in combination with the person's feelings of well-being or ill-being. Nordenfeldt (1987) claims that, depending on which concept is chosen as the basic concept of a theory of health, health and disease will be defined differently. If health is chosen as the basic concept, as in the holistic models, the opposite of health will be ill-health. Health will be defined positively, in terms of what characterises a healthy person, on the level of the person as well as on the level of his or her interaction with the surrounding environment. Disease will, thus, be defined as just one of several different factors that could be compromising health. The presence of objective signs of disease as defined in the biostatistical model is neither a necessary nor a sufficient condition of ill-health. Eriksson claims that the mental aspect of the concept of soundness refers to the individuals' ability to adjust to his life situation, which is made explicit in the model of the positions of health. The different positions are defined in terms of well-being or ill-being, but the model does not include the aspect of the individual's functional activity and interaction with his surroundings.

Well-being as an analytical perspective of health

At first glance, all the empirical findings regarding the meaning of the concept of health seem to stem from the holistic perspective, but if we take note of the characteristic absence-of-illness notion inherent in the *well-being* category, it could be argued that such a conception stems from an analytical, biomedical or biostatistical perspective of health. The analytic perspective of issues relating to the function of the human body and the disease process characterises the biostatistical theory developed by Boorse (1981). The fundamental concepts of the biostatistical/biomedical model are:

(i) the concept of *normality*; deviations from which are abnormal. (Boorse, 1981; Nordenfeldt, 1987; Roberts, 1994). According to Nordenfeldt, the most common way of defining normality within the health care system is by using biostatistical concepts. This means setting a norm defined by a range of variation that the majority of the population tends to approach in certain tests of different bodily functions.

(ii) *Specific aetiology;* the belief that illnesses and diseases have specific, causal agents. Its origins are in the work of Pasteur, Koch and others in the 19th century and the isolation of micro-organisms as causal agents of particular groups of symptoms, the germ theory. Roberts (ibid.) claims that the germ theory has been so powerful and influential that our concept of a specific identifiable agent as the cause of disease has spread to all aspects of ill-health.

(iii) *Generic diseases*, encompasses the idea that diseases are specific entities that exist beyond cultural and historical limits. Traditionally, clinical medicine has been moulded to become an area where the disease rather than the person is subject to treatment.

When viewing the concept of health from a biostatistical perspective, it is noticeable that health is defined in terms of absence of disease. An example of this is the definition of health proposed by the World Health Organisation as

> ... a state of complete physical, mental and social well-being, not merely the absence of disease or infirmity. (WHO, 1947)

This is also the frame of reference of the *well-being* category. This perspective is also perhaps the common lay conception of health. It seems natural to conceive of health as the symmetric opposite of disease. The reverse of such a relationship between the two concepts, however, means that you cannot be ill if there are no objective signs of disease.

The analytical conception becomes clearer when linking the WHO definition of health to the International Classification of Impairment, Disabilities and Handicaps (WHO, 1980). This model is an example of a perspective of health where disease is the core concept. The classification was developed as a tool for evaluating health care processes. It focuses on the outcome of the individual's contact with the health care system in terms of beneficial changes in the individual's situation or status. The classification is basically

grounded in the medical model, the core of the situation described is the concept of disease, which may be depicted symbolically as a sequence as shown in figure 12. The aim was to develop a means of describing the status of an individual in such a way that, by assessing status when contact is first made and then again after the system has responded, change can be recorded. This change would provide a measure of outcome.

Fig. 12. The ICIDH classification (WHO 1980, p. 11)

The ICIDH manual (ibid.) contains three distinct and independent classifications, each relating to different consequences of disease, and each with a reference to the concept of normality.

The definitions given below are basically the ones suggested in the manual.

i) *Impairments*, concerned with abnormalities of body structure and appearance in and with organ or system function, resulting from any cause; in principle, impairment represents disturbances at the organ level.

ii) *Disabilities*, reflecting the consequences of impairment in terms of functional performance and activity by the individual; disabilities thus represent disturbances at the individual level.

Impairment resembles disease terms, they are best conceived of as threshold phenomena; the assessment concerns whether the impairment is present or not.

iii) *Handicaps*, concerned with the disadvantages experienced by the individual as a result of impairments and disabilities; handicaps thus reflect interaction with and adaptation to the individual's surroundings. The scheme is restricted to key social roles, the most important dimensions of what has been regarded as disadvantageous experience - orientation, physical independence, mobility, occupation, social integration and economic self-sufficiency. The concept of handicap is defined as circumstances that may put such individuals in a disadvantageous position in relation to their peers when compared with the norms of society.

As described above, a *well-being* conception of health is perhaps the traditional view, where freedom from disease is equated health. This conception is closely linked to the medical model of health. The analytical perspective with its emphasis on freedom from disease and restoration of health has hitherto been pervasive in offering a theory base for many of the paramedical professions. It has been suggested that the medical model may not be sufficient for professional physiotherapy practice (Grönblom-Lundström, 1991; Pratt, 1989; Richardson, 1993; Roberts, 1994). The model does not provide adequate explanations which would be needed to understand the situation of the many patients who do not display objective signs of disease, but still feel ill.

Changes in ways of conceiving of the meaning of the concept health

When analysing and contrasting the categories of descriptions regarding the concept of health, I suggested that the conceptions of health as *passive acceptance* or *capability of action* represented holistic perspectives of the concept in comparison with the thoughts of Nordenfeldt, (1987); Eriksson, (1989); or Pörn, (1984). The *well-being* conception of health was an example of an analytical perspective of health according to Nordenfeldt (ibid.). In the following, I will provide a quantitative analysis of the distribution of subjects over the categories discerned in the qualitative analysis. The analysis will depict the frequency of conceptions, held in both groups on the two interview occasions and the direction of change in conceptions from the first interview to the second. The change will be also be illustrated by quotations from some of the cases.

Group I

Table 5. Conceptions of health. Distribution of subjects over the categories on the two interview occasions

		Term 5				
		A. Capability of action	B. Passive acceptance	C. Well-being	Drop-outs	**Total**
Term 2	A. Capability of action	2	3	0	1	**6**
	B. Passive acceptance	2	3	0	1	**6**
	C. Well-being	1	1	2	1	**5**
	Total	**5**	**7**	**2**	**3**	**17**

During the first interview, it can be seen that a majority of the subjects hold a holistic conception of health, viewed from a presence-of-illness perspective, as in the *capability of action* and *passive acceptance* categories. About one third of the subjects hold an analytical conception of health, as in the *well-being* category. At the time of the second interview, seven subjects have changed their conceptions, while seven subjects have retained the same conception they had in the first interview. Case I-15 below, illustrates the capability of action conception at the time of both the interviews;

> I:2-15: To be active and feel well about that. Everybody can perhaps not be active, but in that case, to have quality of life. To manage some form of action is important, to be able to do something in any form.
>
> I:5-15: Health is to .... feel well and ... this was difficult ... and to manage to do what you like, that your body is not hindering you ... to feel the desire and possibility to achieve what you want to do, maybe not just in a physical sense.

Five students have changed within the holistic perspective, both in a direction from passive acceptance to capability of action and in the reverse direction. The case I-9 below illustrates a change from the capability of action conception to the passive acceptance category;

> I:2-9: I think about this patient, who was in quite good health. Her life was affected by the pain in her hip, but she was happy, she lived a rich life and managed what she wanted to do. Of course, she had to cut back on some of her activities due to the pain, and that affected her negatively.
>
> I:5-9: The first thing that I thought about was, that if you feel ill you don't have to be cured to be healthy ... if you ease the pain and have the right attitude ... the attitude towards the injury or whatever it is, means a lot to how you feel, that you can live with it, or even feel good about living with it.

Two of the students have changed from an analytical to a holistic conception of health, illustrated below by the case I-2, who has changed from the *well-being* category to the *capability of action* category;

> I:2-2: Health is to feel good, feel happiness, that you get something out of life. To have friends and a family, to feel good about your being in the world.
>
> I:5-2: Health is to feel quality of life. That you feel that you can manage what you want to manage ... To feel as good as possible. You may have a physical problem, but still feel that you are healthy. You can develop other sides of yourself and raise your quality of life.

The frame of reference for the *well-being* category is that the concept of health is viewed from an absence-of-illness perspective. The answers are characterised by an emphasis on emotional and social relations. Two of the students maintain this conception of health at both interviews, which is illustrated by the case I:1:

> I:2-1: Well, I think it is quite a broad concept. To me it means that you feel appreciated, that you live in a meaningful context, where you feel good about yourself. Because a good social network makes your problems less difficult. I think the most important meaning of health is to feel a relationship with others, feel good about yourself, and that you feel that you are someone.
>
> I:5-1: Well-being. Or like, feeling good about life. That you don't have problems of any kind that could disturb your life. To feel well. Different things can disturb your well-being, for instance that you don't feel well about your work. If you are injured or sick, you are not healthy ... or if you are unemployed and feel bad about that. Health is to feel good about yourself and your surroundings.

Group II

Table 6. Conceptions of health. Distribution of subjects over the categories on the two interview occasions.

		18 months of professional work				
		A. Capability of action	B. Passive acceptance	C. Well-being	Drop-outs	**Total**
Term 5	A. Capability of action	3	3	2	0	**8**
	B. Passive acceptance	3	3	2	1	**9**
	C. Well-being	0	0	0	0	**0**
	Total	**6**	**6**	**4**	**1**	**17**

In group II, the first interview was conducted at the end of the fifth term. The distribution of subjects over the categories (table 6) at the first interview shows a similar pattern as in group I, the *passive acceptance* and the *capability of action* are the dominant conceptions. The *well-being* conception is, however, not discernible on the first interview occasion. At the time of the second interview, most of the students, now physiotherapists, have changed their conceptions, but still within the holistic perspective, where health can be experienced, despite the presence of illness. Four of the former students have changed their conceptions from the passive acceptance category to the capability of action category, while three of the students have changed in the reverse direction. Case II-13 below illustrates a change from the conception of health as passive acceptance to the capability of action conception, while case II-4 illustrates a change in the reverse direction.

> II:5-13: Well, health is to be satisfied ... to be satisfied with your life ... of course, the best is if you both feel well and don't suffer from any physical problems, but, that is not really what I mean, I mean, you may suffer from pain somewhere, but still feel that you are satisfied, with your life the way it is.

> II:PT-13: Yes, we talked a lot about of the meaning of health during the first term.. It means ... I look upon health from another perspective now ... I see through the eyes of my patients, and to them, health means that they feel that they can manage their daily life, despite their dysfunctions of different kinds ... They learn to cope, and they say that they feel quite well, despite everything else.
>
> II:5-4: That you can manage what you want to achieve.. how shall I explain ... I mean, that the gap between what you want to be able to manage and what you actually can do is not too wide ... that you have the possibility to achieve your goals.
>
> II:PT-4: Well, that you are satisfied with your life.. How shall I put it? That you ... maybe ... feel well and satisfied with the life you live. You could be ill and still be healthy.. of course, health could mean that you are healthy, physically and mentally, but still you could be ill, and still feel that you are healthy. In that case, you have accepted your life situation or way of living.

Four of the students have changed in the direction of a *well-being* conception of health, which was not discernible in any of the students' answers at the first interview. Case II-7 illustrates this:

> II:5-7: Health to me, is to feel well and have a positive attitude towards life, actually ... even if you suffer from some diagnosis, you could experience health, I think ... If you feel that your life is meaningful, that is health, if you are satisfied with your being in the world ... and feel happy about that ... that is health to me.
>
> II:PT-7: Health is to feel well and satisfied, both physically and mentally.

Summary

The outcome space of the analysis of the students' and, later on, physiotherapists' conceptions of *Health* comprise two main conceptions, a holistic perspective as in the categories, A Capability of action and B, Passive acceptance. An analytical or biostatistical perspective is represented by category C, Well-being. Both categories in the holistic perspective concentrate on the feelings of the individual and his functioning in a social context and have health as their core concept, albeit an emphasis on the individual's goal fulfilment in

category A, which is lacking in category B. The analytical or biostatistical perspective has disease as its core concept and, accordingly, health means freedom from disease. A holistic perspective of health and disease is one of the overarching educational objectives of all educational programmes at the Faculty of Health Sciences.

The analysis regarding change in conceptions after going through their formal education shows that most of the students in group I hold a holistic conception of health at the end of the second term, and that this perspective is maintained at the end of the educational programme, which is in accordance with the educational objectives. The outcome pattern is thus characterised by stability on an overarching frame of reference level, although individual changes within the holistic perspective are common in both directions after going through the educational programme, as shown in fig 13.

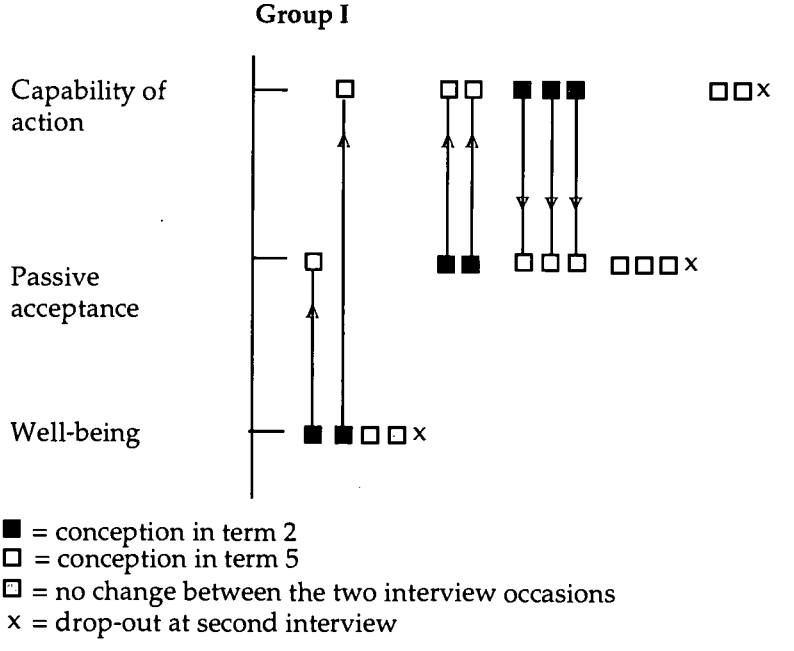

Fig. 13. Individual changes in conceptions of health between terms 2 and 5.

