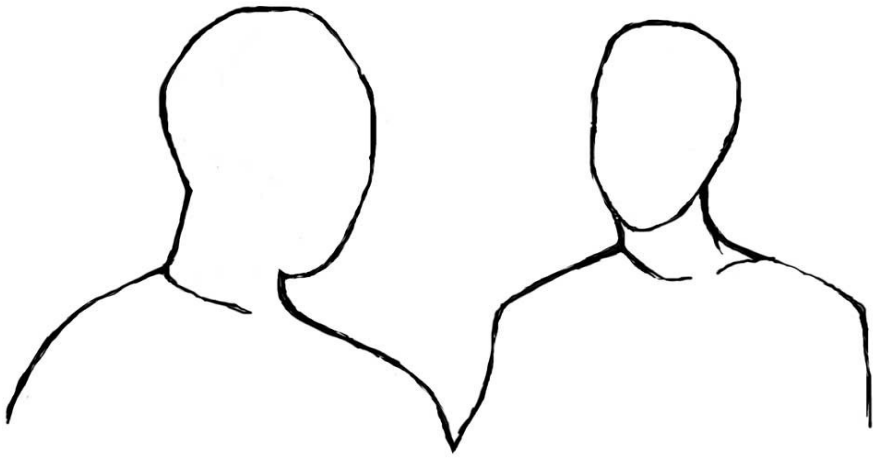
Mats Wahlqvist

Medical students' learning of the consultation and the patient-doctor relationship



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Bedömning

Man ser inte genast skillnad
på småsten och gråsparvar
i den nysådda, svarta åkern.

Några flyger och sätter sig i nypontörnet
- de är gråsparvar.

Andra blir kvar och trippar i åkern
- de är också gråsparvar.

Andra återigen ligger stilla kvar i åkern
- de är troligen stenar.

Anna Rydstedt
Dess kropp av verklighet (1976)

ABSTRACT

Medical students' learning of the consultation and the patient-doctor relationship

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Background: In medical education, learning about the consultation and the patient-doctor relationship is nowadays highly recommended. However, research from educational practice from students' perspective is needed to facilitate a better understanding of students' learning. The thesis is based on four studies.

Aims: The overall aims were to study and analyse medical students' learning of the consultation and patient-doctor relationship. Specific aims were to analyse students' descriptive evaluations of a Consultation skills course and course development over five years (I), to explore final-year students' abilities to communicate with patients (II), to analyse final-year students' written reflective accounts of a memorable consultation (III), to assess students' patient-centred attitudes at various stages of undergraduate medical education and to explore the association between patient-centred attitudes and gender, age and work experience in health care (IV).

Method: A qualitative content analysis method was used in studies I-III, covering term 5 and term 10 (T5, T10). T5 students' descriptive evaluations and teachers' documentation were analysed 1995-1999. Experienced supervisors assessed T10 students' communication abilities in video consultations with patients and supervisors' focus group meetings were analysed. T10 students' written reflective accounts of a memorable consultation were analysed. A cross-sectional study of students' patient-centred attitudes was performed across the curriculum by an internationally validated instrument (Patient-Practitioner Orientation Scale, PPOS). Students' gender, age and earlier work experience in health care were also collected and analysed statistically.

Results: Learning of the consultation was facilitated when the T5 student was active in practice and could have a choice, by a link between explicit learning goals, learning activities and an examination in practice including feedback. Students' descriptions of awareness and confidence corresponded to a strengthened relation with the facilitator and reflection. In exploring T10 students' video consultations, an instrumental strategy was suggested as a stage in students' consultation training. However, analysis of T10 students' written reflective accounts of a memorable consultation displayed a view of the patient as a person beyond symptoms, an insight into the complexity of medical work and students' search for a professional role. In contrast to previous reports, no decline of students' patient-centred attitudes at the end of education was found. Independent of age or work experience in health care, female students had higher PPOS scores compared to men. Female students also had significantly more work experience in health care.

Conclusions: Students' learning of the skills and attitudes needed for the consultation and the patient-doctor relationship is complex. Senior students display patient-centeredness in writing but might have difficulties in integrating their know-how with the performance of physician's clinical tasks. Learning the consultation and the patient – doctor relationship is suggested to benefit from integrating a patient-centred perspective in a student-centred learning relationship through clinical education; and by adopting a process-oriented and experience-based model including feedback and reflection.

Key words: medical students, learning consultation skills, patient-doctor relationship, communication skills, patient-centred attitudes, undergraduate medical education, experience-based learning model, reflection, evaluation **ISBN** 978-91-628-7164-2

SVENSK SAMMANFATTNING

Läkarstudenters lärande av konsultationen och patient-läkarrelationen

Bakgrund: Lärande av konsultationen och patient-läkarrelationen rekommenderas i dagens läkarutbildning. Emellertid behövs forskning för att öka förståelsen för studenternas lärande av konsultationen under grundutbildningen. Avhandlingen bygger på fyra delarbeten (I-IV). Syftet med avhandlingen var att och studera och analysera läkarstudenters lärande av konsultationen och patient-läkarrelationen. Delsyftena var att analysera studenters deskriptiva kursevalueringar och utvecklingen av kursen i konsultationskunskap under fem år (I); att undersöka och att analysera läkarstudenters kommunikationsförmåga med patienter (II); att analysera studenters nedskrivna reflektioner över en minnesvärd konsultation (III); att uppskatta studenters patientcentrerade attityder i läkares grundutbildning, samt att utforska associationen mellan patientcentrerade attityder och kön, ålder och erfarenhet av arbete i hälso- och sjukvården (IV).

Metod: Kvalitativ metodik med innehållsanalys användes i delstudie I-III. I tre steg analyserades termin 5 studenters (T5) beskrivande kursvärderingar och lärares kursdokumentation, under fem års tid (I). Erfarna handledare bedömde T10 studenters kommunikationsförmåga i videokonsultationer med patienter på vårdcentral. Handledarnas samtal i fokusgrupp analyserades (II). T10 studenters skriftliga reflektioner och läroerfarenheter av en minnesvärd konsultation analyserades (III). I en tvärsnittsstudie kartlades läkarstudenters (T1-T11) attityder till patientcentrering med ett validerat internationellt instrument, kön, ålder och tidigare erfarenhet av att arbeta i hälso- och sjukvården. Data bearbetades statistiskt (IV).

Resultat: T5-studenters lärande av konsultationen underlättades av att studenten får vara aktiv i den kliniska praktiken och kan påverka sina studier; att en länk kommunicerades mellan tydliga läromål, läroprocessen och en praktisk examination med återkoppling. Studenternas beskrivningar av medvetenhet och självförtroende i studierna motsvarades av en förstärkt relation till handledare. Explorativ analys av T10 studenters kommunikationsförmågor i videoinspelade patientsamtal genererade frågan: kan en instrumentell strategi vara ett stadium i läkarstudenters lärande av konsultationen? I en analys av T10 studenters reflektionstexter över en minnesvärd konsultation framkom dock att studenterna uppfattade patienten som en person bakom symtomen, uttryckte en insikt om komplexiteten i läkares kliniska verksamhet och ett sökande efter ett professionellt förhållningssätt. 600 läkarstudenter T1-T11 rapporterade ej någon sänkning av patientcentrerade attityder mot slutet av grundutbildningen vilket tidigare rapporterats. Kvinnliga studenter hade signifikant högre värden för patientcentrering än manliga studenter, oberoende av vårderfarenhet och ålder.

Slutsatser: Kunskaper om konsultationen och patient-läkarrelationen är mycket sammansatta fenomen och därmed läkarstudentens lärande av dem. Läromålen behöver tydligt identifieras och examineras under läkares kliniska grundutbildning. Studenter i sen klinisk fas redovisar patientcentrering i skrift men kan ha svårigheter att i handling förena detta kunnande med läkarens sedvanliga kliniska uppgifter. Lärandet av konsultationen och patient-läkarrelationen bör ske fortlöpande i den kliniska utbildningen i en handledningsrelation och ha ett processinriktat, studentcentrerat och erfarenhetsbaserat arbetssätt som inkluderar återkoppling och reflektion.

Nyckelord: läkarutbildning, konsultation, patient-läkarrelation, erfarenhetsbaserat lärande

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LIST OF PAPERS

The thesis is based on the following papers:

I Wahlqvist M, Skott A, Björkelund C, Dahlgren G, Lonka K, Mattsson B. Impact of medical students' descriptive evaluations on long-term course development. BMC Med Educ 2006;25:6.

II Wahlqvist M, Mattsson B, Dahlgren G, Hartwig-Ericsson M, Henriques B, Hamark B, Hösterey-Ugander U. Instrumental strategy: A stage in students' consultation skills training? Observations and reflections on students' communication in general practice consultations. Scand J Prim Health Care 2005;23:164-70.

III Svenberg K, Wahlqvist M, Mattsson B. "A memorable consultation". Writing reflective accounts articulates students' learning in general practice. Scand J Prim Health Care, published on-line 19 Feb 2007.

IV Wahlqvist M, Gunnarsson RK, Dahlgren G, Nordgren S. Patient-centred attitudes among medi*cal* students: Gender and work experience in health care do matter. (Manuscript)

References to the papers are made by their Roman numerals. Papers II and III are reprinted with permission of Taylor and Francis.

Foreword

Starting point: twenty years ago.

This thesis is a study of medical students' learning of the consultation and the patient-doctor relationship. My interest in undergraduate education started in the middle of the 1980's. At that time, I attended vocational training to be a psychiatrist and started to work as an assistant in the courses of Medical Psychology. Gunnar Skoog was the creator and leader of these courses in the undergraduate medical curriculum. He was also the former head of my workplace, the North-East Sector of Psychiatry of Gothenburg.

One dark and rainy autumn morning Gunnar was driving the car on our way to the course we held at Medicine Hill, near the Sahlgrenska Hospital. At a red stop-light Gunnar said, "Mats, I think you should consider starting to write, and perhaps doing some research later on". A silence followed. The rain poured on the windscreen and the screen wipers went back and forth. So did my thoughts. Research seemed very distant to me. My aim was then to be a clinician and perhaps an educator. The car started to move again and we went further on.

CONTENTS

Abbreviations

CS course	Consultation Skills course
T5	Term 5 in the undergraduate medical curriculum
T10	Term 10 " " " " "
PPOS	Patient-Practitioner Orientation Scale
GP	short for General practitioner
EPC	Early Professional Contact, a preparatory vocational training course introduced 2001, consisting of five days/term, term 1- term 4

INTRODUCTION

What are medical students expected to learn?

Through the centuries, this question has been a matter of great interest for the medical profession as well as for patients. In Plato's 'The State', the characteristics of a good doctor were the main subject in one of Socrates' dialogues. Due to the scientific progress in the 20th century, the medical profession has expanded and gained in public confidence. Today, many more physicians are being educated than fifty years ago and the conditions for both medical students and teachers have changed dramatically, from a small to a much larger scale.

In the 2000's, good and reliable medical care is regarded as a crucial part of health care in a welfare system. In many European countries, national guidelines for overall learning goals of physicians are voted upon in parliaments. Great expectations of medical students' knowledge and abilities are often included in these legal documents. The physician's new role in advising and developing a partnership with the patient has been emphasized in more recent legislation on patients' rights. In addition, high standards are often required in educational programmes and letters of intent by medical professional organizations and medical schools. These are expressed as lists of extensive, sometimes poetic, learning aims. However, implementing visions and aims as learning objectives is not a simple task for medical schools and educators. Knowledge from medicine, education, psychology and social sciences is required for embarking on such an endeavour. An important factor to consider is the power of tradition in the education of the medical profession. As a point of departure in this study, it was considered of interest to approach medical students' learning objectives and in particular their goals relevant to learning 'the consultation'. Later on we will see what happened when the aims of the official documents were implemented into educational practice.

An important and often-cited declaration is "Tomorrow's doctors" by the UK General Medical Council (1993) [1]. In the updated version of 2003, many recommendations are given. An excerpt of these recommendations is as follows:

- Attitudes and behaviour that are suitable for a doctor must be developed
- Students must develop qualities that are appropriate to their future responsibilities to patients, colleagues and society in general
- The essential skills that graduates need must be gained under supervision
- Medical schools must assess students' competence in these skills
- The curriculum must stress the importance of communication skills and the other essential skills of medical practice… [2].

Learning aims of the consultation in the legal framework of the EU and Sweden

Learning aims of the consultation expressed in legal documents are prepared in democratic institutions. They are interesting as they express societal expectations of future doctors. A comparison of European and the national level of these learning aims is made below and in Table I.

Before graduates are awarded a primary medical qualification (PMQ) that allows them to practice as doctors anywhere, the EU Medical Directive 1993, Chapter 1, §16, states that knowledge and understanding in four general areas must have been acquired [2].

The Higher Education Ordinance in Sweden, 1993:100 has a corresponding text [3]. In Table I, the EU and Swedish law texts are brought together. In the EU text, learning objectives relevant for this thesis are: "Sufficient understanding of the structure, functions and behaviour of healthy and sick persons, as well as relations between the state of health and physical and social surroundings of the human being". This goal differs from the Swedish national goal in which the student's self knowledge and empathy is addressed specifically: "Developed self-knowledge and an ability to empathise and thus, while

observing an ethical attitude and a holistic view of the human being, be able to care for patients and their relatives". This aim has a clear intent of building up medical students' professionalism including compassion

Table I. Goals of medical education stated in legal documents in EU and Sweden.

European Union Directive 1993/16/art. 23	Higher Education Ordinance, Sweden, 1993:100
Adequate knowledge of the sciences on which medicine is based and a good understanding of the scientific methods including the principles of measuring biological functions, the evaluation of scientifically established facts and the analysis of data	Acquired the knowledge and skills constituting the basis for the medical profession and for completion of the pre-registration house officer period required for unconditional medical qualification
Adequate knowledge of clinical disciplines and practices, providing the student with a coherent picture of mental and physical diseases, of medicine from the points of view of prophylaxis, diagnosis and therapy and human reproduction	Acquired knowledge of conditions in society that affect the health of women and men in order to be able to work preventively as a physician
Sufficient understanding of the structure, functions and behaviour of healthy and sick persons, as well as relations between the state of health and physical and social surroundings of the human being	Developed self-knowledge and an ability to empathise and thus, while observing an ethical attitude and a holistic view of the human being, be able to care for patients and their relatives
Suitable clinical experience in hospitals under appropriate supervision	Acquired the knowledge about healthcare finances and organisation that is of importance to all physicians and developed a professional function in preparation for teamwork and cooperation with other staff categories

and empathy and thus has important ethical implications. However, one might become bewildered when approaching this learning objective as a teacher. It is a true educational challenge to arrange learning activities that result in students' development of "self-knowledge and an ability to empathise, while observing an ethical attitude and a holistic view of the human being" – and to assess the development of these qualities. Nevertheless, these examples illustrate the complexity and high-order level of knowledge, skills and attitudes that form the educational goals of learning the consultation and the patient-doctor relationship.

Learning about the consultation – professional perspectives

In order to grasp what learning about the consultation and the patient-doctor relationship in undergraduate education involves, some perspectives need to be approached. Before we go further we should stop for a while and pay closer attention to the patient-doctor encounter. First, some short historical perspectives will be given and followed by describing some main paradigms that are relevant in a consultation. Then, ethical perspectives are introduced and an outline of different internationally recommended consultation models; including skills required in the patient-physician encounter. Research-based findings for the approaches are also given. Some essential features of the patient-doctor encounter may illuminate the 'what' aspect of students' learning. What are the significant features of a consultation?

Historical aspects of the patient-doctor encounter

The medical encounter has a very long history. From the days of Hippocrates to today, the consultation has been the vehicle for the art or craft of medical practice. A social contract was established early and formalized in a code of professional ethics. Despite often ineffective medical treatment in times of devastating epidemics, the respect for the medical profession was maintained. There were also periods of serious crises in the public's confidence in the medical profession. After waves of incurable cholera had swept through Europe in the 1840's, a sense of apathy was spread and many doctors left their profession. Josef Skoda,

professor in medicine in Vienna and one of the most prominent representatives of the medical profession, claimed that the true centre of medicine should be pathology and the clinical autopsy. Instead of unpredictable and often meaningless attempts at treatment, he advocated that the physician's ultimate task was a correct and solid post-mortem diagnosis. He was a representative of therapeutic nihilism [4]. One hundred and seventy years have passed and the overall picture is now quite different.

After World War II, medicine and health care expanded in most western countries. There was an enormous scientific advance in discovering the minute details and mechanisms of "the sea within us", when the DNA-helix was discovered. The progress in biomedical research was amazing – biological processes on a cellular and even molecular level could be mapped and resulted in health care being oriented towards diseases and human biology. Medicine became more and more technically advanced and large hospitals and super-specialized clinical care were part of this trend. However, due to experiences from clinical practice, a humanistic counter-movement started among British general practitioners in the 1950's. Michael Balint's 'The Doctor, the Patient and the Illness' was one of the most significant contributions from this early period and introduced a psychodynamic perspective to GPs' encounters [5]. In the 1970's, another clear and influential voice of humanism was heard from George L. Engel in his plea for a shift from a biomedical to a bio-psycho-social model in the medical encounter [6]. The often cited reports of Levenstein, Stewart and McWhinney of their 'patient-centred' model, developed in family medicine [7], formed later links in this development. Mishler's discourse analysis displaying the dialogue between the "voice of medicine" and the patient's "voice of the life world" is yet another example [8].

Paradigms in the consultation

The patient-doctor relationship encompasses two fundamentally different paradigms in medicine. The science of medicine is a biomedical project, based on natural sciences and it aims at *explaining* and *predicting* biological events. If a patient's cluster of symptoms, signs and investigation results lead to a diagnosis, effective treatment and an informed prognosis is also expected.

But medicine is larger than biomedical science. Medical practice also means to meet and try to *understand* the patient's experiences and predicament as a unique person, in a psychosocial and existential context. Seeking the meaning of the patient's experience of the problem is an intentional act. Thus, a humanistic or hermeneutic project within medicine forms another paradigm. This perspective has great implications in both medicine and medical education since the patient as well as the student must be acknowledged as a meaning-seeking interpreter of the world.

This fundamental distinction between natural science and humanistic science approaches is illustrated in the hermeneutic philosopher Dilthey's concepts *Erklären und Verstehen* [9]. Later on this distinction was addressed in the sociologist and philosopher Habermas' concept of distinguishing three 'rationalities' in science, followed by other authors [10-11]. These three rationalities are:

Means-end rationality. Means-end rationality is a key feature of the natural sciences since they mostly aim at predictability and control. By findings out the causal laws of nature, nature can be controlled. Thus they can be said to have an instrumental character. This rationality corresponds to what the educationalist D. Schön calls a "technical rationality" [12].

Communicative rationality. In contrast, many activities in humanistic and social sciences are characterized by a communicative rationality in which hermeneutic concepts such as meaning, subjectivity, intentions and interpretation play a central role [13].

Critical rationality. Habermas third and critical rationality is characterized by the principles of critical reflection and an aim at personal and societal change and emancipation.

In a well-functioning and attuned patient-doctor relationship, these rationalities may be complementary and can form a synergy. An example of this is if a physician's relationship-building results in a valid medical history and understanding of the patient's life experiences. A correct diagnosis of the present problem is reachable and a good working alliance results in the patient's cooperation in further investigations or treatment [14-16].

In a health care context the critical rationality would correspond to the idea of empowering [17]. If the patient is also confirmed and empowered to reflect critically on pathogenic patterns or factors in everyday life and

include possible options or solutions, the third and critical rationality may be said to be involved [18]. However, a mismatch between the patient's and the doctor's paradigms and health beliefs may cause major problems in the doctor-patient interaction [19]. Consequently, future doctors need to be aware of these different scientific paradigms, in order to understand and handle dilemmas in clinical practice.

Ethical perspectives of the patient-doctor encounter

In order to find out what students' have to learn so as to understand the consultation, the ethical perspective is necessary [20].
Traditional and general ethical principles in medicine are autonomy, beneficence, non-maleficence and justice [21]. An ongoing discussion in the UK concerns the balance of training technical skills of communication or understanding the ethical basis of patient-physician communication [22]. Ethical perspectives of a consultation emphasize power and autonomy aspects [23,24]. Thus, acquired knowledge of patient's rights and respect of autonomy are essential attitudes in the training of a professional approach. Three additional basic principles and values, relevant for the medical encounter, are proposed by SBU, the Swedish national bureau of medical evaluation: a professional approach, compassion and empathy [25].

Basic principles in the encounter

Professional approach. A professional approach is the doctor's effort to put the patient's needs first and not let personal aspirations and needs interfere. Sometimes the doctor is unaware of these personal needs. Every patient has the right to a proper care according to present medical standards; to be in focus, to share the physician's knowledge and experience and to receive respect when given medical care. The roles of a doctor and the patient have unique features because the patient's health is dependent on the physician's knowledge. Acknowledging the balance of power and control of the encounter is a crucial aspect of the patient-doctor relationship. Consequently, awareness of the implications of an asymmetrical relationship is an essential part of a professional approach [26].
When the patient is experiencing an illness including uncommon, sometimes painful, sensations and does not understand what is going on,

the whole of a person is often affected. In this vulnerable and worrying situation, the ordinary sense of basic trust and self-perception may be threatened and result in an experience of fear and losing control [27]. This has also been described as a sense of pervasive homelessness [28]. The patient is not a regular "customer" asking for a simple hair-cut.

Compassion. Compassion in a medical encounter includes meeting the patient with courtesy and attention; to participate in the patients experience and also to provide hope. Attention and sensitivity to non-verbal cues is a very important facet of compassion and the physician can be guided by the atmosphere a patient brings to the encounter. *Compassion* means to feel together with someone while the related *sympathy* means to like somebody.

Empathy. In contrast to sympathy, the term *empathy* is defined as the ability to identify and understand a person's feelings and to be guided by this understanding in the encounter [29]. Ulla Holm's research on empathy also had an impact on national learning goals (see p. 12). Both emotional and intellectual knowledge of an encounter have to be integrated in an empathic process. Unfortunately, when the term "empathy" has been widely used in common language over the years, these two functional elements are seldom considered. Today empathy is often used as a synonym of "sympathetic" or "kind" and the normative aspects are focused. Due to this problematic linguistic development, the neutral term "self-awareness in interaction" would probably be a more appropriate term: to be able to identify and recognize emotions without acting them out, especially when strong emotions appear in an encounter. This means an ability to sense and identify patient's emotions but not let them contagiously invade the mind; in order to still grasp what is happening in the encounter. The intellectual and analytical part of self-awareness is to handle and reflect on self-experienced emotions, thus understanding some of the patient's predicament. Accordingly, this means the use of introspection and reflection before interaction. This is quite close to what the educationalist Donald Schön calls a process of "reflection-in action" [30].

These principles of communication are vital components in the creation of a professional identity. They should be recognized in consultation

training and also adopted to an individual and personal style. This means that some knowledge of self is required in learning the consultation. The next question is to ask how such changes may come about. This will be discussed later.

Models of the patient-doctor encounter

There is no internationally accepted standard for a theoretical model of the consultation. In order to provide a basic introduction to the research field, a few examples of well-known models are presented; Pendleton's consultation model (the model we used as a framework in student education), the patient-centred clinical method including a further development of a relationship-centred model, and the triple-function bio-psycho-social model. A short section of the research and evidence base of using consultation skills is followed by a clinical review presenting key communication skills. These examples aim at giving an overall direction in international research on patient-physician communication.

The consultation model

In 1960, the consultation as a model of the medical encounter was mentioned first by the British paediatrician James Spence [31]:

> The essential unit of medical practice is the occasion when, in the intimacy of the consulting room or sick room, a person who is ill or believes himself to be ill, seeks the advice of a doctor whom he trusts. This is a consultation and all else in the practice of medicine derives from it.

In the 1980's, David Pendleton and British researchers in general practice used the term "consultation" in forming a model, presented in an often cited book [32]. It was originally aiming to be a handbook for vocational training in general practice but has also been used in undergraduate education. In the book, the consultation is described from five different perspectives; a sociological approach, an anthropological approach, a transactional analysis approach, a Balint approach and a social-psychological approach. The model then describes an interdisciplinary

rationale for doctors in general practice; providing a comprehensive outline of the processes that need to be accomplished in the consultation. Pendelton's model focuses doctor's *tasks* when interacting with the patient and acknowledges the patient as an autonomous individual with thoughts and feelings; beliefs and concerns. In the decision-making process, the patient is regarded as a partner and the model is implicitly expressing egalitarian values. Space for individual freedom and co-existing perspectives is created by focusing the tasks within a consultation process and by avoiding a detailed prescription of the method of accomplishing the tasks. Thus, the model allows many styles and personal methods to exist side by side in the consultation.

The patient-centred clinical method

In 1969, the term "patient-centred medicine'" was introduced by Enid Balint as "understanding the patient as a unique human being", thus opposing a general apprehension of medicine as being "disease-centred" [33]. Parallel to the Pendleton group in UK, research performed in the 1980's by family medicine researchers Levenstein, Stewart and McWhinney at The University of Western Ontario in Canada expanded and developed these ideas [7]. The concept of the 'Patient-centred clinical method' has had an impact on the development of care. It consists of six interconnected components

1) exploring both the disease and the illness experience
2) understanding the whole person
3) finding common grounds (nature of problems, goals of treatment, roles of the physician and the patient)
4) incorporating prevention and health promotion
5) enhancing the patient-doctor relationship (unconditional positive regard, empathy, genuineness)
6) being realistic

However, the model has also been criticized for being too wide a concept [34]. Still, the label "patient-centred medicine" has wide recognition [35]. It has been a starting-point in recent Nordic dissertations and articles [36-40] and also in a new large Nordic textbook of family medicine [41]. It has also influenced a Danish consultation model adopted in some Scandinavian medical schools [42]. Patient-centred communication is helpful in building a working alliance with the patient and a tool of

mediating doctor's professional competence to the patient-doctor relationship.
Research from Roter and Hall has developed the term patient-centred yet further and now emphasizes the central role of the relationship between the patient and physician [15]. Thus, the term relation-centred care is used more and more frequently. Based at the Johns Hopkins University, a relationship-centred research network has been formed in North America [43].

The triple-function bio-psycho-social model. In 1995, another influential cornerstone in the research of communication and consultation skills was published, "The medical interview" by Lipkin, Putnam and Lazare [44]. In this large book, the bio-psycho-social model of Engel is developed. The authors were also inspired by C. Rogers' client-centred therapy in their view of interviewing in health care. According to them, the medical interview has three functions:

1) Investigate the patient's or next-of-kin's problems within biomedical, psychological or social areas
2) Inform the patient, negotiate and agree on what actions should be taken and define roles
3) Establish, maintain and finish a professional relationship with patients or next-of-kin's

Do consultation skills in the patient-doctor relationship make a difference?

To-day, the advantage of using patient-centred communication in the patient-doctor encounter is supported by a large body of research [15,45-50]. Doctors identify their patients' problems more accurately [45]. Patient satisfaction [46], adherence to treatment [47] and both psychological and physiological health effects [48] are positively associated with patient-centred communication. In addition, patient-centred communication has a positive effect on physician's satisfaction [49]. In the USA, a higher frequency of malpractice lawsuits is associated with the physician's inability to communicate in a timely and open manner [50].

In 2002, a clinical review was published by Maguire [51]. The evidence-based list of key tasks in communication skills below are, in many

instances, similar to the patient-centred clinical method above. They have the same general direction of mutuality, and twenty years of research data have been added. Furthermore, the key communication skills are recommended for all doctors, not only in the general practice consultation.

Key tasks in communication with patients

1) Eliciting *(a)* the patient main problems *(b)* the patient's perception of these; and *(c)* the physical, emotional and social impact of the patient's problems on the patient and the family
2) Tailoring information to what the patient wants to know; checking his or her understanding
3) Eliciting the patient's reactions to the information given and his or her main concerns
4) Determining how much the patient wants to participate in decision making (when treatment options are available)
5) Discussing treatment options with the patient so that the patient understands the implications
6) Maximising the chance that the patient will follow agreed decisions about treatment and advice about changes in lifestyle.

A few items are emphasizing that the patient's wish to receive information or participate in decisions should be explicitly requested.

Common blocking behaviour among doctors. Interestingly, on basis of research evidence, Maguire identifies "common blocking behaviours" among doctors:

> Doctors have therefore [*because of insufficient training*] been reluctant to depart from a strictly medical model, deal with psychosocial issues and adopt a more negotiating and partnership style. They have been loath to inquire about the social and emotional impact of patients' problems on the patient and family lest this unleashes distress that they cannot handle. They fear it will increase patients' distress, take up too much time, and threaten their own emotional survival. Consequently, they respond to emotional questions with strategies that block further disclosure.

The common blocking behaviours include
a) Offering advice and reassurance before the main problems have been identified, b) Explaining away distress as normal, c) Attending to physical aspects only, d) Switching the topic and e) 'Jollying' patients along.

Learning communication and consultation skills in undergraduate medical education – examples from literature

Research in medical education has produced a substantial literature since the 1960's [52]. Communication and consultation skills learning have been a part of this research area for about three decades. It represents an interdisciplinary research field with major input from education, psychology and social sciences, as well as contextual knowledge of medicine and the practice of undergraduate medical education. In the next section, current literature on learning consultation skills in undergraduate education is addressed.

Consensus statement from Europe

A consensus document was produced in 1999, from two international conferences on Communication in Medicine; in Oxford (1996), and Amsterdam/NIVEL (1998). On basis of current research literature and subsequent discussions in these two conferences, eight recommendations were highlighted [53];

1) teaching and assessment should be based on a broad view of communication in medicine;
2) communication skills teaching and clinical teaching should be consistent and complementary;
3) teaching should define, and help students achieve, patient-centred communication tasks;
4) communication teaching and assessment should foster personal and professional growth;
5) there should be a planned and coherent framework for communication skills teaching;
6) students ability to achieve communication tasks should be assessed directly;

7) communication skills teaching and assessment programmes should be evaluated;
8) faculty development should be supported and adequately resourced.