The analysis of change in conceptions after 18 months of professional experience shows a similar pattern. The holistic perspective of health prevails at the time of the first interview, and is also the most prevalent at the time of the second interview. The most important difference in the outcome pattern between the groups, is that the analytical perspective of health, as described in the *well-being* cate-

gory, is not discernible in group II on the first interview occasion. The second interview shows that changes on the individual level within the holistic perspective, in both directions between the categories *passive acceptance* and *capability of action* are common after 18 months of professional work. There are also changes in group II from a holistic to an analytical conception of health, as described within the *well-being* category, at the second interview.

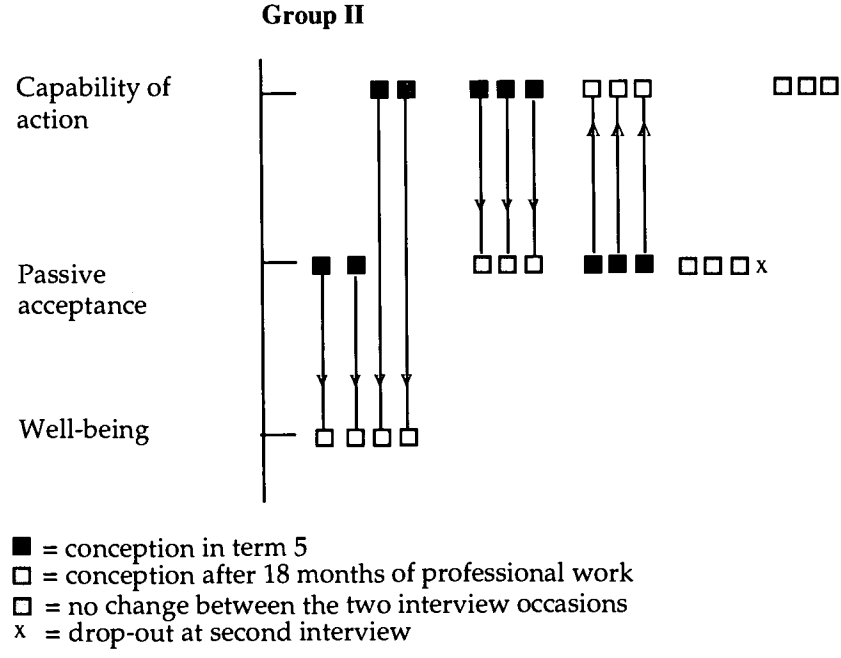

Fig. 14. Individual changes in conceptions of health between term 5 and 18 months of professional work

The results show that the impact of the educational programme as well as the impact of professional experience in terms of change in conceptions of health mainly occur within a holistic perspective of the concept. The holistic perspective in group I is established in term 2 and maintained in term 5. The group II results show a similar pattern.

Chapter 8

Results: Conceptions of Function

Descriptive analysis

The analysis of the answers to the question *"What does the word function mean to you"* yielded four qualitatively different ways of conceiving of function that were characterised as *A. Function is when an individual can achieve his goals in relation to his personal resources; B. Function is the individual's concrete activities in daily living; C. Function is the integrated interplay between different systems of the body;* and *D. Function is when the body's organs are working the way nature intended.*

A. Function is when an individual can achieve his goals in relation to his personal resources

A good function in this category of answers is not necessarily the ability to perform something in accordance with what is held as a normal human manner. It is. rather. conceived of as a status when there is a match between a person's desires and needs, his personal resources and his ability to reach his goals. The concept is thus transposed and expanded to a broader context than the body movement apparatus.

> That your life functions without too much strain ... you maybe can get aids that makes you function well, even if you're not quite OK ... but you can manage your life and be satisfied with yourself, and function together with others ... (I:2-1)

> That you can function in your life as well as possible.. even if you are prevented from doing certain things, that you can find solutions (II:5-17)

> That you can manage ... depending on what goals and resources you have ... that you can fulfil your intentions (II:5-9)

B. Function is the individual's activities of daily living

In this category, the meaning of function is described as different concrete activities in daily living. In this sense, function is equated with the ability of performance in itself. The concept of function is also related to disability, what movements or activities in daily liv-

ing that the person is restricted to due to impairment. As expressed by two of the students:

> It is an activity in daily living, like doing the dishes or walking that could be prevented by some kind of dysfunction (II:5-10)

> It is some kind of activity of daily living that could be prevented due to pain, for instance (II:5-6)

C. Function is the integrated interplay between different systems of the body

The salient features of this group is a focus on the integrated functioning and interaction within and between the different body systems. The movement apparatus is conceived of as hierarchically structured in systems and subsystems depending on each other. An injury or dysfunction on one level affects the function on other levels.

> The body is an apparatus that functions, different structures that function together ... if one structure is impaired, the function of other structures will be disturbed (II:5-1)

> It means ... range of motion is one function, strength is a function ... The whole body is a function that is connected with other functions within the body (II:5-8)

D. Function is when the body's organs are working the way nature intended

Characteristic of the answers in this category is a focus on the isolated organs of the body, such as the joints and the muscles. The concept of function is embedded in the organism itself, nature has provided a plan or purpose which the organs and systems within the organism are meant to fulfil. The characteristic of this conception is that the given examples of function concern an isolated joint or part of the body, as expressed by some of the students:

> Function according to a certain plan ... Something is supposed to work according to a certain plan. Everything has a function. My elbow joint is supposed to work so that I can bend it like this, and twist it like this (I:2-13).

> That something works as it was intended. If it doesn't, it's not functioning. Think of a joint, for instance. If you can't bend the joint, then the function is not completely fulfilled (I:2-14).

> Function, that is ... Everything has its function ... You're supposed to walk with your legs. That's the function of the legs, so to say (I:2-11)

Contrastive analysis

The qualitative analysis of the subjects' answers to the question about the meaning of the concept of function yielded four different descriptive categories. Category A, an individual's achievement of his goals in relation to his personal resources could be described as a relative conception of function. The definitive conception of function, as described in category B, means the concrete activities in daily living itself. The conceptions of function as the integrated interplay between different systems of the body in category C, was labelled systems theoretical. The D category represents a teleological conception of function, meaning the organs of the body, working the way nature intended.

The categories can also be grouped in a way that has similarities with the contrastive analysis of the conceptions of movement. The descriptions of function as when an individual can achieve his goals in relation to his personal resources, and function as the individual's concrete activities in daily living both refer to the individuals' interaction with the surrounding world. The descriptions of function conceived of as the integrated interplay between different systems of the body and function conceived of as when the body's organs are working the way nature intended refer to the function within the human body.

At first glance, the outcome of the analysis mirrors the ways in which the concept of function is used in physiotherapy literature according to Tyni-Lenné (1991). Sometimes, the concept of function denotes behaviour and movement depending on external conditions, while in other texts function refers to the function of isolated organs or systems of the body.

Goal achievement as a relativistic conception of function

A closer look at the two categories focusing on the individuals' interaction with the surrounding world shows that the description of function in category A, as the individual's ability to achieve his goals, in accordance with his personal resources, represents a relativistic conception of function. The will of the human being, his personal goals and resources in relation to his environment are important. If a person is able to fulfil his personal intentions and goals, he

can function. This does not necessarily mean that the person is free from illness or injury whatsoever, but that the person can function in his environment. The independence and the goals of the individual are central aspects.

Activities of daily living as a definitive conception of function

A more definitive conception of function is expressed in category B. The performance of activity itself is the core meaning of the concept of function. Function is connected to the activities in daily living in a concrete and pragmatic way, as the subjects refer to different actions connected to the ability or disability to move. The definitive conception of function can be compared with the disability level in the ICIDH classification (WHO, 1980). In the ICIDH, the term disability describes any restriction or lack of ability to perform a task or an activity in the manner considered normal for a human being.

Body systems interplay as a systems theoretical conception of function

Two of the categories, C and D, refer to the body as the frame of reference for conceiving of function. Conceiving of function as the integrated interplay within and between different systems and subsystems of the body is compatible with the systems theoretic perspective of movement as described by Hislop (1975) and Tyni-Lenné (1987)

Isolated organ function as a teleological conception of function

The conception of function as the isolated organs within the body, functioning according to a natural plan or purpose, is related to the idea of a *teleological* function of nature that goes back to Aristotle. Every movement or change in nature has its purpose. A stone that falls to the ground strives to place itself in its natural place. This is an internal striving and not a result of external forces.[1]

---

[1]Aristotle adopted the prevailing theory of the four elements of nature; earth, wind, water and fire and added a fifth one: the fifth element or the ether. The fifth element fills the atmosphere "above the lunar orbit". All elements have their natural place, and a stone that falls must sometimes have been forced away from its natural place, the earth, to which it now strives to return (Molander, 1988)

Changes in ways of conceiving of function

Group I

Table 7. Conceptions of function. Distribution of subjects over the categories on the two interview occasions

		Term 5					
		A. Rel. goal achievement	B. Concrete activity in daily living	C. Body systems interplay	D. Organ function	Drop-outs	**Total**
Term 2	A. Rel. goal achievement	2	2	0	0	0	**4**
	B. Concrete activities in daily living	2	2	0	0	0	**4**
	C. Body systems interplay	0	0	0	0	0	**0**
	D. Organ function	0	5	0	0	2	**7**
	Miscellaneous	1	0	0	0	1	**2**
	Total	**5**	**9**	**0**	**0**	**3**	**17**

The pattern of the outcome in group I is characterised by change. The most salient change is that the subject transforms the frame of reference for conceiving of function from the processes within the physical body to the individual's interaction with the surrounding world. Table 7 shows that the dominating conception of function in group I is as described in category D. This means conceiving of function in a teleological way, the body's organs are working the way nature intended. Seven of the students hold this conception during the first interview. During the second interview, illustrated below by case I-13, five of them have changed their conceptions towards a definitive conception of function, defined in category B as

the individual's concrete activities in daily living. This category is the most common during the second interviews, this time comprising eight students. None of the subjects hold a teleological conception of function at the second interview.

> I:2-13: Function according to a certain plan ... Something is supposed to work according to a certain plan. Everything has a function. My elbow joint is supposed to work so that I can bend it like this, and twist it like this.

> 1I:5-13: Something you do to achieve a certain purpose. Like a functional movement ... To rise from a chair. Almost anything; like eating or ... Movements that you use, to survive, that you have to manage to function.

Three students, hold a relative conception of function, described in category A, as goal-oriented activity in relation to the personal resources of the individual, on the first interview occasion. Two of them change towards the definitive conception of function during the second interview. Three of the students, of whom case I-3 is an example, holding a definitive or miscellaneous conception during the first interview, change towards a relative conception during the second interview. The relative conception comprises five students on this time occasion.

> I:2-3: To me function is connected to some kind of activity, not necessarily physically, but since we're talking physiotherapy, that is perhaps what I think of ... Yes, the ability to perform an activity, physically, but it could also be intellectually, socially and psychologically ...

> I:5--: Function? ... Yes, that doesn't mean only the ability of physical action ... but a condition for living a life in health, you have to function on several different levels ... Like intellectual functions, emotional functions ... The functions of the body interplay and affect each other ... You can also, as we talked about before, experience health in that certain functions can compensate for other functions, and that is important to realise. That if a person has difficulties in one function, maybe it can be compensated by another function.

Group II

The distribution of subjects over the categories in group II (table 8), shows that the two most common conceptions of function held during the first interview are the relative and the definitive, comprising even and six students respectively. The pattern is the same during

the second interview, this time comprising six subjects in category A and eight subjects in category B. The individual's interaction with the surrounding world as the frame of reference is thus more stable between the two interview occasions when compared with group I.

Table 8. Group II. Conceptions of function. Distribution of subjects over the categories on the two interview occasions

18 months of professional work

Term		A. Relative goal achievement	B. Concrete activities in daily living	C. Body systems interplay	D. Organ function	Drop-outs	**Total**
5	A. Relative goal achievement	4	2	0	0	1	**7**
	B. Concrete activities in daily living	2	3	1	0	0	**6**
	C. Body systems interplay	0	2	1	0	0	**3**
	D. Organ function	0	1	0	0	0	**1**
	Total	**6**	**8**	**2**	**0**	**1**	**17**

Similar to the group I results, the definitive category is the most common conception during the second interview, this time comprising eight students. The relative category comprises six students, of whom four have maintained the same conception during the second interview. Two of the cases, representing a relative conception of function during the first interview, change to a definitive conception during the second interview. On the other hand, we can also notice ange in the reverse direction in two of the cases, exemplified be-

low by II-13, who has changed from the definitive to the relative category.

> II:5-13: Function is the patient's ability to do things, not just locomotion, but other thing that you do for pleasure, like sewing or knitting and things like that ...
>
> II:PT-13: Yes, that is the ability to manage daily living ... If they can rise from a chair, walk or cook their own food, or manage to move between different rooms without hindrance ... or if they are in a wheelchair, can they manage to handle the wheelchair on their own. Independent of the help from others, if you like ... That is how I look upon it today ... I think of it more in that way today than I did before ... I used to think of function like; what you can do with your arms and legs ... But you don't really need that function to be able to function ...

Only one student holds a teleological conception during the first interview, and none during the second interview. The conception of function from a systems theoretic view, as the integrated interplay between different systems of the body, is held by three students during the first interview. Two of them change to a definitive conception of function during the second interview.

Summary

The qualitative analysis of the subjects' answers to the question about the meaning of the concept *Function* yielded four different descriptive categories. Category A, an individual's achievement of his goals in relation to his personal resources is described as a relative conception of function. The definitive conception of function, as described in category B, means the concrete activities in daily living itself. Both categories refer to the individuals' interaction with the surrounding world. The conceptions of function as the integrated interplay between different systems of the body in category C, is labelled systems theoretical. The D category represents a teleological conception of function, meaning the organs of the body, working the way nature intended. The latter categories both refer to the function within the human body.

The results here show that a teleological conception of function is the most common during the second term of the educational programme. By the time of the fifth term, most of the students have changed to the definitive conception of function, as shown in fig. 15.

This means that the frame of reference has changed, from the function within the body, to the activity performed by an individual.