Consensus statement from North America

On basis of several communication models in North America [SEGUE, Calgary-Cambridge, Patient-centred clinical method, E4] and with contributions from many American medical schools, a consensus statement on essential elements of physician-patient communication was developed in a meeting in Kalamazoo in 1999. It provides a framework for teaching and assessing communication skills, determining relevant knowledge and attitudes, and evaluating educational programmes [54]. A patient-centred or relationship-centred approach to care was authorized as the fundamental communication task; emphasizing both the patient's disease and his or her illness experience. The parallel functions of eliciting the patient's story of illness and guiding the interview through a process of diagnostic reasoning was emphasized. Moreover, awareness that the ideas, feelings and values of both the patient and the physician influence the relationship was highlighted. Further, the approach stated in the consensus regards the physician-patient relationship as a partnership, and respects patients' active participation in decision making. The task of building a relationship is also relevant for work with patients' families and support networks.

Review of articles on communication training. In 1999, a large review and quality grading of research articles in the field of learning communication skills was published [55]. Effects and duration of different educational concepts and educational methods were appraised in a meta-analysis. Results showed that education of communication skills in medical education has a clear effect and that learned skills deteriorate if they are not maintained. Learning methods that comprise feedback from taped authentic interviews have proved to enhance interviewing skills. Results from two comparative studies of learning environment showed that students prefer clinical teachers who are both educated in communication and at the same time are attached to primary health care [56,57]. Students with the low scores in communication skills gained most from education, and courses of communication skills were recommended for all students. Course organizers were also advised to

consider that men were slower learners of communication skills than women. Experience-based methods were clearly recommended in communication training of medical students. Experiential training was alleged to be effective if it is connected to physician's everyday clinical tasks and integrated into clinical clerkships. As noted in a recent Belgian study, a communication continuum during the whole curriculum seems to be worthwhile since it ensures that students with specific communicative problems are detected early. Hence, in this longitudinal module, communication skills are seen as core elements of good doctoring and remediation can be provided [58].

Learning of clinical content and process skills seems to be intertwined [59]. The advantage of learning patient-centred communication in a clinical context is supported by several recent reports and reviews [60-63]. From research of assessment of communication skills, it also appears that students' performance is content-specific [64].

Nordic perspectives

Recently, a large and nationwide survey of Norwegian medical students' self-reported assessment of learning communication skills was performed, throughout four curricula; of which three were integrated while one was traditional [65]. An inventory was constructed, dividing communication skills into two parts: instrumental skills (history-taking, diagnostic assessment, treatment decisions), and relational skills (establishing rapport, active listening, showing respect and concern). The inventory was sent to all students in Norwegian medical schools. Results showed that instrumental skills increased linearly year by year, while relational skills showed a curve-linear trajectory reaching the optimum level half-way into the curriculum. Students attending a traditional medical school reported lower levels of instrumental skills compared to the students from the integrated schools. In relational skills, a similar difference between traditional and integrated schools was maintained halfway into the curriculum, but disappeared towards the end. The trajectories of self-reported instrumental and relational skills indicated significant variations in facilitating mechanisms between curricula and cognitive processing. The authors concluded that self-reported instrumental and relational communication skills develop differently in medical students over the years according to the type of curriculum.

A contemporary report from Denmark investigated whether communication skills were learnt spontaneously after graduation [66]. Students in the last semester of medical school and experienced senior registrars at university hospitals with little or no training in communication skills were observed and compared. Results showed that communication skills characteristic of common social conversation were learnt spontaneously, while important professional basic communication skills were not learnt despite 10 or more years of clinical work. Thus, these results are supporting Peter Maguire's clinical review mentioned earlier.

Theoretical perspectives

Below, some theoretical educational perspectives are presented that were influential in studying students' learning of the consultation and the patient-doctor relationship. Knowledge perspectives of Aristotle's serve as the starting-point and are followed by Piaget's constructivism. A modern learner-centred educational approach is introduced including Biggs's concept of constructive alignment in higher education. Finally, reflection learning models are added including action learning theory and Kolb's experiential learning cycle.

Knowledge perspectives: Aristotle

Aristotle's (384 - 322 BC) idioms of knowledge can be a guide when looking at the structure of professional and practical knowledge and in students' learning of consultation skills [67]. Aristotle was also the son of a physician. According to Aristotle, knowledge can be divided into three main categories: episteme, techne and phronesis.

Episteme (Greek = knowledge). Episteme corresponds to theoretical and systematic knowledge – facts you find in books. The generalizable laws of nature are examples of episteme. However, this kind of knowledge has clear limits since knowledge also has to be applied in decisions and practical actions.

Techne (Greek = craft). Techne correspond to a broad variety of practical and productive skills – practical knowledge of the hand. Skilled craftsmen like carpenters have techne as well as dentists and surgeons.

Phronesis (Greek = understanding)**.** This kind of practical knowledge means a certain kind of practical wisdom, when it is to be applied to the individual case. "To know the right thing to do, in the right time"; to have a sound judgement, is to have phronesis. Phronesis thus means an ability to master uncertain and complex situations and the acquisition of attitudes and ethical awareness. In Aristotle's context, building of virtues was an important road to phronesis and *eudaimonia* (the good life). In the antique tradition, there were no conflicts between reason, emotion and virtues [68].

Piaget: constructivism

The theories of the Swiss psychologist and very influential researcher Piaget represent a constructive approach to learning. It means that a personal understanding is constructed from learning and knowledge, acquired from the surrounding world in an individual process [69]. Piaget's concepts of assimilation and accommodation are important when discussing a student's learning of communication and consultation skills. According to Piaget, the individual strives for equilibrium by *adaptation*, an active process where the learner tries either to adapt the surroundings to individual needs or where the individual also adapts him/herself, to the surrounding world. These two ways of adapting correspond to Piaget's classical concepts of *assimilation* and *accommodation* [70]. In a process of assimilation, new components of knowledge fit well to pre-existing cognitive structures and can smoothly be added, with no resistance. In a process of accommodation, however, earlier knowledge is challenged by new and disturbing material. This phase is also called a stage of cognitive dissonance [71]. The new knowledge "doesn't make sense" and the learner becomes confused. Ultimately, earlier structures of knowledge collapse and the new material is integrated, in a phase of reconstruction.

Learner-centred education

Inspired by Piaget's constructivism, research in higher education has shifted focus during the last three decades, from studying teaching behaviours to the student's process or experience of learning. This means that studies of how effective the teacher's message was sent now has been replaced by studies on the quality of students' learning [72]. In this study, the student's perspective is used for studying learning the

consultation and a patient-centred approach in undergraduate medical education.

Two different approaches to learning were demonstrated in 1976 by Marton and Säljö [73]. By means of phenomenographic research, they identified a *surface approach* that corresponded to students replicating details and a lack of coherence. Contributing to this approach was student's prioritized concern of completing the course or a fear of failure. In contrast, students adopting a *deep approach* to learning were interested and motivated by the subject matter and an urge to understand.

Other international researchers in higher education have confirmed and developed the learner-centred view and also transferred it to the medical education context [74,75]. "Learning in Medicine", a UK-Nordic conference project in the 1990´s is yet an example [76]. Many factors influence students' approach to learning and the most important in higher education are depicted in a suggested model by Newble, see Fig 1. [75].

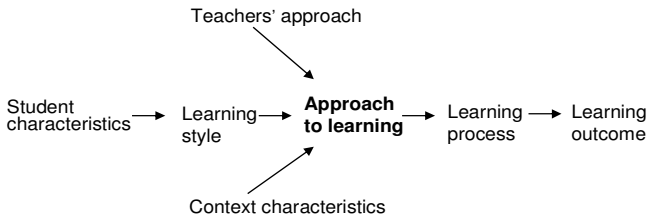


Fig. 1
A model of student learning (from Newble DI, Cannon R, Handbook for Medical teachers, Kluwer, 2001)

Student characteristics affects student's learning style. Learning style, context characteristics and teachers approaches contribute to student learning approaches which are at the centre in this model. Students' learning approaches then affect the learning process and learning outcomes. Marton and Booth have further developed the phenomenographic approach and address the relationship between learning and awareness [77].

In 2003, two prominent American researchers in medical education, provided a neat and comprehensive description of learning as an "active,

constructive, social and self-reflective process" [78,79]. Vast areas of educational research and perspectives are covered by this description.

Biggs concept of constructive alignment. The Australian educationalist JB Biggs adheres to the phenomenographic theories that emphasize conceptual change and understanding. Biggs' concept of constructive alignment was used in the study as a theoretical reference [80]. According to Biggs, learning is constructed as a result of the learner's activities. Furthermore, a good teaching system aligns teaching method and assessment to the learning activities stated in the objectives, so that all aspects of the system act in accord to support appropriate learning. On the basis of educational research performed during the last decade, Biggs identified five critical components of higher education. The five components that form a system should be addressed when organizing adult education that aim at encouraging deep learning.

1. The curriculum – the learning objectives.
2. The teaching methods.
3. The assessment procedures and methods to report results.
4. The climate created through interactions with the students.
5. The institutional climate, the rules and procedures.

Reflection and experiential learning models

Reflection as a central mechanism in experiential learning is highlighted below. As mentioned earlier, experience-based methods are recommended in learning communication and consultation skills. Reflection can facilitate the student's understanding of a consultation process [81]. Therefore, the aspect of reflection in experiential learning is focused here. Reflection on experiences in practice is a pivotal part of a learning process that aims at changing student's abilities to discern new and critical aspects in the patient-doctor communication, in order to use this knowledge in new and different situations [30,82].
Students can achieve confidence from skills training when book knowledge and experience are patchy. Skills-focused training models can be useful, especially in the beginning of communication training. An example of this are micro-skills training, e.g. providing a resumé at certain instances in the interview [65] or repetition of the patient's last spoken words [83]. These learning strategies provide very valuable structure to student's further learning. On the other hand, strictly

technical exercises, predominantly aiming at changing behaviour, with no reflection or discussion may be hazardous. To learn communication differs from learning how to play the violin. There might be a risk that students develop a non-reflective "mechanical behaviour" with no deep understanding of the reason for adopting a patient-centred approach or attitudes [22].

Action learning theory. The ideas of social and gestalt psychologist Kurt Lewin, the pioneer of action research (1890-1947), have had a great impact on evaluating and changing organizations and educational practice [84]. In the cycle forming the Lewinian Experiential Learning Model, feedback processes are elicited. Action research and action learning as a method has later been adopted in social and educational research [85-88].

Kolb's experiential learning cycle. In the 1980's, inspired by Piaget's and Dewey's learning theories along with Lewin's action learning cycle, Kolb developed a synthesis which he labelled a theory of experiential learning [89]. According to Kolb, "learning is the process whereby knowledge is created through the transformation of experience".
See Fig 2. The vertical dimension represents a spectrum along *concrete experiencing* and an *abstract conceptualization*. The horizontal dimension goes from *active experimentation* to *reflective observation*. By elaborating his model, Kolb developed a concept of "learning styles". In a re-analysis of the Kolb Learning Style-1 inventory (LS1-2), two main dimensions adhering to the Kolb learning cycle were validated and shown as psychometrically orthogonal [90]. Learning from experiences in practice thus starts in a concrete learning experience which is followed by reflective observation. Here the experience is processed by reflection, and compared to earlier experiences. The next stage is abstract conceptualization which means that new, more abstract observations are generated. These serve as the base for the last step; active experimentation. Hence, the next cycle starts from a new point and a spiral is formed by the experiential learning loops. Accordingly, the experiential learning cycle forms a learning process including an interaction and sum of the four modes of learning.

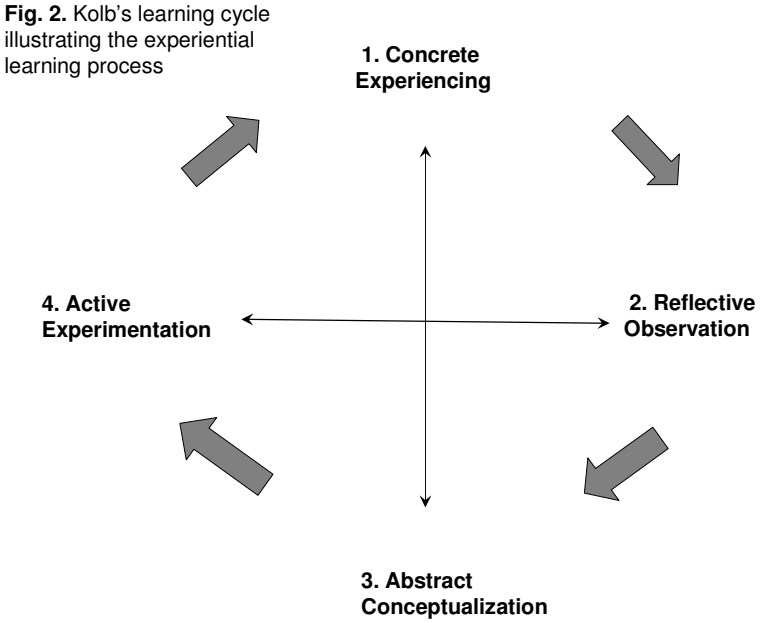


Fig. 2. Kolb's learning cycle illustrating the experiential learning process

Psychological influences: parallel processes

Ulla Holm's pieces of empathy in medical education and medical work has already been mentioned [26,29]. A psychodynamic perspective was used in her thesis. In the literature of psychodynamic education, emotional processes that occur between patient and therapist are often paralleled in the interaction of the therapist and supervisor and vice versa. This relation constitutes a parallel process. There are two possible routes; client-therapist-supervisor or the opposite, supervisor-therapist-client. An important and central part of Holm's contribution was to apply the concept of parallel processes to medical education. She discussed how a professional, respectful and listening attitude in relation to patients also was applicable in relation to students. From the student's perspective, according to Holm, teachers attitudes were generally nice but often shallow; avoiding emotions, thus resembling a doctor-centred style in interaction.

Both the student-teacher and the patient-doctor relationships are asymmetrical. Accordingly, both students and patients are dependent on knowledge from the teacher or the physician. If medical students meet a student-centred approach from their teachers, they understand what a patient-centred approach means, from a similar personal experience [91]. In the eyes of a student, it is usually vital to be credible as a role model. It means "practice what you preach" as a teacher. In the case of learning a patient-centred approach, learning seems to benefit from isomorphism of content and methods. Isomorphism of content and methods shape students to both experience and learn the meaning of how to handle an asymmetrical relationship.

Background of the study

The undergraduate medical curriculum in Göteborg

The study was performed during a decade, 1995-2005. An overview of the 1995 Göteborg medical curriculum, relevant for Study I –III, is displayed in Fig. 3. The 2001-2005 curriculum, relevant for Study IV, is shown in Fig. 4.
Changes of the curriculum applicable for learning consultation skills are commented on below.