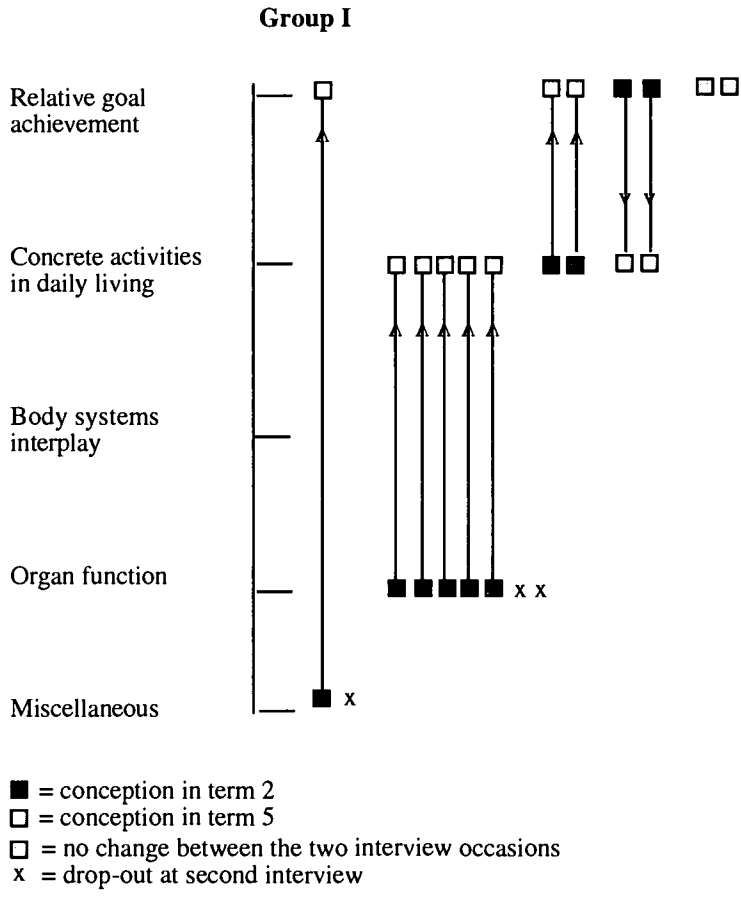

Fig. 15. Individual changes in conceptions of function between terms 2 and 5

The group II results, displayed in fig. 16., show that two main categories, the definitive and the relative conception of function, dominate during both interviews, typically the performed activity, in concrete terms or in relation to the resources and goals of the individual.

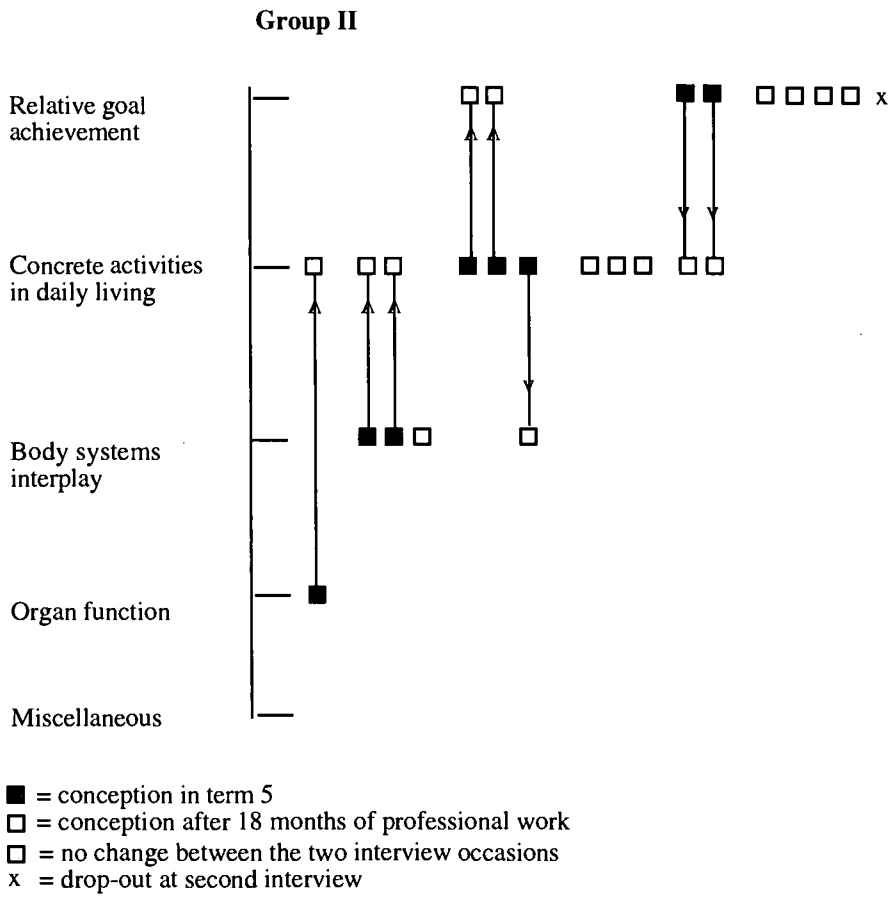

Fig. 16. Individual changes in conceptions of function between term 5 and 18 months of professional work

The results show that the impact of the formal education in terms of change in conceptions of function is typically in the direction from the body as the frame of reference for the concept and to the individual's interaction with the surrounding world. The impact of professional experience shows mainly the same pattern as regards change in conceptions.

Chapter 9

Results: The concepts reconsidered - a meta analysis and attempt at integration

In previous chapters, I have claimed that the relationships between the concept of health and the concepts of movement and functional activity, could be seen as the core of physiotherapy. This has also been proposed by several other authors, i.e. Broberg, (1995); Richardson, (1993); Tyni-Lenné, (1987). I have previous shown the variation in conceptions regarding these concepts. The aim of this chapter is to revisit the analyses in search of variations as regards the relationships between the single concepts.

The outcome space as a context of meaning

Regarding the total outcome space as offering a context of meaning, central aspects of the different conceptions can be discerned and re-analysed according to the principles of contextual analysis (for a recapitulation of these principles, see chapter 4). The internal relationship between the concepts can be described and thereby constitute a meaning of the category system as a whole. The meta analysis will focus on the total outcome space as regards the concepts of health, movement and function.

Categories	**Movement**	**Health**	**Function**
A	Prerequisite of activity and independence	Capability of action	Relative goal achievement
B	Emotional expression	Passive acceptance	Concrete actions
C	Shift in position	Well-being	Body systems interplay
D.	Sign of life	-	Organ function

Fig. 17. The outcome space as regards the concepts of movement, health, and function

We can notice similarities on a meta level regarding essential features of the conceptions on the A and B levels, as well as similarities within the cluster of conceptions on the C and D levels. The conceptions on the A and B levels, in turn, have qualitative differences from those on a C and D level. In the following, these will be elaborated and discussed.

The internal relationships between the concepts within a holistic context of meaning

The conceptions on the A and B levels clearly focus on a subject-related context, health is conceived of as the subject's relative capability of action according to his personal resources, of which movement is conceived as a prerequisite of functional activity and independence, alternatively, a way for the subject to express himself emotionally. In this context, function is equated with relative goal achievement. The concepts of movement, health, and function are thus partially defined in terms of each other and internally related in that they all indicate a relativistic perspective. Central aspects are subject orientation, action orientation, goal orientation, independence and achievement in relationship to goals. The meaning of the relationships between the concepts could thus be viewed as pertaining to a holistic context of meaning, and related to a holistic perspective, as described in chapter 2.

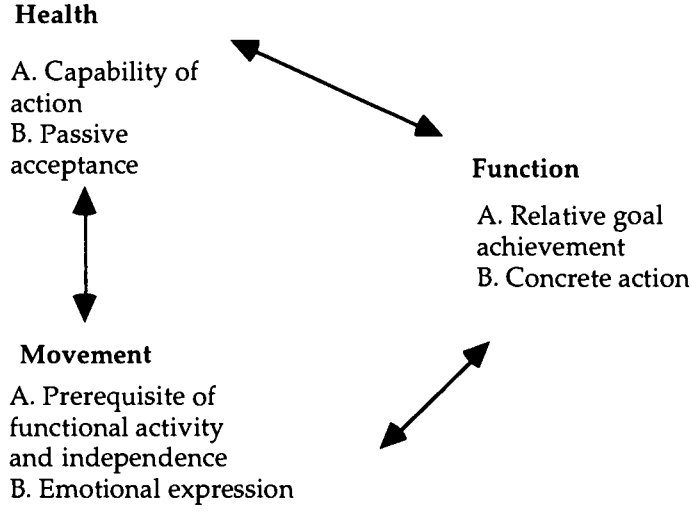

Fig. 18. The relationships between the concepts movement, health and function within a holistic ontext of meaning

The internal relationships between the concepts within a biomedical context of meaning

As regards the conceptions on the C and D levels in the category system, different central aspects and internal relationships between these aspects can be discerned. A distinguishing feature of the concept of health in this context is well-being, i.e. absence of disease. This meaning is internally related to the meaning of function as the normal interplay within the organ systems or the normal functioning of the body organs. The concept of function is thus in turn related to the meaning of movement as a sign of life from a biological point of view. The relationships described show that the concepts are related to a biomedical context or perspective as described in chapter 2. The notion of movement as a shift in position lacks a clear relationship with the meaning of the concepts of health and function in this context and is reduced to a biomechanical perspective.

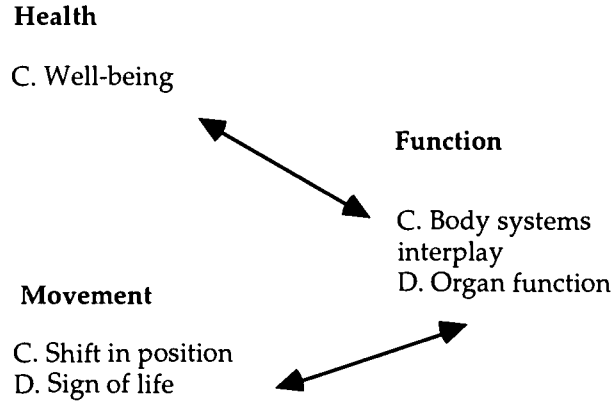

Fig. 19. The relationships between the concepts movement, health, and function within a biomedical context of meaning

Individual combinations of conceptions - characteristic patterns

After having pointed out the similarities and differences on a meta level within the outcome space by means of a logical analysis, I will now proceed to an empirical analysis of the relationships between the concepts, aiming to reveal which overarching perspectives are held by the individual subjects at the different occasions of the

investigation. The distribution of subjects are shown in table 9 and 10.

Group I

Table 9. Overarching perspectives of the concepts movement, health and function on the two interview occasions.

		Term 5				
		Consis-tently holistic	Consistently biomedical	Mixed	Drop-outs	**Total**
Term 2	Consis-tently holistic	6	0	0	0	**6**
	Consis-tently bio-medical	1	0	1	0	**2**
	Mixed	2	0	4	3	**9**
	Total	**9**	**0**	**5**	**3**	**17**

The result shows that mixed perspectives are the most common in term 2, but also that a third of the students hold a consistently holistic perspective of the relationships between the concepts. A consistently biomedical perspective is held by two students at this time. The subjects holding a holistic perspective during the first interview maintain this view also during the second interview. The results show that there are few individual movements between the perspectives, ten constants to four movements, but also indicate a minor trend depicting the impact of the education as a shift from mixed or biomedical perspectives in the second term towards the holistic perspective, that dominate at the end of the last term of the educational programme.

Group II

Table 10. Overarching perspectives of the concepts movement, health and function on the two interview occasions

		18 months of professional work				
		Consistently holistic	Consistently biomedical	Mixed	Drop-outs	**Total**
Term 5	Consistently holistic	3	0	4	0	**7**
	Consistently biomedical	0	0	0	0	**0**
	Mixed	3	1	4	2	**10**
	Total	**6**	**1**	**8**	**2**	**17**

The results of group II show that, similar to group I, mixed or consistent holistic perspectives are most common during the first interview. No subject holds a consistently biomedical perspective at this time. The impact of the 18 months of professional work in terms of change between perspectives show less stability than in group I, 7 constants to 8 movements. The direction of change is not univocal, the results indicate that changes towards holistic or mixed perspectives, respectively, are common. One subject shifts from a mixed to a consistently biomedical perspective of the relationships between the concepts.

Summary

The outcome space as regards the concepts of movement, health and function was regarded as a context of meaning and subject to a logical meta analysis. The meta analysis revealed two overarching perspectives as regards the relationships between the concepts, a holistic and a biomedical perspective . The subsequent empirical analysis of the distribution of subjects over the overarching perspectives per-

taining to Group I revealed that the most common perspectives during the second term were consistently holistic or mixed. The impact of the educational programme in terms of change between perspectives from the first to the second interview was small, albeit indicating a minor trend as regards change in the direction towards the holistic perspective.

The results in the case of Group II show in a similar way that the most common perspectives during the first interview were holistic or mixed. The impact of the 18 months of professional work in terms of change between perspectives shows a diversified picture as regards directions of change. The results of both groups show clearly that the biomedical perspective is less frequent as a consistent perspective of the relationship between the core concepts, but that biomedical and holistic perspectives are often mixed and common at both interviews.

Chapter 10

Results: Ways of experiencing the patient encounter

The units of analysis in this chapter are compiled narratives of the course of events and interaction in the encounter between the patient and the physiotherapy student. The students' ways of experiencing the patient encounter are analysed and described according to the principles of contextual analysis. (An extended description of the phases in contextual analysis is provided in chapter 4.) The analysis of the characteristics of each narrative as a whole yielded four main categories that were labelled *A. Mutuality; B. Technicalism; C. Authority;* and *D. Juxtaposition.*

In the following, the categories obtained are described in detail and exemplified with a condensed transcription of a narrative, typical for each category. Shorter excerpts from other narratives pertaining to each category are utilised to depict the variation within the categories. The description of the categories is characterised by the delimiting of three aspects common to all categories. Their internal relations are analysed and described in relation to the description of each category as a whole. The aspects discerned are 1) descriptions of the communicative process; 2) descriptions of the problem-solving process; and 3) descriptions of the student-patient relationship.

Finally, the analysis proceeds to a contrastive level, where the categories obtained with their internal relations are compared with each other across the outcome space. The analytical and contextual parts of the contextual analysis are placed together and illustrated in a graph to depict the relationships between the categories (fig. 20).