The 1995 curriculum – overview. As seen from Fig 5, the curriculum of 1995 had a common Flexnerian design. After a brief introduction and overview, students learned basic biomedical sciences and pathology during a pre-clinical period of about two years. The clinical professional context as a learning environment was introduced in the middle of education. Students then met patients and physicians in practice for the first time in the consultation skills course which was 9 weeks long. This period constituted a phase of transition in students' learning which also has been called "the shock of practice" [92,93]. The following clinical part of the curriculum comprised education in hospital settings, a 10-week project elective and a course of community medicine. After eleven terms, students graduated and received a Swedish medical degree (läkarexamen), before two years of residency or internship (AT-tjänstgöring).

The 2001 curriculum. In 2001, a course of "early professional contact" (EPC) was introduced, one day per month during the pre-clinical four terms [94]. Clinical introduction parts of the consultation skills course were presented much earlier, aiming at minimizing the negative contrast effects of the transition period. Moreover, student evaluations showed that the biomedical terms are appreciated more by the introduction of EPC.

The consultations skills course at term 5

In 1991, the Curriculum Committee of the Medical Faculty in Göteborg proposed course leaders of General Practice, Medical Psychology and Physical Examination Methods to start a new clinical introduction course in a joint venture project called "Consultation skills". In 1993, the course was introduced in the curriculum [95]. A patient-centred approach was an essential part of the course. Students' first encounter between patients and physicians took place in general practice which was a major novelty of the course. A wish to learn from current educational research led to contacts between the curriculum committee and the Department of Education in Göteborg [96]. These contacts resulted in a contract of cooperation by means of a consulting educationalist as a special resource for the medical faculty. Educationalists also participated in the process of launching the course. In addition, course leading team members, (C Björkelund and M Wahlqvist) attended an introductory course in higher education held by the Department of Education.

Learning objectives from the consultation skills course (clinical introduction course at term 5) were created during an extended course development process. Knowledge areas and course content from General practice, Medical Psychology and Physical Examination Methods were selected, balanced and integrated. Goals referring to learning the consultation are listed below. Other learning goals of the course are excluded.

Fig. 3. Overview of the 1995 medical curriculum, Sahlgrenska academy at Göteborgs university. This curriculum is relevant for Study I and II. 1 = 1 university course credit. Courses and attachments adopting explicit learning goals of consultation skills and a patient-centred perspective are marked with bold letters and grey background. GP=General Practice course, part of Community Medicine

T1	Introduction 2	Biochemistry and cell biology 18			
T2	Anatomy and tissue biology 18			CNS Morphology 2	
T3	CNS morphology and physiology 7		Integrative physiology and biochemistry 13		
T4	Integrative physiology and biochemistry 4	Pharmacology 6	Microbiology and immunology 6	Pathology 4	
T5	Pathology and laboratory medicine 10		**Consultation skills** 10		
T6	Internal medicine 14			Infectious diseases 6	
T7	Internal medicine 10		Electives 10		
T8	Surgery 20				
T9	Clinical neurosciences 20				
T10	Community medicine inclusive GP 10		ENT 4	Dermatology & Venereology 4	External attachments 2
T11	Paediatrics 9	Obstetrics & Gynaecology 9		Oncology 1	Radiology 1

Fig 4. Overview of the 2001/2002 medical curriculum, Sahlgrenska Academy at Göteborgs University.
The curriculum is relevant for Study III and IV. 1 = 1 university course credit . Courses and attachments adopting explicit learning goals of consultation skills and a patient-centred perspective are marked with bold letters and grey background. EPC = Early Professional Contact, GP = General Practice course, part of Community Medicine

1	Introduction 1	Anatomy, tissue and cell 5	Molecular cell biology 12		**EPC 1**
T2	Genetics,cell genetics, developmental biology 7	Functional cell biology 7	Physiology, biochemistry, pharmacology 5		**EPC 1**
T3	Physiology, biochemistry, pharmacology 19				**EPC 1**
T4	Physiology,biochemistry, pharmacology 6	Clinical anatomy 9	Longitudinal biomedicine elective 4		**EPC 1**
T5	Pathology 10	**Consultation skills 5**	Infection, microbiology, immunology 5		
T6	Infection, microbiology, immunology 8	Internal medicine 12			
T7	Internal medicine 16		Dermatology and Venereology 4		
T8	Surgery 20				
T9	Neurology 7	Ophthalmology, ENT 7	Community medicine, psychiatry 6		
T10		Community medicine incl GP, psychiatry 10	Scientific elective 10		
T11	Paediatrics 9	Obstetrics and Gynaecology 9	Radiology 1	Child and Youth Psychiatry 1	

An overall objective of the course was to be an introduction and a preparation to the clinical education. The consultation – the patient-doctor encounter – was used as the central concept in learning both consultation skills and clinical skills.

Theory: To understand

a) The basic premises of the patient-doctor relationship
b) The significance of the consultation including a patient-centred approach and shared decision-making
c) The basic principles of medical ethics including the ability to perform an ethical analysis of clinical problems, appearing in a consultation

Skills in practice- performance goals: To demonstrate

consultation skills and abilities, corresponding to a term 5 level including a balanced structure of open and closed questions in the interview, eliciting patient's perspective and to map the patient's present situation including psychosocial issues [95].

Goals also included obtaining a medical history (anamnesis); performing a clinical examination (status) and to write up a medical record.

Teaching and learning activities in the consultation skills course.

Education was based on small group learning with a group facilitator (six students per facilitator) including both clinical instruction and reflection on experiences in practice. Learning the consultation was adopted in clinical workplaces: in primary care health centres and in geriatric wards. Instruction and exercises of clinical training were also included. In an "art-of-interviewing" week, the Kagan-Wretmark video method of interpersonal process recall and feedback (IPR)[97] was used. Didactic education, such as lectures, theme modules and seminars were also included in the course.

The T10 Community medicine/General Practice course

Overall learning goals in the community medicine attachment in primary care are as follows

"Students should get an insight into work and common tasks of primary care; to experience handling of common diseases and

symptoms in a non-selected group of patients. The goal is also to develop students' consultation skills." [98]

Theory. To understand: Theoretical concepts of consultation skills. How to handle common problems and conditions in primary health care. Foundations of applied preventive medicine. Ethical issues involved in human rights issues, principles of medical care for refugees that apply for asylum; problems related to when physician is notified of committed crime such as child abuse and battered women.
To be acquainted with: Working methods of primary health care and cooperation with other participants in community care. Rehabilitation within primary care. How to handle equipment normally available in primary care. Literature that give an answer to common questions in primary health care.
Skills in practice – performance goals: To perform an independent consultation with patient and receive supervision afterwards. To perform an analysis of a video recorded consultation.
Teaching and learning activities. In the general practice attachment of T10, active learning from practice experiences in primary care is prioritized. At primary health care centres (PHCs), students are encouraged to meet patients on their own, as an assistant to their GP facilitator. The student is involved in partly independent tasks by performing a consultation and a clinical examination with a patient. They are also asked to end up in a suggestion for treatment or further investigation. Their reflections of clinical experiences at PHCs are discussed at the end of the course. A final examination includes an analysis of a video consultation [99].

A brief summary of the introduction would be as follows.
Professional perspectives of the patient-doctor encounter and different learning models were presented along with a short overview of relevant research literature and theories from education. By including a description of the educational context, a background of the research project was formed.
After being a teacher and facilitator for a number of years, I felt an interest in deepening field experiences in education. Attending courses in higher education and supervision was followed by an intention to pursue research.

AIMS OF THE THESIS

The aims of the thesis emerged from discussions with colleagues and teachers in the evaluation of the Consultation skills course. It was considered of interest to study medical students' further learning of consultation skills during clinical education. Thus, the research aims were widened. We elected to limit our interest to four research topics. These topics complement each other and form the overall aims of the study.

The overall aims of this thesis were to analyse and study students' learning of the consultation and the patient-relationship in undergraduate medical education, from an experience-based learning perspective.

The specific aims were

- to analyse the correspondence between students' descriptive evaluations of a Consultation Skills (CS) course (T5) and key features of course development over five years (Paper I).

- to explore and examine the students' abilities to communicate with patients during the general practice course at the end of the curriculum (T10). A further aim was to analyze this experience in relation to earlier training including the CS course and subsequent training during clinical rotations in the curriculum (Paper II).

- to explore and analyse students' learning experiences in written reflective accounts of a memorable consultation during a final-year (T10) general practice attachment (Paper III).

- to assess students' patient-centred attitudes at various stages of undergraduate medical education (T1-T11). A secondary aim was to explore the association between patient-centred attitudes and gender, age and work experience in health care (Paper IV).

MATERIALS AND METHODS

An overview of the data sources and methods of the four studies in the dissertation is presented below.

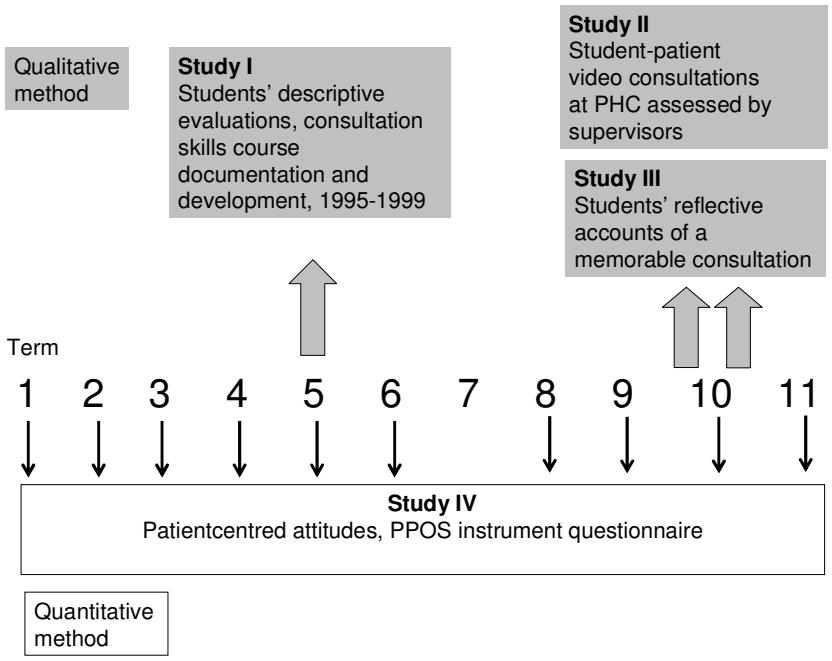


Fig. 5. Overview of the four studies in the thesis. Study I-III were deepening qualitative studies and the grey arrows symbols thick descriptions in qualitative data from students in Term 5 and Term 10. Study IV was a broad cross-sectional study across the curriculum in which structured data from 600 students were collected.

Study I

The study started in 1995 and covers five years of development of the Consultation Skills course.

Participants and materials

Five hundred and thirty seven medical students attended nine Consultation Skills courses during the study period.

Materials from students. During the last day of the Consultation Skills course, students were asked to anonymously answer only one open-ended question: "What do you think of the course in Consultation Skills, with reference to the course design and examination? "From spring 1996, a tick box for marking students' gender was included in evaluations.

Materials from teachers and course organizers. Materials from teachers were course records and documents; plan of learning objectives, course schedules, teachers' schedules and assessment guides; teachers' protocols from systematic evaluations after each course and weekly protocols from course team meetings.

Procedures

Students were given 45 minutes of the last part of the course schedule to finish their evaluations. The evaluation question was attached to two blank sheets of paper and was distributed to students in a lecture room. Most students spent over 30 minutes writing their evaluation.

Data collection

Data from students. Four evenly distributed courses over the five-year period produced 158 evaluation stories that were used as sample. Student data consisted of 214 pages of written text from autumn 1995, spring 1996, spring 1997 and autumn 1998. (Table 1). Gender proportions of the whole material were retained.
Accordingly, of 537 students attending nine consultation skills courses during the study period, 158 descriptive evaluation texts from four touchdowns were extracted and used as a sample.

Data from teachers. Records and documents described under Materials from a series of courses were included as data: autumn 1995, spring 1996, spring 1997, autumn 1998 and autumn 1999. In all, course documents comprised about 250 pages of text.

Table II. Study sample. Students and course evaluations, *n* =158. Autumn 1995, spring 1996, spring 1997, autumn 1998. Consultation skills course, Medical faculty, Göteborg university.

	1995	1996	1997	1998	Total
Students (n)	58	60	67	52	237
Women (%)	27 (46)	33 (55)	36 (53)	28 (53)	124 (52)
Men (%)	31 (54)	27 (45)	31 (47)	24 (47)	113 (48)
Descriptive evaluations (n)	41	46	31	40	158
Response rate	71%	77%	46%	77%	68%
Female responders (%)	n a	27 (82)	19 (53)	20 (71)	
Male responders (%)	n a	19 (70)	12 (39)	20 (83)	

n a = not available in 1995.

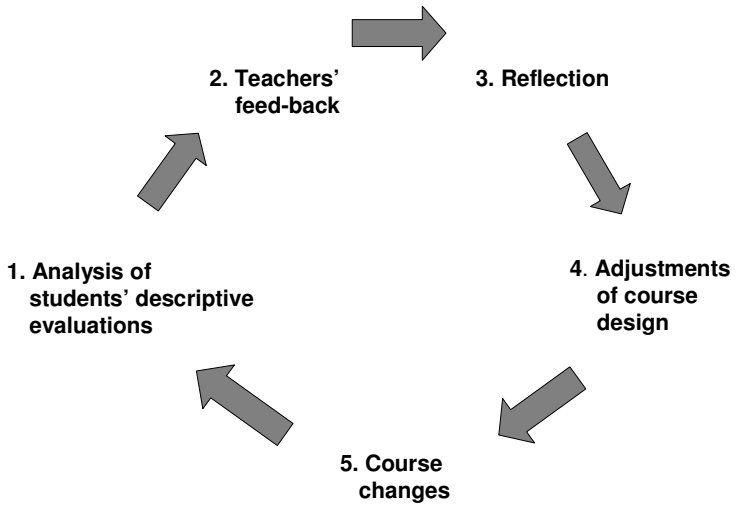


Figure 6. Evaluation cycle in teachers' systematic course development.

The course committee met once a week throughout the years and notes were taken. Six weeks after termination of a course, results from students' evaluations were presented in follow-up seminars.
The work of facilitators and teachers was also discussed in small groups and followed by reflection. Evaluation results were collected and discussed by the course committee and after critical reflection; some were implemented in the next course. This process was repeated after each course, thus forming an evaluation cycle in course development (Fig 6).