Descriptive analysis - the narratives as wholes entities

A. Mutuality

These narratives are characterised by the therapists' conscious efforts to establish a relationship with the patient that insures that both parties have agreed on what the problem and the goal of the treatment is. The problem is defined on the disability level, with a focus on functional consequences of the problem. What activities of the patient's daily living are restricted and how could he be empow-

ered to take part in the rehabilitation process? Balancing the patient's and the therapist's perspective of the problem is essential and is seen as a prerequisite of a successful compliance with and result of the treatment. Empowerment of the patients' autonomy is important to the therapists within this category. The establishment of mutual goals for treatment, programs for physical training or regimens are imbued with the purpose of making the patient independent. The mutuality approach is characterised by an emphasis on understanding the patient's experience of illness, emotionally as well as functionally. It is also important to perform an elaborated, situational analysis of the problem itself. The subjects expand the interview context to comprise the patient's total life situation. Finding out what the problem is, in terms of the ways in which the patient's everyday life is affected, is the focus of attention. Put in other words, the subjects' aims are to understand what the problem means to the patient in his life situation.

> NARRATIVE EXAMPLE: This patient had gradually become paraplegic due to cancer .../ My first reflections were 'how am I going to put this' ... I tried to find out what her goals were and what expectations she had of the results of our work together.
>
> She really wanted to be able to stand on her feet again, like she had been able to do until just a couple of weeks ago. She realised that this maybe would hard to accomplish, but she still wanted to try. From my point of view it looked almost hopeless, but I wanted to oblige her in some way. I suggested that we should try her standing on a tilt table.
>
> I wanted her to have the psychological effect of succeeding .../.../
>
> Since then she improved successively, but now in recent weeks it seems like she is beginning to give up ... It is difficult to know what attitude I should show. If I should try to say 'of course you should try to stand' or something like that. Because if she is beginning to give up, I can't force her. It has to build upon her own goals, what she believes in herself. I guess we will have to reconsider that /.../
>
> You always try ... if you feel that they want to leave it all to you, you want to ... I am not sure if we talked about that the first time, but I tried to find out what she could do herself when I wasn't there ... I have tried to put it like she has to be participative, that she has a responsibility for what she can do ... So that she doesn't become dependent on me, that it is only me who can help her. (II:PT-12)

The narratives in this category are also characterised by confidence, it seems as if the students and therapists have had successful experience of this strategy working for them. The descriptions of the examination indicate that the information gathered through the anamnesis guides the students' and the therapists' examination in a heuristic process, rather than following of a predestined scheme of procedure. The anamnesis is more like a conversation in which answers are formulated in conformity with the question and the therapist's questions are asked in concordance with the preceding answer.

> I was nervous prior to the interview and thought a lot about it. But then, when I met the patient, it was not as difficult as I had thought .../.../ It felt almost like an ordinary conversation ... well, not quite, of course, since I was questioning the patient, but it was not like I was sitting there, figuring out what question to ask next, most of the questions came naturally as he was telling his story .../... the most important thing is that the patient gets the chance to tell you about what he feels is important ... (I:2-15)

> This woman has a tension headache .../ The impression I had was that she was trying so hard to be co-operative so she just said 'yes' to anything I said ... It was really frustrating, because you could not be sure if she really had understood .../ I think it is very important to establish contact, that you really meet at the same point and kind of feel ... how to proceed, so that you don't simply talk and then start to examine .../.../ You listen to the patient's expressions ... You look at them and try to interpret how they would like to be treated, so that you don't run them down with your own pace and way of thinking. You try to intertwine that with their own conceptions of why they are there .../ In the beginning, you tried to think of everything that you learned in school, so it kind of paralysed you, 'have I really thought of everything, and do I know what I need to know'. But now, when you are more familiar with things, you just meet the patient and talk with him or her, and what you need to know, and much more in addition, comes automatically through the conversation ... (I:5-11)

It is important to adjust to the patient in order to establish a well-functioning contact. Mutuality is the key to confidence; by finding an equal level of communication, the physiotherapist can make the patient confide in her. One of the students expresses it like this:

> The most important thing is that you create confidence, that you feel that you can discuss and be on the same level, that I understand him and that he understands me, so that I can understand what his situation is like (II:5-17)

The students and therapists try to meet different persons in different ways by adjusting their own performance to the comprehensive impression of the patient and his way of speaking, while still maintaining their professional attitude. Establishing an equal level of communication with the patient is central to the students, it is a matter of balancing the power between the therapist and the patient, of balancing the professional needs of inquiry to the patient's way of communicating.

> After a while I felt that she was with me ... You have to feel your way, in a sense, to get a whole picture of who it is that you have in front of you, what she works with, and about her family and so on to get an idea of her expectations and maybe identify some of her resources ... It's difficult ... because you want to get a grip on the situation and what it's all about, but at the same time I feel that you can't push it ... Its kind of like finding the balance (I:5-14)

The subjects describe and reflect on their conscious strategy of adjusting to the patient in emotional or sensitive terms, they try to keep an open mind; to empathise with the patient's view. The narratives are characterised by several linguistic expressions of uncertainty as to how the adjusting strategy works. The key words of their descriptions are: to await, to feel your way and to sense.

> I can't say that I really know how I do ... I sort of try to sense the patient ... I don't know what to say ... maybe you change yourself according to the patient you have in front of you, that you sense what it is that the patient wants or expects ... I don't know what to say ... but I am not the same person to all patients I meet, I change my questions, and in a way try to sense who the patient is I have in front of me ... (I:5-5)

> You have to find out what kind of person it is ... I think that you have to adjust yourself to different individuals, in the way you speak with them, so that you are at an equal level and can establish real contact ... you try to sense how the patient is, so that you can speak on the same level ... you try to find the level from the start, so that the patient listens to you and feels that you listen to him (I:5-16)

Even though the process of adjusting is described as intuitive, it seems to work as a conscious instrument for the subjects in the professional situation. Their actions are connected to and harmonise with a conscious objective of what they want to achieve. Their goal is to understand the patient and his situation as a whole, his expectations and his motivation.

B. Technicalism

A central feature of the narratives in this category is that the students try to find the medical explanation of the problem, not by finding out the patient's view of the problem, but by their own interpretation of the information they get from the patient and the findings from the examination. The subjects subordinate the communicative aspects of the patient encounter to the problem-solving aspects that constitute the focus of their attention.

In this category, the patient seems to be objectified and the problem intellectualised by the subjects. The main issue for the students and therapists is to find the cause of the problem, to be able explain the patient's symptoms. The communicative process is characterised by data collection with the patient as the source of information. The analysis of the patient's life situation in terms of the therapists investigating what functional consequences the problem might have for the patient's everyday life is subordinated to the analysis of the medical problem. These data are supplementary to the medical information and the express purpose of finding the correct diagnosis as a point of departure for the choice of physiotherapy treatment.

> NARRATIVE EXAMPLE: She had a trauma three weeks ago, and severe pain since then. She also had a feeling of tension, and I thought that it might be tendinitis, swollen tendons impinged against the acromion ... that might produce a feeling of tension. But due to the trauma I thought that it might also be something with the joint ...
>
> The patient told me that since the trauma, she had difficulties in doing push-ups when she was doing work-out with pain and feeling of tension in the shoulder /.../ I examined her and tested .../.../ testing of the acromio-clavicular joint was positive .../.../
>
> I wanted to investigate the cause of the problem. That's how I feel ... I mean, sure, I can treat the symptoms, and hopefully, the patient will get well ... But the problem might come back and that's not ... I think that it is better to find out where the problem comes from ... In this case, it was obvious

> that the trauma caused the problems from the acromio-clavicular joint .../.../
>
> I am a person who talks a lot, and it was difficult for me in the beginning to avoid directing the anamnesis the way I did. Now I give the patient a chance to start telling, and then I follow up on what they say. As long as I listen to the patient and connect to what he tells me, the communication is working well. The times it doesn't work are when I am stressed, when I am in a bad mood and when I want it over and done with. Doing the examination quickly is worthless. I get directives; like 'do you have pain?' 'does it feel like this or that' A bad anamnesis gives a bad examination /.../ The patient doesn't always need a diagnosis from me, that is not my mission, but I try to tell the patient like,'I have found this and that on you', I try to conclude ... 'I've found this and what I can do is this'. (II:PT-1)

The information gathered via the anamnesis is utilised in a technical way, with the purpose of directing the examination. The narratives are characterised by hypothesis-driven, coherent reasoning, the students and therapists interweave the information from the anamnesis with the examination. The information is used to formulate a preliminary hypothesis of a possible diagnosis and possible findings. The examination is guided by the hypothesis in a logical way, the students interrelate the findings, have a clear focus on what they want to examine and why. The descriptions of the findings from the examination are interpreted and evaluated according to the anamnestic information. The examination is oriented towards technical procedures, aimed at problem-solving efficiency. The therapist reduces the patient's problem to concern the bodily symptoms and the medical explanation on the impairment level.

> In this case, I concentrated first on ... I suspected an epicondylitis, so I checked that first ... but when the test was negative, I had to start all over again ... I started to check the range of movement, if there were any signs that the pain came from his shoulder, if the range of movement was restricted, and I checked his wrist ... I tried to find out what the cause could be throughout the examination, but I didn't arrive at any solution..the only symptom was pain in his arm when he sat and his arm was all relaxed .../.../ I couldn't find out where the pain came from, it was there and I couldn't induce it ... I didn't know where it came from, and it made me frustrated (II:5-10)

> What I wanted to do primarily, was to examine her mobility and to see what was restricting the range of motion. Is it the joint, as she thinks, or is it the muscles or the pain that restricts her mobility ... And I wanted to induce the pain, to find out what elicits the pain, and it hurt whatever I did. and that supported my hypothesis that there may be some psychological factors involved in this ... You can't tell for sure, of course, pain is always subjective. Anyway, I wanted to find out about her mobility and pain, and then, how strong she was, her strength. She hadn't done any physical exercise, but she had worked as a waitress with probably lots of static load ... Her strength was decreased, I noticed. And of course the flexibility of the muscles ... I think she is in a circulus vitiosus, increasing pain due to increasing tension which causes decreased circulation, which causes pain..and the anxiousness increases (II:5-1)

C. Authority

The prominent features of the narratives in this category are that the control and maintenance of professional authority is essential to the therapists. As in the former category, the problem is defined by the physiotherapist in terms of impairment. The therapist is the active party and the patient the passive. The patient's life context or the functional consequences of the problem are not emphasised. The narratives also contain expressions of the belief in the importance of showing expert knowledge. Contact with the patient is heavily dependent upon the physiotherapist's professional knowledge. This is considered to be the key to getting the patient to confide in the therapist, as well as to motivating the patient to comply with the suggested treatment and it is thus important to give a competent impression. Displaying uncertainty in the therapists' action or knowledge should be avoided.

> NARRATIVE EXAMPLE: This is a woman /.../ who has a pain in her neck and shoulders, radiating to her left arm .../.../ I let her tell me at her own pace and then I asked the questions I wanted, I mean purely physiotherapeutic ... In this first meeting, I think it is important to be clear ... I think that it is difficult to know what to do for the patient, we've learned all these examination techniques and what to expect, but then the findings almost fall on the fact that you don't know so much about different treatments ... you start to think, well, what can I actually do ...
>
> When I left her, I felt that I didn't really know what to do, I had to sit down and think over some suggestions for her,

> and the next time she came back I had come to the conclusion that it would be good for her to train actively in the gym. I didn't exclude anything ... I think according to this tree, you know; muscular problems or nerves or specific joint problems ... I did a neurological status, but I found that diffuse. I think that I probably think a little to much about what to do, but not always why ... it is often like; I'll try this and this and this, so I don't always get a grasp of the examination as a whole .../.../
>
> I think it's important that you follow a certain order when you do the tests you've learned ... I think you have to... at least I want to be sure of what findings to expect from the different tests. (II:5-3)

The fact that the patient will come back for further treatment seems to be a safety-valve when the students fail to structure the problem and simultaneously maintain a convincing professional attitude. When they have difficulties in interpreting the findings from the examination and connecting this to relevant physiotherapeutic actions, the students try to consider the findings retroactively in order to structure the problem.

> The most important thing is that you make contact, that you feel safe in the situation so that you don't ... and that ... you know your things are important of course ... to be able to examine the patient, but still, in the first meeting, the contact, that they believe in what you suggest ... (I:5-15)
>
> I think through the examination before I see the patient ... I memorise what to look for, or I think, why am going to do this, and what information can I get from that ... and what am I going to do with the information ... I want to think through that in advance ... and then through the anamnesis find out what his problem is, so that I can analyse that specifically ... he was in pain both when I palpated and stretched the piriformis muscle /.../ If you are uncertain of the results of different tests, you can think afterwards and do some reading, and then complete your testing next time you see the patient /.../ (II:5-2)
>
> I think it is important to make contact, so that you can speak openly, and that the patient gets confidence in me as a physiotherapist. That he or she has confidence in my knowledge, that I am able to fix this, whatever he or she is coming for (I:2-11)

The therapists are occupied with the maintaining of control in the situation and the appearance of being a professional problem-solver. The descriptions of the examination are characterised by reflections on the therapist's behaviour towards the patient and image he projects. The examination process follows an algorithmic procedure where it is important to perform the different actions in a structured sequence. The use of anamnestic information to guide the examination seems subordinated to the importance of a stepwise, structured performance. The reasoning builds upon excluding possible causes in general, without clear connections to the anamnestic information from the patient.

> It was a bit difficult to perform the examination, I mean, at school you learn to do it in this sequence, but now I really had to figure out in what order I should carry out the examination because, due to her pain, I couldn't ask her to lie down and then stand up again. .../.../ I didn't come to any other conclusion than that it could possibly be an inflammation in her back ... because it wasn't anything neurological or something like that ... she had some irradiating pain down her leg, but no further than down to the knee, so I didn't think that the discs were affected .../.../ The most important thing is to find out what is most difficult right now? When did it begin? Have they had this before? What happened then? Or have they never had it before, and what could the cause be? I think that is quite important, because my lack of experience ... I don't know so much about this diagnosis /.../ (I:5-7)

D. Juxtaposition

In this category, the communicative process is juxtaposed with the problem-solving process. Typically, the narratives describe a paradox between the subjects' intention of taking the patients' perspective of the problem and still maintaining the perspective of the physiotherapist. The narratives in this category contain several linguistic expressions of the importance of the communicative aspects of the encounter with the patient. Listening to what the patient experiences as the main problem is perceived as a main point of departure for both the physiotherapeutic examination and treatment. Despite this, the definition of the problem is made from the physiotherapist's point of view. The subjects seem to concentrate on listening to the patient, but cannot integrate the information with the problem-solving.

NARRATIVE EXAMPLE: He told me that he had been to several therapists who had tried to do something about his problems ... he had a lot of treatment series, and nothing had helped him, he said.

Sure, it could be a chronic pain syndrome, but you get a little curious about whether there could be other things behind this somatic thing ... But we didn't get that far ... you could read between the lines that there was something else that could make him very, very tense, so it.. yes, he was tense, but I haven't had time to think that much about how to try to .../.../

... The patient should be allowed to speak freely all the time, and you should hardly pose any questions at all, just repeat the last sentence or so of what he tells you, so that he keeps on talking ... It doesn't always work ... It worked from the beginning, but then I started to ask questions that maybe interrupted what he was talking about ... Maybe I jumped into something completely different, just because I was interested in getting to that .../ it is difficult to know what to start with, and what it is that should come out of it .../.../

He just talked about treatment and that he didn't trust anyone .../.../and so you find yourself in a situation where you have to make him understand that we must at least try something else, but ... he is coming tomorrow again. We'll see how it goes ...

I examined him according to this examination sheet .../.../ and marked the range of motion, tension in the muscles and things like that ... I found that he had difficulties in relaxing /.../and that he was a bit tense /.../ I still think it's difficult to feel what is tense and not tense, I have too little experience /.../ but with him, it was quite clear, when you palpated the muscles, you felt that they were tense. (I:5-13)

The focus of the problem varies in this category. In some of the narratives, the problem is defined on the disability level, with a focus on understanding what activities of everyday life are restricted, yet in other narratives the problem is defined on the impairment level. The focus is then directed towards the impaired body part without a clear connection to what functional consequences the impairment might have. The answers are characterised by uncertainty, the focus of the examination is on isolated or uncoordinated factors. The students have difficulties in formulating the problem and in knowing what is relevant to examine. They either focus on a single factor, or

they test everything they know to be on the safe side. Uncertainty is expressed concerning the correctness of the definition of the problem. Amongst the T2 students, the uncertainty concerns the purpose of the interview session with the patient.

> I think that it is important that the patients are allowed to decide what they would like to talk about and how much they want to tell you ... when she (the patient) said 'that's the way it is' and stopped talking, I was uncertain about how to continue the conversation ... I started talking about something totally different, just to talk about something ... (I:2-1)

Some of the narratives show that the students and therapists are not successful in their goal of adjusting to the patient to find an equal level of communication. When the patient does not respond to their efforts to establish a relationship, they become uncertain and start to doubt their credibility as professionals

> This was an elderly man with a pain in his hip ... His wife was very active and spoke for him all the time, I thought that was very tiresome, because I was more interested in listening to his own words ... I wanted to concentrate on his hip ... I wanted to try to induce the pain ... and go through it all ... I didn't get any clue .../.../ A condition of a successful treatment is that the patient is motivated and willing to do his part, but this patient didn't seem to understand this, or didn't seem to have the strength ... I was not satisfied because she took over the situation, and it was difficult to handle it ... I couldn't tell her off, I felt ... Normally, I think I can show where to draw the line, but during the first encounter like this, you just want to be nice (II:5-13)

The students describe how the outcome of the communication is jeopardised by the strategy of adjusting. The students become emotionally influenced by the difficulties they experience in establishing contact with the patient. They are critical to their ways of handling the situation and aware of the difficulties in maintaining their focus on the patient's view and their professional attitude.

The descriptions of the examination process are characterised by a procedural structure. The students and therapists in this category carry out the examination in an algorithmic way, step-wise according to a fixed set of tests in a systematic procedure.

> The most important thing is /.../ to really listen to the patient .../.../ her description of what the problems are and what she is limited to doing .../.../... My aim was to find out

> what the cause of the problem could be .../.../ I carried out all the examinations that I've learned, I guess ... to be sure not to miss anything, if you don't know whether it is important or not .../.../ It is kind of mechanical, you carry out the examinations and receive certain results. Then you try to interpret the findings afterwards..I think that is how it works ... (II:5-7)

Contrastive analysis

When contrasting the different categories, we can see some distinctive resemblances and differences regarding the internal relationship of the communicative and problem-solving processes as well as the perspectives of the physiotherapist-patient relationship. The narratives about the encounter with the patient indicate that the subjects conceive of the relationship between the communicative and the problem-solving processes involved in two qualitatively different ways. One group of narratives is characterised by integration of the processes, while another group is characterised by separation of the communicative and problem-solving processes.

Integration of the processes means that the descriptions of the examination process are intertwined with the information gathered from the patient in the anamnesis. The problem-solving process is guided in a natural and logical way by the communication with the patient. The integrated perspective is discernible in the *Mutuality* and *Technicalism* categories.

Separation of the processes means that the narratives either express an overriding attention to communicative aspects or to solely the problem-solving process. The separation of the two processes could also be described as a figure-ground relationship. Either the communicative or problem-solving aspects are conceived as figure while the other aspect is conceived as ground. The separated perspective is discernible in the *Authority* and *Juxtaposition* categories.

There are also resemblances and differences between the categories as regards the physiotherapist-patient relationship. A physiotherapist-centred and a patient-centred way of experiencing the patient encounter was discernible within both the separate and the integrated perspectives. The physiotherapist-centred way of experiencing the encounter is characterised by an emphasis on the physiotherapist's actions. The physiotherapist-centred view is characterised by a hierarchical relationship to the patient, resembling a traditional conception of the therapist as the expert and the authority. The therapist is the active party and the patient the passive

party. The patient-centred view is characterised by a horizontal perspective of the distribution of power in the relationship emphasising equality and adaptation in the relationship between the physiotherapist and the patient. This conception is also the desirable one according to the educational objectives.

Regarding the aspect of the physiotherapist-patient relationship, the results could also be related to previous research within the communicative perspective on physiotherapeutic competence as reviewed in chapter 2. The finding of a physiotherapist-centred view among some of the subjects, encompassing the categories *Authority* and *Technicalism* has some bearing on and supports the results of Thornquist, (1992); Engelsrud, (1990); and Westman-Kumlien & Kroksmark, (1992), all of which in different ways point to dualism and authoritarianism as part of the physiotherapist' actions and attitudes within patient encounters. Similarly, the finding of a patient-centred view, encompassing the categories *Mutuality* and *Juxtaposition* is also to some extent compatible with a phenomenological (Mattingly & Fleming, 1993; Thornquist, ibid; Engelsrud, ibid.; Westman-Kumlien & Kroksmark; ibid.) perspective of the patient encounter, in which the encounter is based on a dialogue and the physiotherapist's aim is to understand the patients' experience of the illness.

The results regarding the physiotherapist-patient relationship could also be related to different theoretical models for doctor-patient communication. Roter & Hall (1992) have outlined four models of the 'doctor-patient' relationship based on archetypal forms of control of the caring relationship of which some of the archetypes show close resemblance to the empirical findings in this study (table 11):

Table 11. Types of doctor-patient relationships. (Roter & Hall 1992, p. 24, table 2.1.)

THE DOCTOR -PATIENT RELATIONSHIP

	Physician Control	
Patient Control	Low	High
Low	Default	Paternalism
High	Consumerism	Mutuality

Paternalism is characterised by high physician control and low patient control. The physicians dominate decision-making with respect to both information and services. The paternalistic view is more or less regarded as the traditional and most common form of the doctor-patient relationship. Mishler (1984), for instance, studied encounters between doctors and patients and showed the dominance of "the voice of medicine", expressed by the doctor, over the "voice of the life-world", expressed by the patient in these encounters. The category of *Paternalism* has similarities with the *Authority* and *Technicalism* category in my study.

Consumerism is characterised by a reversal of the roles in the relationship. In a consumer relationship, the seller has no particular authority. The patients have high control and demands for information and technical services are accommodated by a co-operating physician. The patient himself makes decisions about health care efforts, i.e. whether to buy or not. The reversal of roles in the relationships between the physiotherapists and patients was not discernible in the present study.

The *Mutuality* category in Roter's & Hall's model shows a close resemblance to the *Mutuality* category in my study. Roter & Hall (ibid.) characterise their category as having a balance of power between doctor and patient and that both interlocutors participate in the decision-making process. Decisions are seen as results of interaction between equals.

Default is the relationship characterised by both parties having a low degree of control, which means that neither of them have control over and/or take responsibility for the situation. Default can be

a consequence of poor fit or of the failure to change the relationship and this may lead to frustration due to failed expectations.

The differences between the *Mutuality* and *Juxtaposition* categories and the *Technicalism* and *Authority* categories in my study can also be related to each other by applying ICIDH, the WHO international classification of illnesses and diseases (WHO, 1980) as described in chapter 7. ICIDH classifies illnesses and diseases on three levels; the impairment level, the disability level and the handicap level. The mutuality category, and in some cases also the juxtaposition category, expands the examination to comprise the patients' social context, focusing on what the problem means to the patient in his everyday life. The problem is thus defined on a disability level, in contrast to the technicalism and authority categories which focus on the problem in terms of a decrease in the patient's joint mobility or muscular strength, thereby defining the problem on the impairment level according to the ICIDH classification.

The outcome space of the contextual analysis regarding the ways of experiencing the patient encounter as a whole can be summarised and illustrated in the following graph:

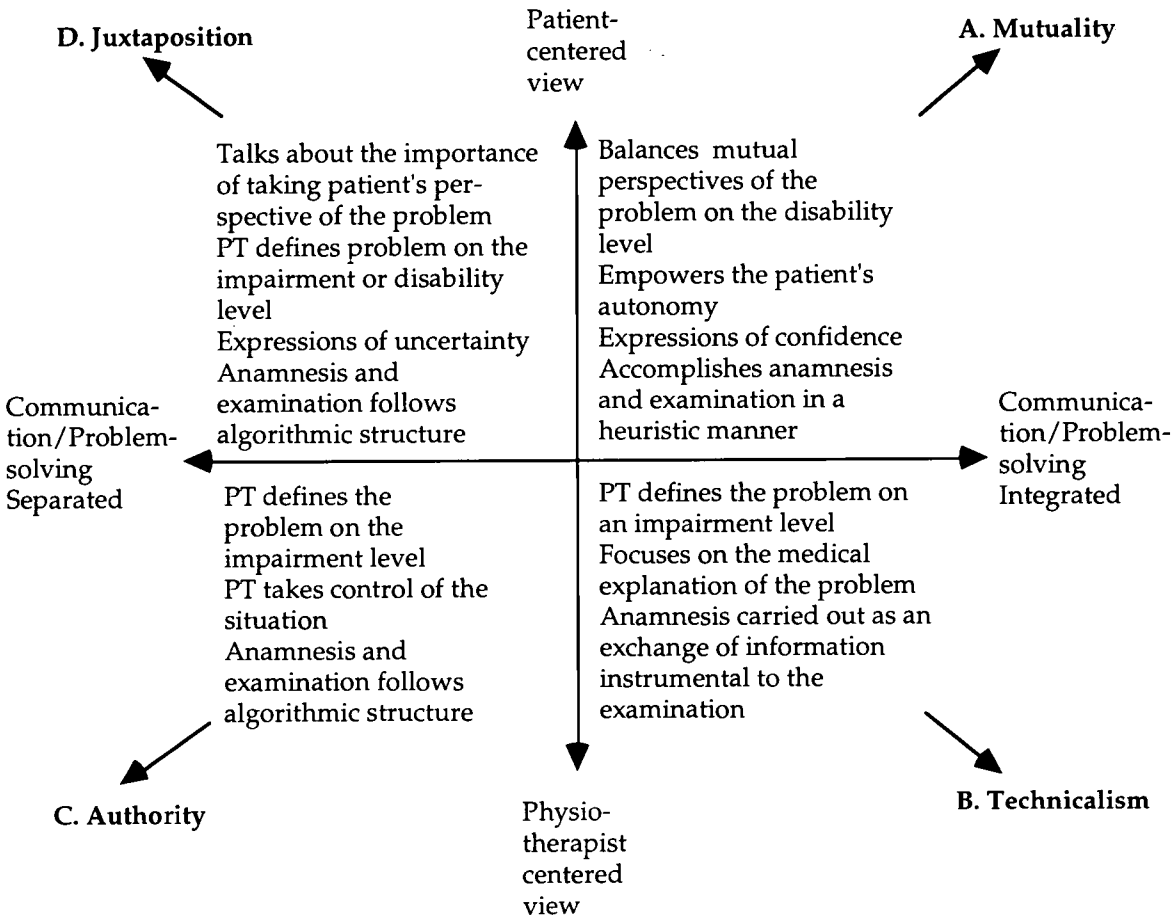

Fig. 20. The outcome space regarding ways of experiencing the patient encounter as a whole entity and the internal relationships between the discerned aspects of the patient encounter

Changes in ways of experiencing the patient encounter

In the previous part of this chapter, I showed how the subjects described their experiences of a patient encounter. In the following, the impact of the educational programme and of the 18 months of working life experience will be described in two ways. Firstly, a separate description of the outcome as regards the subjects' change within the component parts of the discerned aspects will be given, i.e. between patient-centred or physiotherapist-centred attention in the encounter and an integrated or separated perspective of the processes of communication and problem-solving, respectively. Furthermore and secondly, the impact will be also be described in terms of movements within the category system that show the different ways of experiencing the patient encounter as a whole.

The student-patient relationship

The general trend in the result from Group I as regards the impact of the formal education is a change from a patient-centred conception in term 2 to a physiotherapist-centred conception in term 5. Seven students change in this direction, while two students change in the reverse direction. The outcome of Group II shows a quite different pattern as regards the change of attention in the patient encounter. The general trend here is change from a physiotherapist-centred conception in term 5 to a patient-centred conception after 18 months of professional work. Ten subjects change their conceptions in this direction, while two subjects change in the reverse direction.