Data analysis

Step one. Analysis of students' descriptive evaluations. A content analysis of text was performed [100,101]. Data were analysed twice; first as part of teachers' immediate evaluation analysis after each course and then in a retrospective more thorough analysis. In the immediate analysis, evaluations were coded by writing core quotations, addressing main teaching and learning events and students' experiences. Similar citations were summarized and major patterns of students' statements and course experiences were identified. Recurrent themes emerged from these preliminary analyses.
The research analysis of students' descriptive evaluations was performed in 2002-2005 and consisted of the following steps:

1. Answers were first thoroughly read in extenso, reaching for a global understanding of the content in each student's course story.
2. Students' statements were coded into general categories.
3. Tabulations were also used in order to encompass an overall picture of students' statements in their course descriptions.
4. Categories were established on basis of 2 and 3.
5. Main themes were condensed.
6. Deviant cases of students' statements not fitting main themes were identified.

Step two. Analysis of key features of course development. Key features in course development were identified by content analysis of a series of course records and documents (see above). The text material was abundant. Therefore, Biggs' framework of main components in university education (learning objectives, teaching and learning activities, assessment, learning climate and institutional climate, rules and procedures) was used [80]. Thus, changes of main course components were focused in the analysis and a template style was used [102,103]. It implied that data were arranged according to the framework, units were identified, and the achieved material was read several times in close chronologic comparison. Finally, key feature themes were formed.

Step three. Correspondence between main themes of students' descriptive evaluations and key features of course development. In the last, third step, results from content analysis of students' descriptive evaluations and content analysis of key features of course development were brought together. By these measures a corresponding pattern was searched for, thus reflecting the impact of students' open-ended evaluations on course development. To increase reliability and concordance of the three steps of analysis, two of the authors who participated in course development read half of the evaluations, assessed and checked analysis themes. Interpretations were discussed by main author and co-authors during several meetings. Initial data was expanded and after re-analyses, concordance was reached. Theoretical perspectives used in interpretation were an educational learner-centred perspective and patient-centeredness in medicine.
The trustworthiness of data was further tested at a seminar by two external assessors from the medical faculty and at a Nordic conference of education and research in medical communication. The assessors and research colleagues recognized our main experiences and it seems as if our findings are transferable to their context.

Study II

Qualitative data were collected in the following ways:

1. Between 1993 and 2003 two of the researchers were teachers at various stages of the Göteborg curriculum. They have

analyzed, discussed and examined altogether at least 200 sit-ins or videotaped consultations and the curriculum has been unchanged over the last eight years. Memos and field notes from these incidents and meetings and have been taken over the years.

2. A focus-group interview was carried through in two steps. Four experienced supervisors (two psychologists and two doctors; both sexes) from the CS course assessed separately videotaped general practice students' consultations in the 10th term. The four supervisors assessed all videos.
   Students in the general practice course at the 10th term were asked to voluntarily share their videotapes for analysis. The consultations covered "ordinary" patients' reasons for encounter, e.g. infections, fatigue, hypertension, dizziness and lasted about 15 minutes each. The supervisors saw all the videotapes separately and then participated in a focus group interview. Open-ended questions were distributed to the supervisors in advance as an indicator of areas to be covered in the interview:

   What were your immediate impressions of the students' communication skills? What was positive? What was negative? How have the students' communications skills developed? Reflect on the changes you observed between the consultation course and the final year!

   The Research Ethics Committee at Göteborg University's Medical Faculty accepted the study. The focus group interview was transcribed verbatim and qualitatively analyzed [103-105].
   The analysis consisted of the following steps.
   a) Repeated reading of all the interview text in order to obtain a global understanding of the content.
   b) Identification of individual elements of meaning in the text.
   c) The elements were extracted from the text and coded according to preliminary subcategories.
   d) Preliminary interpretations of the subcategories were sent in advance by mail to the supervisors and were presented during a 1.5 hour-long validation meeting.

e) The subcategories were re-evaluated during this second discussion and categories were established. Observations were made and notes were taken.
f) Finally, the categories were condensed into themes.

3. During the course of the project tentative interpretations have been presented at seminars at the department as well as at educational meetings together with Nordic and European colleagues. Data have then been discussed and appraised and comments have mainly been supportive.

Study III

The students (n=60) in two courses in 2003 were asked to select a memorable consultation and write down their learning experiences and reflections. The students were notified that the purpose of the reflective accounts was to explore more in depth their experiences of a memorable consultation. The GP-patient encounter could deal with any kind of problem, purely medical as well as mainly human. The students' own choice was entirely decisive. The task was to answer three questions: *What happened to the patient before the consultation? What happened when meeting the patient at the PHC*? *What did I learn from the consultation*?

The accounts were maximised to two pages, collected on a follow-up day and processed according to qualitative content analysis [101,103].
1. One author read the reports three times. The core content of each account was identified and units of meaning were grouped to get a view of the entire material.
2. The accounts were read again to get an overview of the material and the initial analysis was discussed.
3. In a couple of sessions the units of meaning were condensed and coded to preliminary categories.
4. The categories were grouped and condensed into themes.
5. The third researcher read all accounts independently.
6. Categories and themes were discussed in new sessions and re-evaluated in order to confirm the findings.
The diagnoses of the patients were analysed and grouped separately. Perspectives used in interpretation of data were a learner-centred model of education and Ian McWhinney's model of a theory for family medicine [72,106].

Study IV

The Göteborg undergraduate medical curriculum comprises altogether eleven 6-month terms (T1-T11). The patient-centred perspective is introduced to students in a longitudinal strand of Early Professional Contact (EPC) [95], during the two first years of biomedical studies (T1-T4). Course content of EPC prepares the students to a five week Consultation skills course in T5. In this course, patient-centred attitudes are developed and student's communication skills and clinical examination skills are assessed. Third and fourth years comprise mainly clinical rotations e.g. internal medicine and surgery. In T10, patient-centred approaches are addressed as explicit learning goals again in a community medicine module during the course of general practice.

Participants

There were 858 students attending the medical curriculum in the autumn of 2005. Sixty-one students of T7 attended an external clinical attachment in the course of internal medicine at several hospitals in the western region of Sweden. These students were not possible to reach and therefore had to be excluded. Thus, in all 797 students were eligible.

Procedures

Students in attendance on start-off day of the autumn term 2005 were asked to answer a questionnaire by their course leaders. Students were informed both orally and in writing that the survey was part of a research evaluation of the undergraduate medical education and that participation was anonymous and voluntary. They were given approximately 20 minutes to complete the questionnaire.
The ethical research committee of Sahlgrenska Academy at Göteborg University accepted the study.

Data collection

Student characteristics. Students' age and gender were recorded together with current term of the medical curriculum.

Measurement of student patient-centred attitudes: PPOS instrument. A previously translated and validated 18-item instrument, Patient-Practitioner Orientation Scale (PPOS) was used [107]. Based on earlier

research [108,7], this instrument consists of two separate and complementary dimensions presented as “Sharing” and “Caring” subscales. The ‘”Sharing” dimension reflects an egalitarian attitude of sharing power and control in the consultation, in contrast to a paternalistic doctor-centred attitude [24,108]. The “Caring” dimension reflects an attitude of approaching the patient along the spectrum of disease-illness. The subscales Sharing and Caring needed however further validation before being used in the present context. Consequently, the PPOS instrument of 18 items was focused and analysis of the subset was not pursued in this study.
Respondents were asked to agree or disagree with individual statements on a 6 point Likert scale. (1= strongly disagree to 6= strongly agree). Mean score of overall PPOS were computed as the mean of the scores for the 18 items [109].

Work experience in health care. An additional question was included: “Have you been working in health care? “ with three response alternatives: a) yes, many times/extended time b) yes, but only for a few weeks c) no/ less than one week.

Statistical analysis

Descriptive data were presented. Group comparison for nominal data with two groups was made with Fisher's exact test. Comparison of means for continuous data with two groups was made with Student's t-test. Mann-Whitney's test was used in case of skewed data. Comparison of PPOS between genders was made by logistic regression. Gender was used as dependent variable while age and rank for PPOS score were independent.Association between increasing term and mean PPOS score was estimated with multiple linear regression using rank for PPOS as dependent variable and term, gender and age as independent variables. A subanalysis was made for each gender.

Work experience in health care was dichotomized to extended experience versus none or small experience. Association between work experience in health care and mean PPOS score was estimated with multiple regression using rank for PPOS as dependent variable and work experience in health care, gender and age as independent variables. In the latter analysis interaction between previous work experience and gender was also investigated. A subanalysis was made for each gender.

RESULTS

Study I

Students' descriptive evaluations and records of course documentation presented a rich material. Results of the three steps of analysis are presented below. The third step analyse the correspondence between students' descriptive evaluations and key features of course development over five years.

I Analysis of students' descriptive evaluations

Seven main themes emerged in the analysis of students' descriptive evaluations. A framework of the content analysis is presented in Table II. In the table, meaning units and categories supporting themes are described. Main themes are presented below.

"At last, learning professional skills in practice", "To be active and to have a choice", "Lack of unity", "Course design works", "Authentic and relevant practical examination", "Support and encouragement from facilitators" and "Awareness and confidence".

II Analysis of key features of course development

Analysis of key features of course development is depicted in Table III. A process of development occurred during the study period with respect to major course components. Active learning in practice was enhanced and student's degree of choice was strengthened. Consultation and clinical skills were identified as core learning objectives in a process of concentration. Education of facilitators in core learning objectives, including an introduction of a practice assessment guide, enabled assessment in context of core learning objectives. Of great importance in course development was the structured support and education of facilitators in 1997. Together with increased continuity, student-facilitator relationships and reflection were reinforced. External influences are seen in the last theme, a curriculum reform in 1996 implied reorganization and concentration of the course. Consequences of the

Table II. Framework of content analysis of students' descriptive evaluations (n=158) and main themes. Consultation skills course 1995-1998, Medical faculty, Göteborg university.

Elements of meaning (examples)	Categories	Theme
"I have learnt to talk to patients and physical examination skills…and I will develop later…"	learning goals articulated	**At last, learning professional skills in practice**
"…a "kick" at last to meet patients, happy for the first time since I started my studies… now I want to learn for life and not just the exam…"	active learning in practice	
"…at last! after two years inhumane preclinical studies, a course that shows what being a doctor is about…"	missing professional goals in earlier medical studies	
"…. many lectures seemed to be interesting but they did not turn out well…more group discussions instead"	course content does not fit to lectures	**To be active and to a have a choice**
"… what's the point in forcing us to attend to compulsory didactic activities?"	compulsory didactic activities criticized	
".. well, I found the course design, with both practice and theory, fairly good…"	mix of practice and theory	**Course design works**
"…no rote learning now, but long days, I felt tired in a new way…"	new ways of learning	
"…too many small different things brought together…"	miscellaneous course content	**Lack of unity**
"…my facilitator emphasized some items in the physical exam but the assessor did not think they were that important…"	uniform guidelines to facilitators wanted	

continued on next page

Elements of meaning (examples)	Categories	Theme
"… to have a practical examination is necessary and instructive…", "…the examination with patient was excellent, no stress and well organized…" *"…examination: I feel secure in history and physical examination…", "…excellent that you take care of the follow-up if you should fail…"*	practice examination a learning experience	**Authentic and relevant examination in practice**
"…reflective home essay on experiences in practice: good questions…they were quite voluminous but gave me a possibility to deepen in a wider area...", "…I was surprised: the home essay was all right…"	accept of examining reflections on practice	
"…group facilitators made a very good job, great support…"	Support	**Support and encouragement from facilitators**
"…facilitators (in primary care) gave me a lot of support and help. We were encouraged to take own initiatives and learnt enormously during these days! "	Encouragement	
"…the course gave insight into how I am and think and especially how the patient thinks…"	more aware of patient's perspective	**Awareness and confidence**
"Learnt enormously, including about myself…", "…we were asked to express our opinions and feelings…"	involvement and interaction	
"…first now I realize how much I have learned…" "…so many personal reflections, I feel more confident in my future role in health care…", "I feel strengthened and look forward to continue my medical studies…"	self-reflection on learning, confidence	

Table III. Key features of course development 1995-1999. Content analysis using Biggs' structure of major course components in university education. Consultation Skills course, Medical faculty, Göteborg university.

Major course components (Biggs)	**1995 1996**	**1997 1998 1999**	**Key features of course development**
Learning objectives	extensive	core: consultation and clinical examination skills	*Consultation and clinical examination skills communicated as core learning objectives*
		communicated and clearly connected to assessment	*Facilitators educated in core learning objectives*
Teaching and learning activities	lectures, theme modules	lectures reduced, compulsory themes made optional	*Student's degree of choice strengthened*
	small group learning	enhanced small group learning	*Active learning in context enhanced*
	skills learning in practice	learning in practice emphasized	
Assessment	bi-modal	multi-modal	*Assessment in context of core learning objectives*
		reflective home assignment introduced and developed	
		practice assessment guide made transparent	
		extended time for feedback in practice examination	
Learning climate, relationships	short learning relationships	continuity, longer learning relationships	*Student-facilitator relationships and reflection reinforced*
	supervision of facilitators	structure and support to facilitators: supervision, schedules, colloquiums, input of educational knowledge	*Structured support and education of facilitators*
Institutional climate, rules, procedures	support from curriculum committee, education	curriculum reform: increased workload, shortage of personnel	*External influence: curriculum reform implied reorganization and concentration*

curriculum reform were larger volumes of students and comparatively less teachers, doubled student courses during one semester and coordination with a course in clinical pharmacology.
There were also dead ends and drawbacks in course development. Many of them were due to over-ambitious goals and efforts to cover too much content.

III Correspondence between main themes of students' descriptive evaluations and key features of course development.

In Table IV the correspondence between the evaluations and the development is sketched.

Table IV. Correspondence between main themes of students' descriptive evaluations and key features of course development. Consultation skills course, 1995-1999, Medical faculty, Göteborg university.

Main themes of students' descriptive evaluations	Key features of course development
At last, learning professional skills in practice	Consultation and clinical examination skills selected and communicated as central learning objectives
Lack of unity	Facilitators educated in core learning objectives
To be active and to have a choice	Active learning in practice enhanced Student's degree of choice strengthened
Course design works	-
Authentic and relevant examination	Assessment in context of core learning objectives
Support and encouragement from facilitators	Structured support and education of facilitators
Awareness and confidence	Student-facilitator relationships and reflection reinforced
-	External influence: Curriculum reform implied reorganization and concentration

A corresponding pattern is seen between evaluation themes and the course development. A number of observations support this relation. Students' reported urge to learn professional knowledge and skills mirrors that these areas being gradually selected and communicated as core learning objectives. In addition, a lack of unity of course content perceived by the students corresponds with education of facilitators in core learning objectives. Students' main theme To be active and to have a

choice, corresponds in course development to themes Active learning in practice enhanced and Student's degree of choice strengthened. Assessment in context of core learning objectives matches students' perception of an authentic and relevant examination. The pattern of correspondence indicates that students' descriptive evaluations had an impact on course development. Since course development occurred in a process over five years, it is possible to discern reciprocity. Students' evaluations affected course development and course development also affected students' evaluations. Thus, structured support and education of facilitators parallels students' main theme Support and encouragement from facilitators. Similarly, reinforcement of student-facilitator relationships might be associated with students' theme Awareness and confidence.
In addition, external factors contributed to course development. A curriculum reform in 1996 implied reorganization and concentration of course content. Another external influence was input of educational knowledge; from a scientific evaluation in the Göteborg curriculum and attending university courses of learning in higher education.