Group I

Table 12. Distribution of subjects over the categories on the two interview occasions as regards the student-patient relationship

Term 5

		A+D Patient-centred	B+C Physio-therapist-centred	Drop-outs	**Total**
Term 2	A+D Patient-centred	3	7	0	**10**
	B+C Physio-therapist-centred	2	2	3	**7**
	Total	**5**	**9**	**3**	**17**

Group II

Table 13. Distribution of subjects over the categories on the two interview occasions as regards the aspect of the student-patient relationship

18 months of professional work

		A+D Patient-centred	B+C Physio-therapist-centred	Drop-outs	**Total**
Interview I Term 5	A+D Patient-centred	4	2	1	**7**
	B+C Physio-therapist-centred	6	4	0	**10**
	Total	**10**	**6**	**1**	**17**

The relationships between the communicative and problem-solving processes

Group I

A closer look at the relationships between the communicative and problem-solving processes in Group I, as displayed in table 14,

shows, that discernible changes are mainly from a separated perspective to an integrated, five students change in this direction, but at the same time six students maintain a separated perspective during the second interview.

Table 14. Distribution of subjects over the categories as regards the relationship between the communicative and problem-solving processes on the two interview occasions

		Term 5			
		A+B Integrated	C+D Separated	Drop-outs	**Total**
Term 2	A+B Integrated	1	2	0	**3**
	C+D Separated	5	6	3	**14**
	Total:	**6**	**8**	**3**	**17**

Group II

The results from Group II show a different pattern compared with Group I. As regards the relationship between the communicative and problem-solving processes, the general direction of change here is from a separated to an integrated perspective. Four subjects change their conceptions in this direction, and a majority of the subjects hold an integrated perspective of the processes after 18 months of professional work.

Table 15. Distribution of subjects over the categories as regards the relationship between the communicative and problem solving processes on the two interview occasions

18 months of professional work

		A+B Integrated	C+D Separated	Drop-outs	**Total**
Term 5	A+B Integrated	8	0	1	**9**
	C+D Separated	4	4	0	**8**
	Total:	**12**	**4**	**1**	**17**

Changes in ways of experiencing the patient encounter as a whole

The following analysis shows the distribution of subjects over the four categories of description yielded in the qualitative analysis of the narratives. The categories were labelled *Mutuality, Technicalism, Authority* and *Juxtaposition.* The analysis will depict the frequency of conceptions held in both groups on the two interview occasions. The change in ways of experiencing the patient encounter as a whole will be illustrated by some of the cases.

Group I

Table 16. Ways of experiencing the patient encounter as a whole. Distribution of subjects over the categories on the two interview occasions

Term 5

Term 2		A. Mutuality	B. Technicalism	C. Authority	D. Juxtaposition	Drop-outs	**Total**
	A. Mutuality	1	0	2	0	0	**3**
	B. Technicalism	0	0	0	0	0	**0**
	C. Authority	2	0	2	0	3	**7**
	D. Juxtaposition	1	2	3	1	0	**7**
	Total	**4**	**2**	**7**	**1**	**3**	**17**

The outcome of the analysis shows that the general pattern is change. Four students maintain their conceptions from the first interview, while ten students change their conceptions during the second interview. Three students participated only in the first interview. The most common conceptions of the patient encounter on the first interview occasion in group I are *Authority* and *Juxtaposition*, comprising seven students, respectively. Two of the cases in the authority category maintain this conception during the second interview, while two change to a mutuality perspective. Three of the students in this category participated only on the first interview occasion. The change from an authority perspective to a mutuality perspective is illustrated below by case I-11:

> I:2-11: What I really should have done was to follow up her description of her pain ... Instead I interrupt her with a question about her work. I thought that was a relevant question to understand how severe pain she was suffering, if she had been able to work, or if she had to be on sick-leave. Maybe I should have listened more to her own description of the pain ... Her story was a bit fragmentary, too. I had difficulties in following what she actually was telling me. There were so many different things in the same story ... It was difficult to sort your memory to know what to ask ... It just disappeared

/.../ I think it is very important to establish contact, that you can speak openly and that the patient can trust in me as a physiotherapist. That he or she can trust my knowledge, that I really can fix this .../.../ It is very difficult now, when you are new, and don't really know what this is all about, but I think that is something you'll learn ... The difficulty just at the moment is to know what to ask about ... 'What am I going to ask, what is it that I actually want to know?' That is the big question. But I don't think that it is difficult to talk to the patients, or to listen to them ...

I:5-11: This woman has a tension headache .../ The impression I had was that she was trying so hard to be co-operative so she just said 'yes' to anything I said ... It was really frustrating, because you could not be sure whether she really had understood .../ I think it is very important to establish contact, that you really meet at the same point and kind of feel ... how to proceed, so that you don't simply talk and then start to examine .../.../ You listen to the patient's expressions... You look at them and try to interpret how they would like to be treated, so that you don't run them down with your own pace and way of thinking. You try to intertwine that with their own conceptions of why they are there .../ In the beginning, you tried to think of everything that you learned in school, so it kind of paralysed you, 'have I really thought of everything, and do I know what I need to know'. But now, when you are more familiar with things, you just meet the patient and talk with him or her, and what you need to know, and much more in addition, comes automatically through the conversation .../.../ I have found that you get better results if you really meet in the conversation before the examination begins .../.../ It is a bit difficult to explain, but what I mean is that you should not run the patient down, and make the patient uncertain, but let the patient direct the conversation about why he is there ...

Only one of the cases in the juxtaposition category maintains the conception of the patient encounter during the second interview. Three of the seven cases, illustrated by case I-1 below, change their conceptions to the authority category while two change to the technicalism category. One of the cases change to the mutuality category.

I:2-1: I think that it is important that the patients are allowed to decide what they would like to talk about and how much they want to tell you ... when she (the patient) said 'that's the way it is' and stopped talking, I was uncertain about how to continue the conversation ... I started talking about something totally different, just to talk about something. Maybe I

could have asked something more about what she told me ... but the conversation went ... I had to start all over again ... I wanted to know how she felt about it, and what the problem really was ... I didn't quite manage that, she didn't really tell me about that ... But that was what I wanted to achieve, because I figured that was important ... Maybe I was a little bit too frightened that the conversation would stop, and that's why I didn't put questions to follow up what she said, questions that were left out because I kind of panicked ... I guess I thought a little bit too much of what I was going to say .../.../ I think it is good to start from functional questions, to get a picture of how the problem affects the person, practically and emotionally... I mean, to get a broad perspective, the context, the person, how he or she is affected ... to know what is needed to be done, at the workplace or whatever ...

I:5-1: I thought that she would have a lot of opinions about it, wanting me to do this and that ... I don't like that, because I want to be sure of why I do things, and I want to decide what to do.. But you can really get affected if you're not so sure about what you want to do, and I don't really like that .../.../ But it worked out really well. I felt that I was in control of the situation .../.../ when I could answer her questions, her confidence in me increased .../.../ The most important thing is to listen to what they have to say and take their problems seriously ... I mean, that is what the problem means to them. And then I have to find out what it is, take it seriously and try to cure it ... Talking about confidence, I think that the first encounter is really crucial regarding this ... You have to give the person time, listen to him ... and... it has two parts, being interested in the person and ... that I can answer their questions, that they can trust that I have the knowledge, that I do what I feel is the best thing to do .../.../Previously I had to listen, concentrate and then follow the examination scheme to know what to say next ... but now it works more automatically; OK, I do this - and then I know the follow-up question without being disturbed so much ... It works simultaneously much better now ... I also feel more self-assured compared with previous terms ... and I can take what the patients tell me in a different way ... It feels like you ... kind of don't get involved in the same way .../.../ Previously, it was more difficult to take the problem for what it was, you got very much involved and thought about it a lot ... But that works much better now .../.../

Group II

Table 17. Ways of experiencing the patient encounter as a whole. Distribution of subjects over the categories on the two interview occasions

18 months of professional work

Term 5		A. Mutuality	B. Technicalism	C. Authority	D. Juxtaposition	Drop-outs	**Total**
	A. Mutuality	2	0	0	0	0	**2**
	B. Technicalism	4	2	0	0	0	**6**
	C. Authority	2	0	2	0	0	4
	D. Juxtaposition	2	0	2	0	1	**5**
	Total	**10**	**3**	**3**	**0**	**1**	**17**

Similar to group I, the general pattern is change. At the time of the second interview, ten subjects have changed their conceptions compared with the first interview, while six subjects have maintained the same conception they had at the time of the first interview. One subject participated only in the first interview. The distribution of subjects over the categories in group II, though, show a different pattern than in group I. On the first interview occasion, the majority of the subjects are distributed over the categories *Technicalism, Authority and Juxtaposition*, comprising six, four and five subjects respectively. During the second interview, the most common category is the *Mutuality* conception. Eight subjects have changed their conception in this direction. The case II-10 below illustrates a change from a technicalism conception to a mutuality conception.

> II:5-10: In this case, I concentrated first on ... I suspected an epicondylitis, so I checked that first ... but when the test was negative, I had to start all over again ... I started to check the range of movement, if there was any signs that the pain came from his shoulder, if the range of movement was restricted, and I checked his wrist ... I tried to find out what the cause could be throughout the examination, but I didn't arrive at

any solution ... the only symptom was pain in his arm when he sat and his arm was all relaxed .../.../ I couldn't find out where the pain came from, it was there and I couldn't induce it..I didn't know where it came from, and it made me frustrated... I am not so self-assured yet, I have to get some structure, like; I have to note what I'm doing and what findings I get, to know how to proceed ... I have to think before I proceed .../.../ the examination should comprise a social part where you analyse ... and proceed to finding out the cause of the problem .../.../ I think its very difficult, from what you've learned in school, you kind of manage the somatic problems, you really want the symptoms to point to a certain thing, like muscle tension or an inflammation ... I think that the other part is difficult, I mean you know that symptoms can have other than somatic causes, but I think its very difficult to know ...

II:PT-10: Her functional problems weren't so serious when she came here .../.../ But when I talked to her, I understood that she didn't know so much about her illness. She wasn't seriously affected, but she knew very little ... She had seen others with the same illness who were badly stricken, and she was afraid that the same thing would happen to her ... She wanted to know more about how to avoid that ... /.../ She stayed for two weeks, and we didn't do so much physical exercise, but talked a lot about what she would have to think of when she got home .../.../ So everything doesn't have to be exercise to give something .../ The most important thing for me is to hear the patient's view of the problem, and at the same time form an opinion of my own of what the problem is. That is the point of departure, so to say. Then we have to come to a conclusion about what we will continue to work with, like; I say what my opinion is and I want their opinion in return ... We have to discuss the problem and what to do about it. /.../ I guess that's the most important thing .../.../ So that you don't pull in different directions ...

Summary

The outcome of Group I as regards the impact of the formal education, shows that the separated perspective of the communicative and problem-solving processes dominates during the second term of the physiotherapy education programme. A patient-centred relationship is also most common at this time. A majority of the subjects are distributed over the juxtaposition and authority categories. The results from the second interview show a more even distribution over the categories, thus denoting a separated or an integrated per-

spective, albeit a minor trend as regards shifts from a separated to an integrated perspective is discernible. About one third of the subjects maintain the conceptions held at the time of the first interview, while another third had changed from a separated to an integrated perspective, comprising the mutuality and the technicalism categories. A few subjects changed from an integrated to a separated perspective. There is also a discernible change from patient-centred attention in the patient encounter towards physiotherapist-centred attention on the second interview occasion. The individual changes in ways of experiencing the patient encounter as a whole is graphically depicted in fig. 21.

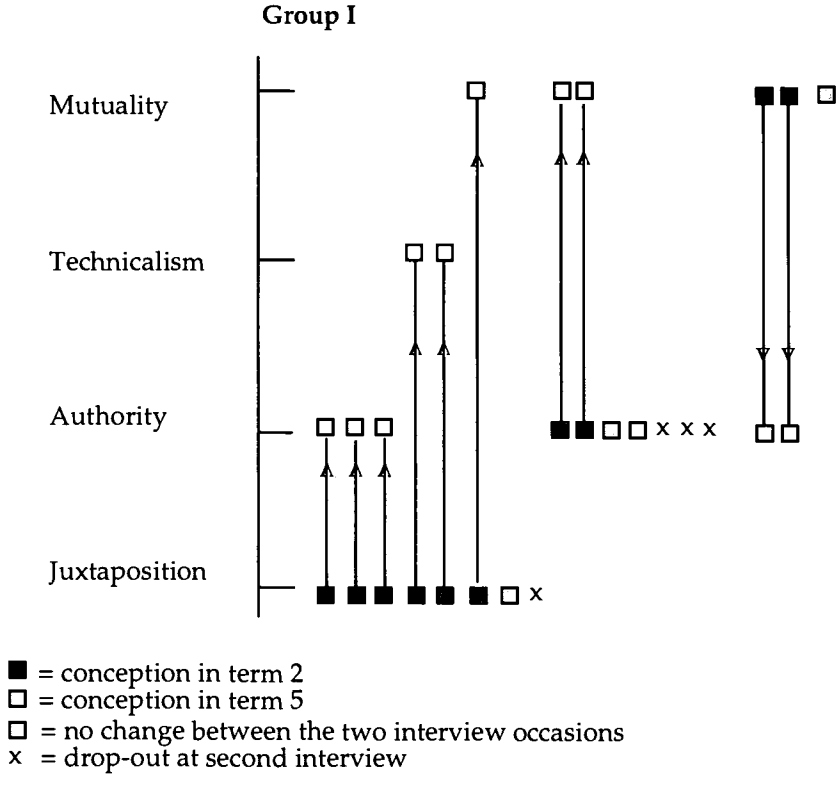

Fig. 21. Individual changes in ways of experiencing the patient encounter between terms 2 and 5

The results from group II show a more distinctive change from the separated to the integrated perspective after 18 months of professional experience. The results from the first interview in term 5 show an approximately even distribution in ways of experiencing the patient encounter as a whole. Similar to Group I, a physiothera-

pist-centred perspective of the relationship with the patient is most common at the time of the first interview. The results of the second interview show that a majority of the subjects have changed to an integrated perspective of the communicative and problem-solving processes involved in the interaction in the patient encounter. The dominating conception at the time of the second interview is the mutuality category, and the direction of change of attention within the patient encounter is from a physiotherapist-centred to a patient-centred conception. The individual changes are depicted in fig. 22.

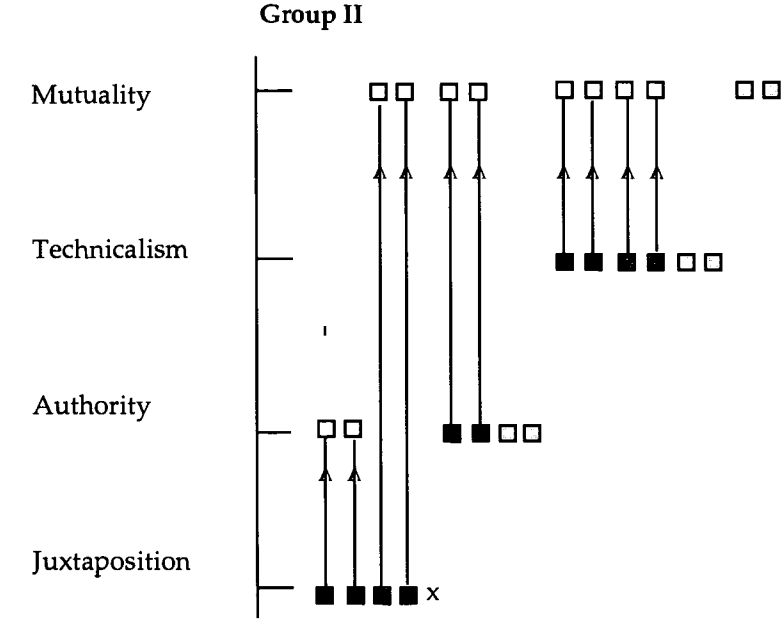

Fig. 22. Individual changes in ways of experiencing the patient encounter between term 5 and 18 months of professional work

The results indicate a trend as regards the change in ways of experiencing the patient encounter from a separated to an integrated perspective of the communicative and problem-solving processes over time. The impact of the formal education is not as univocal as the impact of the professional experience.

Chapter 11

General summary

In this chapter, I will recapitulate the set of questions outlined in chapter 1 and present a general summary of the results. The main questions examined in this study are:

- What conceptions do physiotherapy students and later on physiotherapists have of the concepts of movement, health and function?
- In what ways do these students and physiotherapists experience the interaction in the patient encounter?
- How do the conceptions and ways of experiencing change through the course of the educational programme and the first years of working-life experience?

Conceptions of Movement

The first core concept that was subject to investigation was *Movement*. The outcome space was characterised by two overarching frames of reference for the meaning of the concept. When contrasting the different categories, we could notice similarities between category A, movement is a prerequisite of functional activity and independence and category B, movement is an emotional expression. Both categories represent conceptions of movement with the individual person and his abilities in focus. There were also similarities between category C, movement is a shift in position and category D, movement is a sign of life, as regards the frame of reference. These categories denote conceptions of movement with the human body in focus, separated from the intentions and will of the individual.

When summarising the results of group I as regards change in conceptions after going through the educational programme, we noticed that the outcome pattern was characterised by stability. A majority of the subjects on both interview occasions refer to the person and his intentions and goals as the frame of reference for conceiving of movement. The dominating conception during both interviews is movement as a prerequisite of functional activity and independence.

In group II, the distribution of subjects after 18 months of professional work had changed. A majority of the answers were found in two categories at the time of the first interview; the conception of movement as a prerequisite of functional activity and independence and the conception of movement as a shift in position. This distribution was also found after the second interview, but hides several changes in both directions.

The results showed that the impact of the educational programme in terms of change of conceptions was only marginal and not univocal.

Conceptions of Health

The outcome space of the analysis of the students' and later on physiotherapists' conceptions of *Health* comprised three different categories. The categories A, Capability of action, and B, Acceptance, denoted a holistic perspective of health, while category C, Well-being, denoted an analytical or biostatistical perspective. The holistic perspective concentrates on the feelings of the individual and his functioning in a social context and has health as its core concept. The analytical or biostatistical perspective focuses on the particular parts of the human organism and considers their structure and function and comprises disease as its core concept.

The analysis showed that most of the students in group I held a holistic conception of health at the end of the second term, and that this perspective was maintained at the end of the educational programme. Only two students held an analytical conception of health at the time of the second interview. The impact of the formal education was thus characterised by stability on an overarching frame of reference level, although individual changes within the holistic perspective were common after going through the educational programme.

The analysis of the change in conceptions after 18 months of professional experience showed a similar pattern. The holistic perspective of health prevailed at the time of the first interview, and was also the most common at the time of the second interview.

Conceptions of Function

The qualitative analysis of the subjects' answers to the question about the meaning of the concept *Function* yielded four different descriptive categories. Category A, an individual's achievement of his goals in relation to his personal resources was described as a relative conception of function. The definitive conception of function, as described in category B, concerned the concrete activities of everyday life itself. The conceptions of function as the integrated interplay between different systems of the body in category C was labelled systems theoretical. The D category represented a teleological conception of function, meaning the organs of the body working the way nature intended.

The categories were also grouped in a way that had similarities with the contrastive analysis concerning the conceptions of movement. The descriptions of function as being when an individual can achieve his goals in relation to his personal resources and function as the individual's concrete activities in everyday life both refer to the individuals' interaction with the surrounding world. The descriptions of function conceived as the integrated interplay between different systems of the body and function conceived as when the body's organs are working the way nature intended refer to the function within the human body.

A teleological conception of function was most common in the second term of the educational programme. At the end of the fifth term, most of the students had changed to the definitive conception of function. This means that the frame of reference for the concept was altered, from the function within the body to the activity performed by an individual.

The distribution of subjects in Group II over the categories on both interview occasions showed that two main categories, the definitive and the relative conception, dominated during both interviews. The frame of reference for conceiving of function in group II during both interviews, was typically the performed activity, in concrete terms or in relation to the individual resources and goals of the individual.

The concepts reconsidered - a meta analysis and an attempt at integration

The outcome space as regards the concepts of movement, health and function was regarded as a context of meaning and subject to a logical meta analysis. The meta analysis revealed two overarching perspectives as regards the relationships between the concepts, a relativistic, holistic perspective and a reductionistic, biomedical perspective, respectively. The subsequent empirical analysis of the distribution of subjects over the overarching perspectives pertaining to Group I revealed that the most common perspectives during the second term were consistently holistic or mixed. The impact of the educational programme in terms of change between perspectives from the first to the second interview was small, albeit indicating a minor trend as regards change to the holistic perspective.

The results from Group II show in a similar way that the most common perspectives at the time of the first interview were holistic or mixed. The impact of the 18 months of professional work in terms of change between perspectives forms a diversified picture as regards directions of change, still indicating that the holistic and mixed perspectives are most common at the time of the second interview. In both groups, the biomedical perspective is less frequent as a consistent perspective of the relationships between the core concepts, although biomedical and holistic perspectives are often intertwined and common at both interviews.

Ways of experiencing the patient encounter

The fourth concept investigated was Interaction. This was studied via the subjects' narratives about a patient encounter and analysed and described according to the principles of contextual analysis. The analysis of the characteristics of each narrative as a whole yielded four main categories;

A. Mutuality
B. Technicalism
C. Authority
D. Juxtaposition

The distinctive resemblances and differences between these categories concerned the internal relationship of two aspects of the

patient encounter; the communicative and problem-solving processes and the physiotherapist-patient relationship.

The internal relationship of the communicative and problem-solving processes

The internal relationship of the communicative and the problem-solving processes involved was described in two qualitatively different ways, as integration or separation of processes.

Integration of the processes meant that the descriptions of the examination process were intertwined with the information gathered from the patient in the anamnesis. The problem-solving process was guided in a natural and logical way by the communication with the patient. The categories *Mutuality* and Technicalism both denoted an integration of the communicative and problem-solving processes, the former category from a patient-centred and the latter from a physiotherapist-centred perspective.

Separation of the processes meant that the narratives expressed an emphasis on either communicative aspects or the problem-solving process. This was also described as a figure-ground relationship. Either the communicative or problem-solving aspects were conceived as figure while the other aspect was conceived as ground. The categories *Authority* and *Juxtaposition* both denoted a separation of the processes, the former category from a physiotherapist centred perspective and the latter from a patient-centred perspective.

By collapsing the categories *Mutuality* and *Technicalism* into a category representing integrated perspectives of the communicative and problem-solving processes and the categories *Authority* and *Juxtaposition* into a category representing separated perspectives, a trend was discernible as regards the change in ways of experiencing these aspects of the patient encounter. The trend consisted of a change from the separated to the integrated perspectives from the first to the second interview in both groups. The change during the formal education was smaller than the change resulting from professional experience.

The outcome as regards change during the formal education showed that the separated perspective dominate during the second term of the physiotherapy education programme. A majority of the subjects was found in the juxtaposition and the authority categories. At the time of the second interview there was a more even distribution over the categories, thus denoting a separated or an integrated perspective. About one third of the subjects maintain the perspectives held at the time of the first interview, while another third have

changed from a separated to an integrated perspective, comprising the mutuality and the technicalism categories. A few subjects change from an integrated to a separated perspective.

The results from group II showed a more distinctive change from the separated to the integrated perspectives after 18 months of professional practice. At the first interview at the end of the educational programme, the results showed an approximately even distribution of subjects over the category system. The results of the second interview showed that a majority of the subjects had changed to an integrated perspective of the communicative and problem-solving processes. At the second interview the mutuality category dominated in quantitative terms.

Perspectives of the physiotherapist-patient relationship

The perspectives of the physiotherapist-patient relationship were labelled patient-centred and physiotherapist-centred, respectively. A physiotherapist-centred and a patient-centred way of experiencing the patient encounter was discernible both within the separated and the integrated perspectives. The patient-centred view was characterised by a horizontal perspective of the distribution of power in the encounter, emphasising equality and adaptation in the relationship between the physiotherapist and the patient. The physiotherapist-centred view was characterised by a hierarchical perspective and by an emphasis on the physiotherapist's actions.

The dominating approach in group I at the beginning of the educational programme was a patient-centred perspective. A majority of subjects changed, however, to a physiotherapist-centred perspective at the end of the programme. The outcome in group I at the second interview was similar to the result of the first interview in group II, where the physiotherapist-centred perspective dominated. At the second interview after 18 months of professional practice, the dominating perspective had shifted. A majority of the subjects were then found to have a patient-centred perspective of the physiotherapist-patient relationship.

Chapter 12

Discussion

The theoretical framework, which was outlined as the background against which the results could be interpreted, comprised a conception of competence as a relational concept. Physiotherapeutic competence is, accordingly, viewed as a relation between the individual, the situation and the socially shared and constructed system of intertwined theoretical and practical knowledge, embedded in the professional discourse. The central concepts denoting basic phenomena within the professional discourse are transformed into the physiotherapy curriculum and their meaning is conveyed both explicitly and tacitly. The recall of a patient encounter as the point of departure for the research interviews was considered to imply a physiotherapeutic context that would lend meaning to the central concepts and allow tacit knowledge to be articulated through reflection.

In the following, the discussion will revolve around some key questions relating to the phenomenon under study and recontextualise the result to the educational objectives and the professional discourse of physiotherapy; What is the nature and character of the conceptual changes described? What do the results mean in relation to the educational objectives of the physiotherapy curriculum and to the professional discourse? In what ways could the results contribute to theoretical developments in physiotherapy?

The nature and character of the changes in conceptions

The nature of the change in conceptions should be understood as a change in the subjects' ability to discern and be simultaneously and focally aware of other or more aspects of the phenomenon than prior the learning experience (Marton & Booth, in print), rather than as a shift from one conception to another in a more definite sense. Increasing integration of different aspects of phenomena and their meaning, as well as knowledge about the relationships between the different aspects, is also the kind of impact of higher education shown by, for instance, Perry (1970) or Hasselgren (1981).

In general, the changes in conceptions between the two interviews and in both groups were small (with a few exceptions; i.e. the concept of function, and the ways of experiencing the patient encounter). These results correspond well with previous studies on the impact of higher education, some of which are accounted for in chapter 4. Changes in students' conceptions of different phenomena after completing formal educational programmes have proved to be very marginal.

The meaning of the core concepts and their relationships

The overarching educational objectives of the programmes at the Faculty of Health Sciences are, among others, that the students should acquire a humanistic perspective on man and a holistic perspective of health and disease rather than merely a biomedical perspective. The results regarding the core concepts of movement, health and function and their internal relationships reveal that the most common perspective is the holistic or mixed perspective at the end of the educational programme. This means that the intentions of the educational objectives have been fulfilled on an overarching level. The analyses of conceptions of each of the single-core concepts, however, showed a somewhat diversified picture, which might reflect the pluralistic nature of the professional discourse.

The concept of movement

The outcome pattern as regards the concept of *movement* indicates that most of the students establish and maintain mainly a holistic conception of movement during the educational programme, which is in accordance with the objectives. The impact of professional experience shows less stable conceptions between the two interviews. The directions of change between conceptions here show a rather puzzling pattern, possibly suggesting that both the holistic meaning of movement as a prerequisite of functional activity and independence, and the concrete, mechanical meaning of movement as a shift in position are important to the professional physiotherapist, but the use of either meaning is context-driven. The relevant use and meaning of the concept is presumingly discerned according to varying situations.

On the other hand, in several studies of the impact of higher education, it has been shown that the differences between the students'

understanding reflect how the phenomenon in question has been understood during different epochs in history, such as, for instance, the shift from Aristotelian to Newtonian thinking in mechanics. An example of this is the investigation into how university students conceived of the concepts of uniform motion, acceleration and deceleration (Johansson, Marton & Svensson, 1985; Svensson 1989), where both Aristotelian and Newtonian conceptions were discernible among the students also towards the end of their education.

Scientific meanings precede those held by laymen and even those applied in practice. Theoretical developments in physiotherapy may be ahead of clinical practice. The common-sense meaning of some of the central concepts in physiotherapy, such as, for instance, movement as a shift in position from one place to another, may still prevail in the clinical practice, thus influencing the physiotherapists' conceptions in this direction.

The concept of health

As regards the conceptions of *health*, a holistic perspective is the intention expressed in the curriculum, and I have shown that a majority of the students hold this perspective already after the first year of the programme and maintain it throughout their formal education. There are also changes between the two meanings within the holistic perspective between the two interview occasions in both groups. On the other hand, a small group of students in group I maintain the well-being conception of health throughout the programme and almost a third of the former students in group II change from a holistic to an analytical conception of health as in the well-being category at the time of the second interview. The well-being conception means that health is conceived of from an analytical perspective as the absence of any illness or dysfunction whatsoever and as a state of well-functioning social relations. These results may indicate that the relationships between health, goal orientation and action are not clearly established and integrated at the end of the educational programme.