Study II

A framework of the analysis is presented in Table V which includes examples of citations, subcategories and themes. Below, the main themes, categories and subcategories are sketched.

Open invitation

A main theme Open invitation emerged and was seen in the beginning of the students' consultations. Underpinning this theme were the categories Initially attentive and Listening attitude.

The following subcategories were supporting these categories.
Open questions, listening and Inviting body language.

Instrumental strategy

Instrumental strategy became the second main theme and is supported by two categories: One-sided collecting of medical facts and Relationship building lost.

Table I. A framework of the focus group analysing process.

Elements of meaning (examples)	Subcategory	Category	Theme
…they looked, with respect to their body language, as if they were listening closely....engaged posture…	Inviting body language	Initially attentive	
... were very listening from the beginning……open questions...	Open questions	Listening attitude	**Open invitation**
they listened to the patients and often let them finish what they had to say	Listening		
…with this type of wide-open attitude, no boundaries are set, so the patient is abandoned instead... …they play a waiting game…	Patient left in interview structure	One-sided collection of medical facts	
…some kind of medical checklist, you must not forget anything… questions such as "What medication are you taking", "Do you have any illnesses?", aimed at objects or facts…	Following a medical checklist		**Instrumental strategy**
..they do not regard the patient as a person; he/she is a symptom..	Patients life experiences absent	Relationship-building lost	
…not so spontaneous, more fixed by rules and norms	Lack of spontaneity		
…you are somewhat replaceable in the encounter…anyone could meet this patient and ask the same questions...	Replaceability		
….they so completely overlook the patients' anxiety, actually, even when it's severe…	Emotions not noticed		

The categories were supported by sub-categories: Patient left in interview structure, Following a checklist, Patient's life experiences absent, Lack of spontaneity, Replaceability and Emotions not noticed.

Lack of spontaneity in relationship. Being restrained to a checklist denies students access to their own spontaneity and they give a controlled impression. The demand of the checklist diminishes their opportunities to interact and to capture what the patient had said or hinted at. *Replaceability.* The students' manner of asking questions also reflects their attitude to their own role. The consultations are more taking a medical history than a dialogue, giving them an impersonal tone. The students behave as if the checklist questions could have been asked by another student and as if the individual student is replaceable.

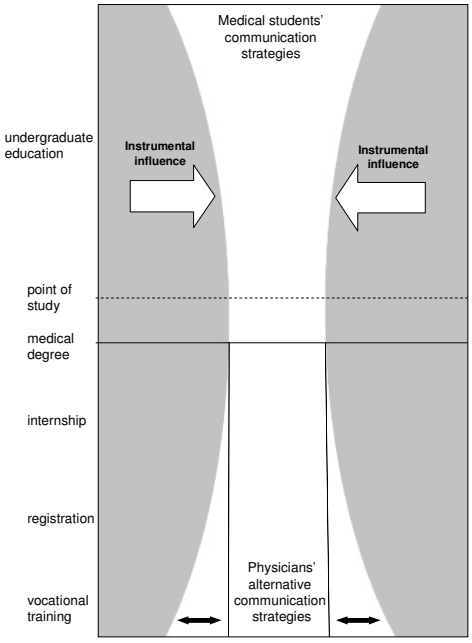


Figure 6. An hourglass as a tentative metaphor for physicians' development of communication strategies. An instrumental influence seems to occur during undergraduate clinical education which affects students' communication strategies. The widening in the lower part of the hourglass may depend on postgraduate consultation training.

The hourglass metaphor. Thus, it appears that an instrumental strategy is prominent in these students' behaviour. The development of students' and doctors' communication with the patient can be metaphorically visualized by an hourglass (Fig. 6). The tentative model was given by the informants.

The wide, upper portion of the hourglass corresponds to students' varying and personal ways of conversing and interacting at the start of their education. The narrow portion in the middle of the figure corresponds to a skill-training, standardizing phase, in which the instrumental demands of the medical profession affect the student's creation of a professional role. Due to this influence, variations in the manner of communicating diminish until graduation. Later there is a chance to develop an individual, personal manner of communicating, during postgraduate education and training; this phase corresponds to the lower, more open part of the hourglass.

Study III

Fifty-four students (90%, 31 female and 23 male, mean age 27 years) submitted their accounts. A framework of the content analysis of students' reflective descriptions is outlined in Table VII, units of meaning, categories and themes are depicted. Themes and categories supporting themes are presented below.

The person beyond symptoms

Underpinning this theme were the categories What's behind the patients story? and Importance of consultation skills.

Facing complexity

Categories supporting this theme were Changing tracks and Dealing with uncertainty.

In search for a professional role

The theme was established by the categories Personal style in the consultation and Supervisor scrutinized.

Table VII. A framework of content analysis of students' reflective accounts. General practice course, 10th term, medical curriculum, Göteborg university.

Units of meaning, citations from students' texts (examples)	**Categories**	**Themes**
"Worry and anxiety means a lot" *"Social problems might hide a disease"* *"The real problem could be something else"*	What's behind the patient's story?	**The person beyond symptoms**
"Listening is more important than prescribing pills" *"There has to be a dialogue between the patient and the doctor"* *"When leaving the room the patient might say something important"*	Importance of consultation skills	
"Do not hurry to establish a diagnosis" *"The presenting symptom was quite different from the real problem "* *"Behind a common cold a serious disease might hide"*	Changing tracks	**Facing complexity**
"In primary care you wait and see" *"Difficult to know when to refer"* *"It was necessary to think broadly"*	Dealing with uncertainty	
"Be prepared –the patient is" *"Take your time – try to be quiet together with the patient"* *"No superior tone towards the patient"*	Personal style in the consultation	**In search for a professional role**
"The supervisor argued irritably with the patient" *"The supervisor avoids eye-to-eye contact with the patient"* *"The patient liked the supervisor's manners"*	Supervisor scrutinized	

Study IV

Student characteristics

Of 797 invited students, (men 311, women 486) attending the undergraduate medical curriculum 600 students completed the questionnaire, giving an overall response rate of 75% (men 71%, women 77%). The gender distribution of responding and non-responding students is depicted in Fig.1, illustrating the greater part of female students in the sample (63%). Respondents ranged in age from 18 to 49 years. Mean age was 26.1 years (men 26.3, women 26.0, ns). Seven students did not report gender and were omitted from further analysis.

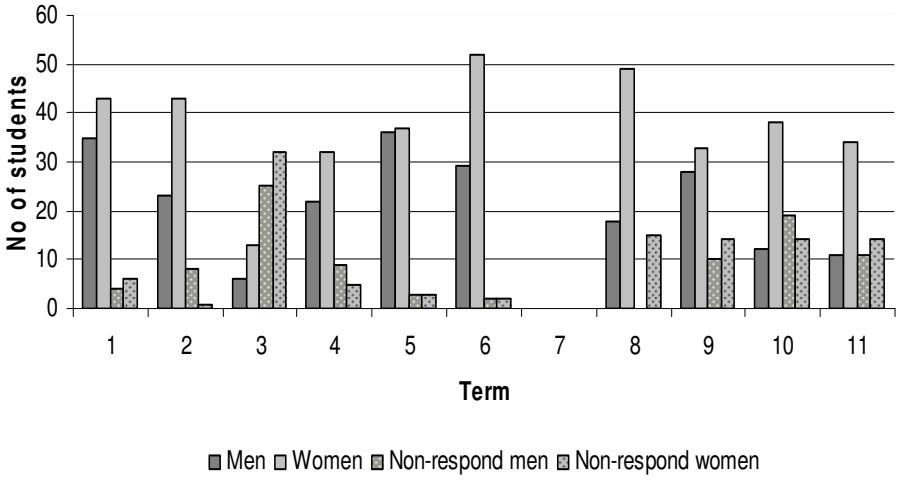


Figure 7. Study sample. Students attending start-off day autumn 2005, n=593. Response rate 75% (male 71%, female 77 %). T7 students attended external attachments. Medical school, Sahlgrenska academy, Göteborg university.

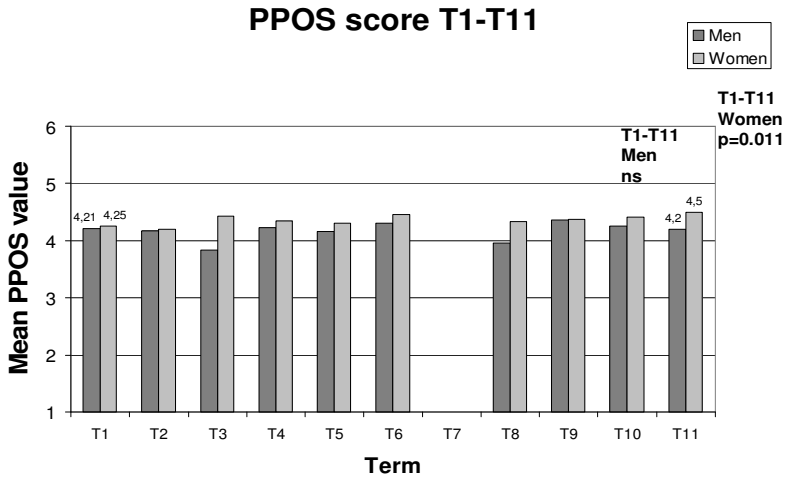
Gender and age in relation to PPOS score

Female students displayed a higher overall PPOS mean score when compared to males (men 4.20, SD ±0.46 , women 4.36, SD ±0.36, $p<0.0001$, logistic regression). Male and female students both showed a positive association between PPOS score and age (men $p=0.0096$, women $p=0.030$, mutlipel linear regression).

PPOS scores at consecutive terms of the curriculum

A positive association between increasing term and mean PPOS score was seen even when adjusting for gender and age (p= 0.0061, multiple linear regression). Further analysis shows that this association between PPOS and increasing term can only be shown among female students (p=0.0011, multiple linear regression) but not among male students (p=0.41, multiple linear regression).

Figure 8. Mean PPOS score across the curriculum. Students of the medical school at Sahlgrenska academy, Göteborg university. n=593.



Work experience in health care in relation to PPOS and gender

The association between work experience in health care and gender is illustrated in Table I. Female students had more work experience when compared to male students (men 74/220, 33.6%, women 170/371, 45.8%, p=0.0023, Fischer's exact test). A positive association between work experience in health care and mean PPOS score was seen even when adjusting for gender and age (p= 0.0039, multiple linear regression). Further analysis shows that this association between PPOS and work experience can only be shown among female students (p=0.0031, multiple linear regression) but not in male students (p=0.58, multiple linear regression).

Table VII. Work experience in health care, gender and mean PPOS score among students at the medical school, Sahlgrenska Academy at Göteborg University. n=591

Work experience	Women	Men	Total
Extended period / many times[a]	170 (4.42)	74 (4.22)	244
A few times or none[a]	201 (4.30)	146 (4.19)	347

[a] Number of students
(mean PPOS score)

DISCUSSION

A condensed description of the results of the four studies elicits the following findings.

Learning about the consultation and the patient-doctor relationship is facilitated by an experience-based, student-centred method and an integration of consultation skills and clinical examination skills in active learning and assessment. Awareness and self-confidence among T5 students training the consultation corresponded to a strengthened relationship with facilitators. Students' experiences of support and encouragement from facilitators paralleled course leaders' support to facilitators (Study I).

An explorative analysis of T10 students' communication abilities suggested an instrumental doctor-centred influence during clinical education, thus adhering to earlier findings in the literature (Study II). However, these results were not supported when studying a qualitative analysis of T10 students' written reflective accounts of memorable consultations. Here, main themes displayed a view of the patient as a person beyond symptoms, along with an insight into the complexities of clinical work and students' search for a professional role (Study III). Moreover, 600 students in a cross-sectional survey of patient-centred attitudes across the curriculum reported significantly higher scores of patient-centeredness at the end of education which is a new finding (Study IV). This pattern was attributable to women but not to men students. Women students had generally higher scores of patient-centred attitudes and especially those with extended experience of work in health care.

Thus some contradictions are at hand and these findings need to be further discussed.

Comments on methods

On qualitative research

The first three studies were qualitative studies and this type of research needs some special comments. Some principal differences between quantitative and qualitative research are brought together in Table IX below [modified after Dahlgren L, Emmelin M, Winkvist A; 110]

Table IX. Some principal differences between quantitative and qualitative research. (Modified after Dahlgren L, Emmelin M, Winkvist A., 2004)

RESEARCH METHODOLOGY	QUANTITATIVE	QUALITATIVE
Paradigm	Positivist or post-positivist	Naturalistic, interpretive, humanistic
Relation between theory and research	Deduction	Induction and abduction
	Inference	Discovery
	Confirm a theoretical hypothesis	A hypothesis is generated
Ontological assumption	Reality is unite and exists outside a person	Reality is experienced and socially constructed, "multiple realities"
Epistemological assumption	Knowledge is independent of the researcher	Knowledge is dependent of interaction
Validity	Intern validity	Trustworthiness
		Credibility
Relevance of findings expressed in terms of	Generalizability	Transferability
	Statistical generalization	Logical reasoning (analytical generalization)
Sample	Representative	Strategic, variable
Data	Decontexualized isolation of measurable units	Search for meaning of context-bound experiences Apprehensions Perceptions
Constancy of data	Reliability	Dependability
Role of researcher	Objective and replaceable observer	Intersubjective, interactive, sometimes participator

Validity or trustworthiness

The double role of the researcher in qualitative research as both participator and researcher has been criticized as not meeting methodological criteria of objectivity. On the other hand, social and

qualitative educational researchers claim that practitioners and field researchers are very keen on studying crisp and context–bound phenomena that otherwise are not captured [111-112]. Objectivity in an experimental science sense does seldom conforms to complex research objects in education and social research where no variable can be controlled or isolated. Presumptions and interpretations are inevitably made in the research process but these can be dealt with. In order to balance the risk of bias, transparency of the research process and reflexivity is recommended as measures to yield credible and meaningful research data and strengthen the analysis [105]. Moreover, the approach used in *Study I* was similar to action research, which is recommended as a potentially productive method for improving practice in medical education [113].

The evidence-based perspective has severe limitations in education research, especially if the research question expands to areas that include human sciences. As a commentary on a plea for more randomised, controlled trails, (RCTs) in education, the researcher G. Norman wrote an article in which he strongly advised against RCTs in educational research [114]. He cites an educational statistician's critical appraisal of many large educational experimental projects performed in the USA: "…it is suggested that the National Institute of Education should conduct evaluation emphasising an ethnographic, principally descriptive case-study approach to enable informed choice by those involved in the program. ….The deficiencies of quantitative, experimental evaluation approaches are so thorough and irreparable as to disqualify their use…" [115].

Indeed, learning deals with many complex human activities and myriads of variables and it is not a cure or a treatment. As mentioned before, a comprehensive view is that learning is an "active, constructive, social and self-reflective process" [78]. However, the strengths of this perspective are the emphasis on learning as a process and a focus on understanding learning, from the learner's perspective. For studying and comparing outcomes of learning the consultation, a multi-modal method encompassing both quantitative and qualitative methods including examination procedures and examination results, together with patient's perspectives would seem more appropriate.