As stated previously, the most common ways of conceiving of health among the subjects in this study is the holistic perspective, which in this study comprises both the passive acceptance and the capability of action categories. The passive acceptance conception of health offers a perspective where the individual can accept and be satisfied with his/her situation. From this point of view, the passive acceptance conception of health is insufficient for a professional physiotherapist, since intervention in physiotherapy generally aims

at restoring the individual's functional ability within the environment or compensating for shortcomings.

The core of the capability of action conception of health, is that the physiotherapist focuses on the patient in his life situation. The patient's goals are seen as the point of departure for physiotherapy. The therapist discusses with the patient which projects and tasks should be accomplished with respect to the goals set. The role of the physiotherapist is to guide the patient according to his or her capacity. This perspective, partly adopting Pörn's or Nordenfeldt's holistic model of health (Pörn, 1984; Nordenfeldt, 1987) is a goal-related and action-oriented conception of health which is more closely linked to movement and functional activity than the well-being or passive acceptance conceptions. Such a conception would reasonably be relevant to physiotherapy, and would accordingly be emphasised throughout the educational programme. Different theoretical perspectives of health are studied mainly during the first term. The results indicate that there may be a need for further problemizing and topicalisation of the concept and its relationship to other core concepts within physiotherapy also in the later parts of the programme.

The concept of function

The results regarding the concept of *function* may portray a context-driven change in meaning of the concept during the course of the formal education which also, in fact, reflects the intentions of the educational objectives. It has been suggested that the concept of function is less suitable as a central concept in physiotherapy, since the meaning is too general and not only applicable in physiotherapy (Broberg, 1996). When the concept of function is used for evaluations of the impact of different physiotherapeutic interventions, it has to be operationalised to clarify the relevant meaning in each case. Broberg claims that a more specific definition of the concept and its relationship to closely related concepts such as health and movement are necessary for the development of theory in physiotherapy. In order to avoid confusion, it is suggested that the meaning of the concept function in physiotherapy should be delimited to comprise the impairment level in WHO:s classification of handicap, the ICIDH (WHO, 1980), and thereby be concerned with abnormalities of the body structure and appearance in and with organ or system function (for a further elaboration of the ICIDH classification, see chapter 7).

The results of this study show that the concept of function is operationalised and conveyed with different meanings at different points in time during the course of the educational programme. This means that the relevant meaning of the concept from the students' perspective changes during the course of the educational programme. The impact of the formal education in terms of change in conceptions was typically in the direction from the body as the frame of reference for the concept to the individual's interaction with the surrounding world. The impact of professional experience showed mainly the same pattern. The relevant meaning of the concept, while learning the basics of anatomy and physiology at the early phases of the programme, appears to be body-centred. In the later part of the programme and in the professional work when physiotherapy is applied and practised, the relevant meaning appears to be the patient's functional ability in relations to the environment. This does not mean that the professional physiotherapists are not able to discern a body-centred perspective of function if needed. One might assume that the body-centred conception is subordinated to the interaction-oriented conception, while the reverse is less plausible.

The internal relationships between the concepts

The results of this study also show that the meaning of the concept depends on which overarching perspective of the relationships between the concepts is applied. Several authors (Grönblom-Lundström, 1991; Richardson, 1993; Roberts, 1994) have claimed that the biomedical perspective has dominated physiotherapy for a long time. They suggest that a biomedical perspective is insufficient as a theoretical basis for contemporary physiotherapy practice. The work of physiotherapists is often concerned both with people whose "health" cannot be restored, but who need help to attain a good quality of life, despite an objective dysfunction, and with patients who show no objective signs of dysfunction, but still consider themselves to be ill.

The meta analysis in this study shows that there is no dominating consistent biomedical perspective of the subjects' conceptions of the relationships between the core concepts of the physiotherapy curriculum at the Faculty of Health Sciences. The direction of change during the formal education was typically from a biomedical or mixed perspective at the beginning of the programme to a holistic perspective at the end of the programme. The impact of the professional experience showed a less univocal direction of the changes,

changes toward holistic or mixed perspectives were common. Only very few subjects establish and maintain a consistent biomedical perspective of the relationships between the core concepts.

The results could contribute to a discussion among the local faculty members, as well as among physiotherapy educators in general, focusing on the educational objectives and their relationships to the professional discourse. The physiotherapy students gradually become aware of the shared and constructed knowledge within the profession, and the variation in their conceptions of what is emphasised through the curriculum can also tell us something about the tacitly functioning knowledge, embedded in the profession and conveyed to them via different sources. The simultaneous awareness of the variation as to how the meaning of the core concepts are conceived could also contribute to the professional discourse and the clarification of theoretical concepts within physiotherapy, since the nature of conceptions are non-dualistic and internal person-world relationships. The subject and object are not independent, both the experienced object and the experiencing subject are reflected through the conception (Marton, 1995, p. 173).

Ways of experiencing the patient encounter - a content oriented verbalisation of the physiotherapy process

I have argued that the meaning of the central concepts in physiotherapy is conveyed both explicitly and tacitly throughout the educational programme and via working life experience. The different ways of experiencing the patient encounter is another example of this. The outcome space provides an elaborated empirical and content-oriented description of the physiotherapy process. The description could be viewed as a verbalisation of tacit knowledge embedded in the patient encounter and thus contribute to theoretical development within the professional discourse.

As regards changes in the ways of experiencing the patient encounter, a trend regarding change from separated to integrated perspectives of the communicative and problem-solving processes involved was discernible after completing the formal education and accentuated even more after the first period of professional experience. The outcome as regards change in ways of experiencing the student-patient relationship, showed that the pattern was typically from a patient-centred perspective at the beginning to a physiotherapist-centred perspective at the end of the educational programme. The dominance of a physiotherapist-centred perspective at the end of the educational programme changed to a clear patient-centred

perspective of the physiotherapist-patient relationship after 18 months of professional experience.

The patient-centred view held at the time of the first interview by a majority of the subjects in group I and at the time of the second interview in group II thus harmonises with the intentions of the educational goals of the physiotherapy programme, as well as with the intentions of the Swedish legislation on health care (SFS, 1982:763; SFS, 1985:560).

The outcome of the analysis of the narratives in Group 1 may reflect the impact of the educational programme in a short-term perspective. Prior to the interview, the students had been working with a theme focusing on the therapist-patient relationship and communication from a professional point of view. This theme recurs throughout the course of the programme and the importance of a patient-centred attitude is emphasised. At this early phase of the programme, the students have not yet reached the level of clinical practice in physiotherapy and thus, clinical problem-solving is not emphasised. The aim of the videotape exercise preceding the interview with the T2 students was primarily to make the students reflect on their communicative behaviour.

It is reasonable to assume that the students try to apply their knowledge about the importance of a patient centred attitude in the interview session with the patient, as well as in the research interview. When the students in group I learn more about physiotherapy as the programme progresses, the initial patient-centred attitude changes into a physiotherapist-centred one at the end of the programme. The results of my study differ in this respect from the results in Bendz's (1995) study of how nursing students conceived of clinical situations. Bendz showed a systematic change towards a patient-centred attitude during the course of the educational programme which was also further accentuated after two and a half years of professional nursing practice.

A plausible explanation of the direction of change in my study could be the fact that communication skills are emphasised from the start of the programme. The students learn that a patient-centred perspective is important before they have acquired the skills needed to reach this in the patient encounter. As the programme proceeds, learning technical physiotherapeutic skills become more important and the students have to focus on this to be able to manage the situation with the patient, and the interaction with the patient on equal terms becomes marginal. A physiotherapist-centred perspective, as in the authority and technicalism categories, thus helps the students maintain control. This perspective resembles a traditional pater-

nalistic conception of a therapist as an authoritative expert and the patient as a passive party in the encounter (Roter & Hall, 1992). This perspective is also most common in the first interview in group II.

The large extent of change to a patient-centred conception within the mutuality category after 18 months' experience of clinical physiotherapy practice might show that the students do not manage to achieve a patient-centred attitude during the course of the educational programme, but they are prepared for this relatively soon afterwards during the subsequent clinical practice as physiotherapists. In this respect, my results differ compared to the previous novice-expert studies of the development of expertise in physiotherapy and other caring professions where this dimension seems to be established later in the professional career and is characterised as a feature of professional expertise (Martin *et al.*, 1993).

The educational objectives and the professional discourse - a confrontation of perspectives?

In the Swedish Health and Medical Services Act it is emphasised that health and medical care should be provided from a multifaceted and patient-oriented perspective. It is also stipulated that health care should be based on respect for the patient's autonomy and integrity. Moreover, health care efforts should be offered and implemented in co-operation with the patient. The overarching educational objectives are as a result also imbued with this perspective.

On the other hand, a review of studies of the patient-physician relationship revealed that even though most patients want to be informed, it is not self-evident that all patients want to be involved in making decisions about their care (Deber, 1994). Most of the studies suggested that patients wished to participate. Deber refers to a study by Cassileth *et al* (1980) in which 87% of patients, 20-39 years of age, 62% aged 40-59 and 51% over 60 chose "I prefer to participate in decisions about my medical care and treatment" rather than "I prefer to leave decisions about my medical care and treatment up to my doctor".

Other studies showed less patient interest in participation. A study in the United States (1984) focused on patients with hypertension who were asked who they thought should make the decisions about their medication. Most patients, 47%, were in favour the physician making the decision, 31% preferred that the physician make the decision, but strongly consider the patients opinion, and only 19% preferred shared decision-making on an equal basis.

My results comprise ways of experiencing the patient encounter where the physiotherapists take control of and dominate the situation. This is accomplished at the expense of the patients' participation in decision-making throughout the physiotherapy process. Similar results have also been obtained in previous studies (Ek, 1990; Engelsrud,1990; Thornquist, 1994 a,b; Westman-Kumlien & Kroksmark, 1992; Abrandt, 1996). This could mean that these physiotherapists have adopted a paternalistic view of their relationship to the patient. An alternative explanation could be that the professional reality includes confrontations between perspectives held by other professional groups on the caring team which differ from or even contradict the professional discourse of physiotherapy as expressed in the educational objectives.

Bergman (1989) showed that many physiotherapists have difficulties in claiming their specific professional autonomy and thus become subservient to organisational demands rather than being able to organise and carry out their work in a way that is believed to be more beneficial for their patients and clients. Abrandt (1996) suggested that physiotherapists adjusted to the medical discourse and allied themselves with the physicians in order to increase autonomy in their professional work, and that a biomedical and organ-oriented perspective sometimes dominated the relationship to the patient.

On the other hand, confrontation between different perspectives could also occur if the patient's expectations are different to the physiotherapist's. Even if the physiotherapist's own preference would be a relationship on equal terms with the patient, based on a holistic perspective of health and disease, the patient might be carrier of a biomedical perspective and expect the physiotherapist to play an authoritative role in the encounter which would force the physiotherapist into such a professional role. Such paradoxical relations within the communication process in the classroom have previously also been shown as regards teachers' conceptions of teaching.

Larsson (1983) discerned two qualitatively different conceptions of teaching among teachers. One group conceived of the essence of teaching as being a content that should be presented and structured for the students. The main structuring and preparation should be done by the teacher. Another group felt instead that the teaching should involve the students in interpretation and structuring work. This involvement was seen as a condition of learning. The teaching situation could similarly be divided into one category of strong

teacher control and one of weak teacher control over communication in the classroom.

However, Larsson showed that the teachers perceived that their possibility to shape the teaching and act in accordance with their perspective was restricted by the students' expectations and conceptions of teaching. Many teachers regarded this as a question of control over the educational process, or a game about who is going to control the rules for the communication process in the classroom. This could sometimes work paradoxically, if the students are given control over the communication process in the classroom, they could use their control to put pressure on the teacher to exert control over them. Similarly, another paradox occurs if the teacher forces the students to accept his weak control of the communication process. The use of the teacher's authority by forcing the students is contradictory if his intentions are to exert weak control over the communication process.

The *mutuality* conception of the patient encounter includes other roles for the patient than that of participating, thus mirroring the patient's expectations and desires to meet a physiotherapist who takes full responsibility for all decisions. The most flexible conception of the patient encounter is thus - paradoxically - also giving way to the more traditional perspectives of the role of the physiotherapist. To guarantee the patients' influence in health care, however, the demand for a mutuality perspective as an educational objective in physiotherapy curricula appears to be imperative.

Suggested areas for further research

The focus in this thesis has been on the learning physiotherapist. This means that the ways of experiencing the patient encounter are described from the students'/therapists' point of view. A consequence of this is that the voice of the other party in the encounter, the patient, is not heard in this study. A suggestion for further research on the interaction between physiotherapist and patient would thus be a study comprising both parties in the encounter. In such a study, the focus would be on not only the physiotherapists' ways of experiencing the encounter, but also the patients' conceptions of the physiotherapy process, the intentions and objectives of the treatment, etc.

The results are also a description and evaluation of what is being learnt within a problem-based physiotherapy curriculum. We know nothing, however, about how differences between this programme and a conventional physiotherapy curriculum. Nor can the results

tell us anything about the learning process during the educational programme and the professional experience. Comparative studies of students from different physiotherapy curricula could contribute to the knowledge about the impact of problem-based learning on the process and outcome of learning.

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Interview guide:

Questions related to the physiotherapy process:

Experience problem

You have recently met a new patient. Can you tell me about that?
What was your first impression of the patient?
What is most important to you when you meet a patient for the first time?
What was most important of what the patient told you?
Was it difficult to talk to the patient? What was difficult?
What were you aiming at?
What would you like to examine? Why?
Do you sometimes think about your thinking during the examination?

Define problem

What was important for your judgement of the patient's problem?
What was the result of the examination?
Did you find anything difficult? Why?
What do you consider characteristic of a good examination and judgement?

Establish goals, plan and carry out treatment

Did you set goals for the treatment? How?
Was anything difficult in this matter?
How do you consider the patient's role in setting goals?
What is the best treatment in this case? Why?

Evaluate treatment

What do you think is most important for treatment to be successful?
How do you know if your treatment has been successful?
What makes the treatment fail?

Questions related to central concepts within the professional discourse:

What do you consider characteristic of a professional physiotherapist?
What does the word function mean to you?
What do you consider characteristic of a skilful physiotherapeutic problem-solver?
What do you think of when I say "movement"?
What does the concept health mean to you?
What is the greatest threat to people's health in our time?
What do you consider most important in the professional physiotherapist's work?

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