Considerations in the choice of methods

The question arises: why was a qualitative method used in the long-term evaluation of the consultation skills course in *Study I*?

We were interested in studying a long-term process of course development from the student's perspective, in the educational context and needed a method that could be used and applied as an evolving evaluation. Accumulated experiences of the two years preceding the study period gave us some familiarity with the context. Therefore, we continued in systematically collecting and analyzing open-ended data from students' descriptive evaluations and added experiences from facilitators and teachers. By reflecting on these experiences, evaluation knowledge was achieved that was implemented in gradual changes. This was the immediate evaluation- implementation loop that was conducted after each course. Thus, a student-centred perspective was adopted in evaluation and course development and in the research that followed.

Could we have used other methods? In fact, we had earlier used evaluation formats directed to students that were not included in *Study I*. In 1993-94, the first years of implementing the course, extensive quantitative evaluations were made. Students were asked to value detailed events of the course on a visual analogic scale (VAS). Students' perceived highlights and low points were apparent after a few terms. However, concerning many other learning activities, students' VAS responses were not helpful or conclusive. Parallel to this method, we analysed answers to open-ended questions and the written descriptions of the individual student's learning experiences were more interesting. Almost every one was coherent and full of meaning. Reading them thoroughly and analysing them was like listening to a "legible choir of students' voices". Returning to Habermas, one could say that we realized the advantage of emphasising on a communicative rationality in evaluation of a communication course. Even if the procedure was time-demanding, this experience led to a curiosity to focus this type of evaluation method.
Another example of other methods used was a quantitative study pattern questionnaire performed in the years 1993-1996. It measured students' reports of time spent on different study activities during the course,

including the amount of literature read. Results from this questionnaire were confirming and that assessment should be explicitly aligned to core learning objectives and learning activities. Although these data were collected outside the time borders set for *Study I*, findings in the descriptive evaluations were supported. Moreover, our knowledge of common study patterns among students in the transition from preclinical to clinical education had increased.

In *Study I* my double role as course assistant, developer in practice and researcher needed to be addressed. Five strategies were used to balance the risk of distortion of data:
a) author's presumptions were clarified in writing before the analysis, in order to increase awareness of non-reflected presumptions and avoid premature interpretations.
b) the analysis was made transparent by conveying the theoretical perspectives used in interpretations.
c) two co-authors who had experienced the course development process read fifty percent of evaluations and checked all three steps of analyses.
d) credibility was tested by external assessment in seminars and in a Nordic research conference.
e) many recurrent and short evaluation loops involving teachers and facilitators were conducted throughout the study period, which also increase the credibility of the research analysis.
In addition, short and frequent feedback loops are recommended in both action research and development of learning organizations [86,87].

An important factor in the start-up and implementation phases was the cooperation between the Dept of Education and the Medical Faculty. When the consultation skills course started in 1993, an evaluation group was formed. We were inspired by attending courses in higher education and a qualitative study on course evaluations at the Medical faculty [116]. Hence, the approach to evaluation was based in educational science and more broadly than usual in medical education. Time passed and as the course continued, we pursued the evaluation cycles. Thus, data from both students and teachers were systematically collected and evaluated during the years that followed. Accordingly, new knowledge was formed while the evaluation continued and gradually became an action research project of refining the course.

Questions of trustworthiness

In *Study II*, a number of issues could be questioned.
Are the data achieved credible and trustworthy?
The study group was about half of students in a general practice course in 2001. When attending the community medicine course in T10, prior to the GP course, students were asked individually, between lectures, by the researcher to participate and voluntarily share their video recordings from primary care attachments. They also received written information. Half of the course refrained, perhaps due to minor extra work that was involved with participation. Although there were more female students who agreed to participate and more men in the non-participating group, the research group was varied with respect to students' gender and age. We also compared the participating and non-participating students' examination results in internal medicine, as a measure of whether the study group and non-participating students were equivalent. There were no differences found between groups in passed/approved rates. However, we assumed that the participating students were probably more inclined to demonstrate their communication abilities than their non-participating peers. The T10 course was the last in which student videos from primary health care centres were collected and discussed with teachers at the department of primary health care. Thus, the access to these recordings was limited.

Are the themes of supervisor's focusgroup meetings relevant?
Studying supervisors' views of students communication abilities might be seen as an indirect way of approaching these phenomena. However, the four supervisors were also a central resource by their accumulated field knowledge of supervising in interviewing skills. They were experienced from many years of meeting students at Term 5, altogether corresponding to a period of 60 years. They were also experienced from supervision of communication courses for graduated physicians, specialists in oncology and facilitators for students from various specialities. Furthermore, the supervisor group trained assessing in advance by studying videos from students of Term 6. The supervisors also thoroughly assessed Kagan-Wretmark responses in the T10 students' interviews (listening, affective, cognitive, open-honest

responses) which supported the findings in the focusgroup interview [97]. Cognitive and listening responses were more common and not affective or open-honest responses. However, a qualitative focus was decided upon and these data were omitted from the article. Thus, the four supervisors constituted a group of skilled and sensitive observers and represented a substantial experience.
One may also ask if their way of observing was biased by their psychological skills. Two of the supervisors were qualified psychologists and two were physicians with an interest in medical psychology. However, all four supervisors had a solid and broad background from working in a health care context (psychiatry, gynaecology, internal medicine, pain clinic) and were familiar with the realities of a physician's clinical work.

Has the tentative metaphor any relevance? Some issues need to be addressed here. Empirical data in the study were collected from T10. Thus, the time factor in the tentative metaphor (the progression through medical education) is represented by the assessors' wide experiences of supervising video courses both before and after the T10 level.
When presented at seminars and Nordic congresses in medical education and general practice, the tentative metaphor was confirmed and not contradicted.

Written reflective accounts and the consultation

It could be questioned whether the students' written reflective accounts reflect their learning about a consultation in *Study III*.
The aims of this study were to **"**to explore and analyse students' learning experiences in written reflective accounts of a memorable consultation during a final-year (T10) general practice attachment". An important and crucial part of the method section in this study is the third question posed to students: *What did I learn from the consultation?* This question is open-ended and is not asking for a short answer. On the contrary, it aims at inviting the student to start to reflect and recapture a memorable consultation at the primary health care centre, in writing. Thus, the central phenomenon that was in focus was students' experiences of a memorable consultation, expressed in a reflective written account. Writing forces someone to be clear and explicit about what he is thinking, and it may result in new connections and relations being

constructed [117]. A differentiated view can emerge by recapturing an event and by trying to designate experienced phenomena. This process fits in very well with the notion that elaboration may be the mechanism behind the favourable effects of essay writing [118]. Accordingly, students' perceptions of a consultation are articulated and made explicit when they put their experiences and reflections of a memorable consultation into words.

Participation and drop-outs

In *Study I*, the relatively low (46%) response rate in 1997 should be noted. The reason for the low 1997 response rate may be discussed in more detail. The last day of the Consultation skills course was also the last day of the spring term of 1997, just before summer vacation from the university. Examinations were completed, the weather was warm and sunny in the beginning of June and a course party had been held the night before. On the other hand, gender proportions are retained and the overall direction in the response pattern of 1997 students was similar to 1998 students (70% response rate). However, our assumption is that students who actively chose to respond were more positive to the course than non-responders.

In *Study IV*, all students attending to the start-off day in autumn 2005 were included. We decided to include the students of T3 despite the high drop-out rate that was caused by administrative problems. The reason for this was that we had a good-enough response rate and we strived at covering as many terms of the curriculum as possible. T7 students attending external attachments could not be reached by their course leaders at the start-off day. No drop-outs were seen among male students attending T8. The number of male students in this course of T8 was very small but nevertheless correct. It has been checked thoroughly. Of the 81 students attending the T8 course, 18/18 men and 49/63 women responded to the questionnaire.

Comments on results

Communication competences at various levels

How do students' communication abilities develop during the curriculum? This question is addressed when looking at our

research data from T5 and T10. Below, we discuss this aspect of the findings in relation to the research literature.

In *Study II,* an Open invitation emerged as an important theme of students' communication abilities. In a previously mentioned Danish study, listening by an open-ended attitude was only found among students and not among senior registrars [66]. These findings support our main theme of Open Invitation; indicating that training in open-ended questions in undergraduate education affected students' initial behaviour in the consultation.

Further, our exploratory *Study II* suggested that an instrumental strategy occurred during clinical education and the result was posed as a question. This tentative result is now supported by systematic observation studies. One of them is an interesting longitudinal study of students' behaviour in video consultations with standardized patients, recently reported by Hook and Pfeiffer [119]. Despite a new communication curriculum with overall progress in students' ratings and examination results, scores at the last year in medical school were still low. The authors present three possible hypotheses for a significant decline in the last year of clinical education: the hidden curriculum mediated through negative role modelling of overworked interns and residents on clinical clerkships, a fear of exclusion if students act differently from older peers, and senior students' focus on diagnostic skills. A conclusion is that medical students possibly would benefit from additional refresher courses as they become more focused on clinical encounters. Advanced communication skills modules and assessments in the last year of medical school have been launched and implemented elsewhere [58, 61,120,121]. However, these courses were short and evaluation results yet reported are not based on students' performance.

Moreover, a large evaluation of the effect of communication skills training was conducted in three American medical schools in 2003. Results showed significantly better skills among 3rd year students who had been attending communication training [63]. On the other hand, the difference between the research and control group was only 5%. How

come that communication skills training does not affect students' behaviour more? This question aligns to the hypotheses of Hook and Pfeiffer above, along with our exploratory findings of an instrumental influence.
If we address students' patient-centred attitudes, a recent longitudinal study from the Aristotle University in Greece adds an interesting relief to *Study IV* [122]. Compared to the beginning of clinical education in the 4th year, a clear decline in the overall trend of PPOS scores was reported in the final 6th year of medical education. The authors concluded that their study displayed a clear need for redesigning communication curricula.

The starting–point in a discussion paper by Howe on professional development in medical education is similar to the results of *Study II* and the earlier contributions of Pfeiffer [123]. In the paper, consultation skills are seen as a part of a larger cluster of professional skills that are trained in curricula of professional development. It is said that traditional clinical education may lead to a doctor-centred style including diminished sensitivity to patient's needs. Relevant work from sociological, psychological and educational perspectives are brought together and elucidates key principles of these areas which are most likely to result in the acquisition of desirable professional attributes. A key message is the difficulty to implement skills and attitudes learned in professionalism curricula due to contradictory values in the tradition and culture within clinical education [124]. This assumption hints at a possible explanation of the diverging results in our study.

A bit aside of the headline above, female students' higher scores of patient-centeredness in *Study IV* reflects yet another side of communication competences at various levels. The gender difference we found reproduced earlier reports which we think validates our results [107,109]. Furthermore, the constructor of the instrument E. Krupat reported that the same pattern was seen in studies performed in Korea, Nepal, Brasil and Norway (personal message). Furthermore, a Scottish study report that female students had more positive and less negative attitudes to

communication skills learning than male students [125]. Some of these differences might concern gender-related influences in the learning environment. A possible reason could be that male students during clinical education, as a part of the hidden curriculum, identify with male role models and their doctor-centred attitudes. Communication research on physicians has shown that female physicians are more oriented towards relationship-building and mutuality than their male colleagues [15].

Findings in relation to theory

The results from *Study II* on the one hand and *Studies III* and *IV* on the other are divergent. Do students' patient-centred responses in written reflections (*Study III*) and attitudes (*Study IV*) contradict the proposal of an instrumental strategy as a stage in students' consultation skills training (*Study II*)?

Findings in relation to Aristotle. Aristotle's three kinds of knowledge (p. 26) were Episteme, Techne and Phronesis. In Table X below, results are organized according to these three knowledge forms.

Table X. Results of the studies organized in a framework according to knowledge forms of Aristotle.

	Knowledge forms of Aristotle		
Main results referring to students' consultation abilities and attitudes	Episteme	Techne	Phronesis
Open invitation (II)		x	x
Instrumental strategy (II)	x	x	
The person beyond symptoms (III)			x
Facing complexity (III)			x
In search for a professional role (III)			x
Patient-centred attitudes are higher at the end of medical education among female students (IV)			x

Hence, the results from *Study II* and *III + IV* seem to refer to different knowledge domains. Even though data and results from *Study IV* can be said to represent epistemological knowledge, the knowledge forms referred to by patient-centred attitudes correspond to Phronesis. As seen from the Table, the Instrumental strategy was the only result that was relevant to Episteme. This differing pattern will be further elaborated below.

Findings in relation to Miller's clinical assessment pyramid. Miller has not been mentioned before. George Miller was the pioneer of research in medical education in USA and founded the first research unit in Chicago in 1959. In 1990, he presented "Miller's pyramid", a framework for assessment of physician's clinical knowledge domains [126]. The pyramid is often referred to when assessment of competences is discussed in undergraduate and postgraduate medical education [127,128]. See Fig. X. The different levels Knows, Knows-how, Shows and Does in the pyramid refer to different dimensions of physician's clinical knowledge. "Knows" refers to Knowing-that, i.e. factual knowledge while "Does" refers to the ability to work independently, with no supervision.

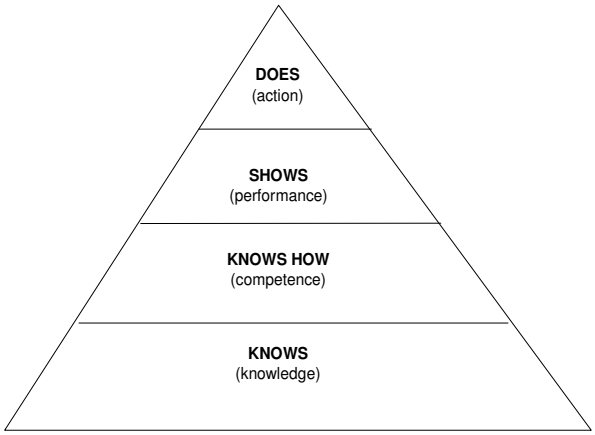


Figure 9. Miller's clinical assessment pyramid

When the results are organized in the framework of Miller's pyramid, a possible explanation of the contradictory results is provided.
T10 students' performance in videos observed by experienced T5 supervisors differs from what students write in an attitudinal survey or in written reflective accounts on a memorable consultation. Thus, this discrepancy reflects that different knowledge domains of clinical competence are captured in the results. From the overall result in Miller's pyramid, a condensed description of T10 students' patient-centred skills would be: "Knows how - but shows just a little".

A reasonable interpretation of the results is that senior students' report patient-centeredness in writing but may have difficulties in implementing a patient-centred approach in action when they also perform a physician's common clinical tasks.

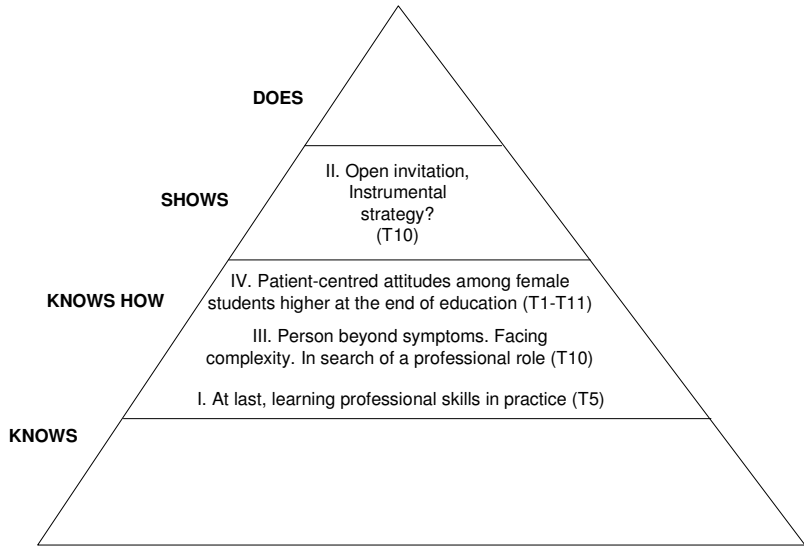


Fig. 10. An excerpt from the main results are arranged in Miller's pyramid

This situation is not uncommon in medical education. A similar question of transfer between knowledge and application of knowledge is addressed by two researchers in medical education, Schmidt and Norman [129]:

> "We both agree that spontaneous transfer does not happen easily. In simple language, the student who 'has the knowledge but can't apply it' is the norm, not the exception, and we both agree that there is something that we, as teachers, can do about it, namely to ensure that students see concepts arise in multiple problems and are encouraged to see connections among concepts."

Findings in relation to Piaget's accommodation process. When reflecting on the earlier mentioned results of Study II and Study III, Piaget's classical theoretical concepts of accommodation and assimilation can be helpful (see p. 27)[70]. In a process of assimilation, new components of knowledge fit well to pre-existing structures and can smoothly be added, with no cognitive resistance. Interestingly, a recent educational study of health science and medical students learning experiences with focus on "view-turns" or knowledge leaps was performed at the Sahlgrenska Academy [130]. Results showed that health science students (in nursing, physiotherapy, occupational therapy) reported clear "view-turns" in their learning progression but this was very seldom the case among medical students. Medical students apprehended and described their learning process as "adding new knowledge" (similar to assimilation) and not "I have changed my view" (similar to accommodation). In an additional quantitative analysis, the difference between student groups was statistically significant, albeit the data sample was small. How come that medical students' seldom report that they have experienced a change of view? And how do these findings relate to learning about the consultation?

Accommodation is often experienced as a critical, sometimes even chaotic, stage in knowledge formation and often the learner's emotions are involved [70]. A student may feel irritated if she does not make sense of the new material and connect it to earlier knowledge structures. The

new "disturbing" knowledge that does not fit causes a first phase of deconstruction. The student's previous assumptions need to be questioned and deconstructed by himself. Then a reconstructing stage of integration follows that integrates the new material with earlier knowledge, resulting in a conceptual change. According to Piaget's terminology, the equilibrium of adaptation is achieved by this last stage. Piaget's principle of accommodation usually refers to the cognitive aspects of learning and not learning of relational or social abilities. However, in real-life learning there is no split between cognition, emotion and social factors. The special transforming quality of an accommodation process fits very well to what is needed to integrate doctor's agenda with a patient-centred approach. Knowledge and skills from relational and social areas - that adheres to a communicative rationality - appears to be required in order to make accommodation learning processes possible in clinical education. Accordingly, accommodation processes should be recognized as crucial in learning about the consultation. Indeed, bridging the gap between the paradigms of the patient-doctor encounter is a difficult but a necessary project [34,60].

Findings in relation to Marton & Booth. Main themes in students written reflective accounts in *Study III* were "The person beyond symptoms", "Facing complexity" and "In search for a professional role". These three themes can be seen as signs of students' conceptual changes and an increased awareness, after they had reflected on a self-experienced memorable consultation. The conceptual change and awareness aspect is at the center in Marton & Booths description of learning as a qualitative change between different ways of experiencing phenomena thus discerning variation of the life-world (see p.27)[77]. Furthermore, the findings in *Study I* adher to the learner-centred approach in phenomenography which regards students' apprehensions of phenomena as vital. Experience-based knowledge and the ability to discern variation was also highlighted in a recent Swedish report studying the expression of professional clinical experience among young and senior physicians' [131].

Findings in relation to Biggs' model of constructive alignment. Biggs' research in higher education connects to Marton's and Booth's view above of

conceptual change in deep learning and not the acquisition of information. Biggs highlights that knowledge is constructed on basis of "what the student does", i.e. a constructivist view of learning in higher education. Bigg's concept of constructive alignment (see p. 29)[78] was used in the design of *Study I* as a means of sorting out key features of course development (Table III, p. 55). However, students' main themes from the step I in the analysis display how students' perceive their learning goals and learning activities as important: "At last, learning professional skills in practice","To be active and to have a choice". Students' themes "Support and encouragement from facilitators" and "Awareness and confidence" corresponded to Biggs' learning climate that is created through interactions with the students. Results from *Study II* and *III* can also be discussed in relation to Biggs concept of constructive alignment. A suggested instrumental strategy as a stage in students' consultation skills training (*Study II*) can be related to Biggs points 1-5 during clinical education. If patient-centred skills are not integrated (points 1-2), nor examined (point 3) within the clinical curriculum, then these skills are not maintained. If students in *Study II* and *Study III* had been given many opportunities to study and, most importantly, to reflect on their own consultations, perhaps the results would not have been so divergent. The learning climate (point 4) affects whether deep learning and conceptual change is facilitated. Organizational factors also contribute (point 5).

Findings in relation to action learning theory. The results from *Study I* display how knowledge was created from systematic evaluation cycles including several steps in analysis of students' feedback, including teachers feed-back, followed by critical reflection. Thus, many short feedback-loops formed a research spiral, similar to action learning processes. Such processes are recommended in teachers' field research and development activities [113].

Findings in relation to Kolb's experiential learning cycle. The findings can also be discussed in relation to Kolb's experiential learning cycle (see p.30). Above all, the results from *Study III* illustrate the relevance of the experiential–based learning perspective. The T10 students refer to a concrete experience, they reflect on their observations of the consultation and articulate what they have learnt from a memorable consultation. The

Kolb experiential learning point of view on these results adheres to both Marton's and Biggs perspectives but adds the important sequence described in the experiential learning cycle. Thus, a growing awareness of the complexity in clinical encounters and the implications of a patient-centred approach are traced in T10 students written reflective accounts.

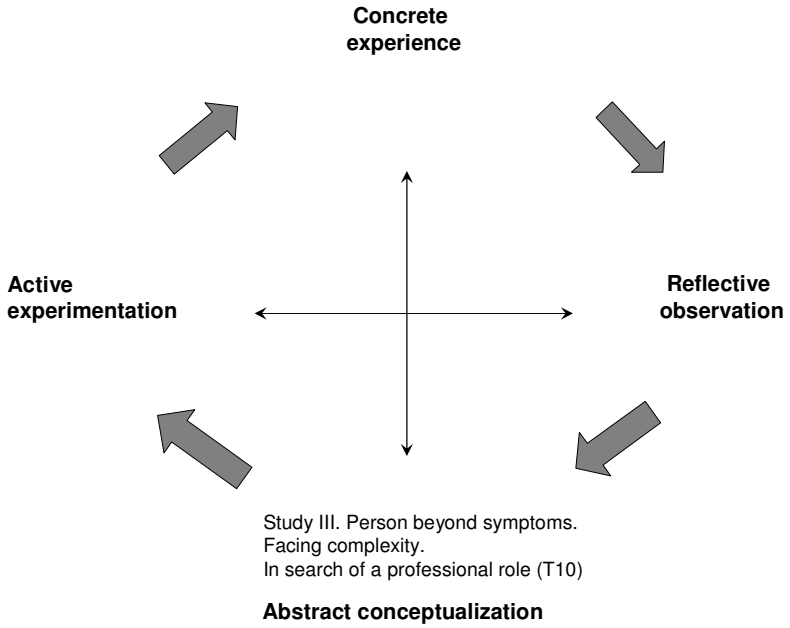


Fig. 11. Results from Study III, T10 students written reflective accounts are applied in the framework of Kolb's experiential learning cycle.

Particularist versus generalist perspectives

A general trend is that the human body and different kinds of diseases have been divided into many narrow yet deeper knowledge areas. Hence, earlier knowledge areas have been even more specialized and super-specialization occurs. If we use a tree as a metaphor for medical knowledge and disciplines (see Fig. XII), there are today numerous stems, branches and even twigs of research areas and disciplines. A twig expert in the periphery may be at risk of losing contact with the central core and stem of professional and generalist medical knowledge areas.

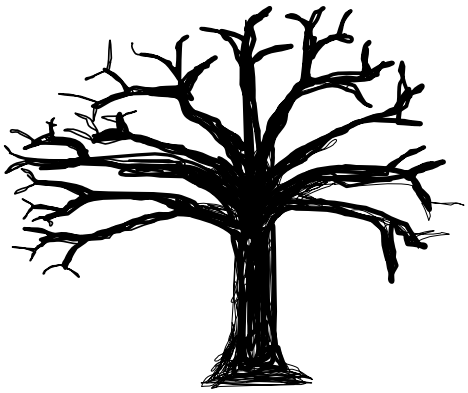


Fig XII. A metaphor of a knowledge tree illustrating the tension between particular knowledge in the periphery and central professional knowledge at the stem.

From students' point of view, the focus on many specific and detailed areas of epistemological knowledge in the curriculum affects how student-teacher relationships are utilized. In general, student-teacher relationships in traditional medical education are often short in time. This factor affects how the students perceive the learning environment and climate [132,133]. Despite national goals, an ongoing discussion in curriculum committees and educational boards, time available to train central professional knowledge and competences may be marginalized. Professionalism training including learning the consultation is an example of this. A balancing factor opposing the specialization trend is the concept of a core curriculum and the current Bologna harmonizing process of university education in EU. The 1995 and 2001 curriculum overviews indicate that the overall idea of the curriculum is based on specific content of disciplines; i.e. areas of epistemological knowledge. General and learning objectives involving the development of a professional identity are scarcely addressed.

An often cited study of college students' approaches to learning in higher education by Perry [134] may also shed light on the curriculum structure in medical education. College students' apprehensions of learning

started in a view of collecting absolute knowledge in bits and pieces. The apprehensions of knowledge were truth or non-truth.
In the next stages of Multiplicity and Relativism a new view of knowledge emerged, students realized that it depended on a lot of circumstances if knowledge was considered to be relevant and if it could be applied. Finally, in the last stages knowledge was attained and was ready to use. Perry called these stages Commitment.

By paraphrasing Perry, collecting facts from different specialities appears to be the general idea in a traditional disease-centred curriculum. These facts are the forest berries that all medical students have to pick up in their knowledge baskets, wandering through the virtual woods of medical education. Students learn many facts; and the expression "information overload" is often used in criticism of medical education. It is important to argue that learning the science, craft and art of medicine cannot be reduced to "downloading" facts or simple information. Such ideas have no support from research in medical education [118,135].

A historic view of American Medical education 100 years after the Flexner report presents thought-evoking perspectives [136]. One of them addresses the traditional relation of research and education at universities and medical schools:

> "The academic environment has been transformed since Flexner's days. In academic hospitals, research quickly outstripped teaching in importance, and a "publish or perish" culture emerged in American universities and medical schools. Research productivity became the metric by which faculty accomplishment was judged; teaching, caring for patients, and addressing broader public health issues were viewed as less important activities. Thus, today's subordination of teaching to research, as well as the narrow gaze of American medical education on biological matters, represents a long-standing tradition"

In my opinion, this excerpt seems to be equally relevant to Swedish and European contexts since American medical education – and American medical research- has been very influential. However, an opposite movement includes efforts to change the academic culture by encouraging systematic and scientific approaches to improving higher education [137]. Requirement of a competence in higher education for

qualifying for a fellowship is as yet a hopeful example of recent changes at many Swedish medical schools.

Fragmented relationships

Parallels can be drawn between doctor-centred medicine and how contact with students is organized at many clinical attachments [132]. Due to numerous short-term attachments, students are also more or less passing through, and their faces become more and more anonymous to teachers.

How are students' clinical attachments and learning trajectories organized with respect to continuity of clinical events [138]? In university hospitals and in clinical attachments, students opportunities to train in consultations and return to the patients are limited. In many settings, rapid collection of facts about patients, focusing on serious conditions and immediate intervention are prioritized. The diagnostic tasks in the consultation take the upper hand and patients are passing by and not returning. If the students lack the opportunity to see a patient several times and longitudinally follow an entire health care process, they will also have difficulty getting to know the patient as a person. Thus, some features of specialized care at university hospitals may distort students' perceptions of doctors' tasks and the doctor-patient relationship. The time factor blocks the possibility to use continuity and a working alliance as a means of dealing with many medical problems and cause a lack of process in learning and in relationships.

This is especially relevant at emergency rooms where the heavy work load and pressure on the physician-on call, make the double role of physician and facilitator in this setting quite unrealistic. Consequently, students' reflections on experiences in practice can seldom be used in these attachments.

The particularist view leading to fragmented relationships is also seen in the organization of medical documentation. In some computerized medical record systems, mapping patient's psychosocial issues is proposed as a primary task for nurses. Here the medical professional identity is at stake. In order to balance an instrumental and product-oriented clinical culture, the integration of patient-centred values within medical records is necessary. This issue has been addressed before [139]. If the medical record for

example, had a heading called "Patient's concerns" or "Patient's agenda", that would stimulate development of patient-centred approaches of both students and young doctors.
Thus, new fragmenting factors in the infrastructure of care may hamper a humanistic view of the patient as a person beyond symptoms (*Study III*).

In many medical specialities, patients are followed through a long process. A professional approach in these cases is to maintain and secure personal continuity between the physician and the patient. However, this is not always the case. Avoiding longitudinal and demanding relationships could also be a sign of the physicians' difficulties in communicating with and understanding these patients. Some of the patients are referred from one specialist to the other. These ways of solving problems in the doctor-patient-relationship are encouraged and embedded in an organization that focuses instrumental action and approach to care as an industrial project. If "healthcare production" is the key word, then doctors' need to reflect on practice experiences, relationships to patients and ethical problems is not acknowledged. Accordingly, in the organization of clinical workplaces, supporting structures to build confidence in the individual patient-doctor relationship are scarce. Here, a Habermasian perspective of distinguishing between instrumental and communicative rationalities is quite illuminating.

Returning back to the overall picture of the results, it seems natural – or best put, cultural- that the students in a disease-centred and product-oriented clinical curriculum tries their best to meet the requirements of a neophyte doctor: to be able to write a medical record correctly after talking to the patient, perform a clinical examination, suggest a plausible diagnosis and know which treatment to start with. These are the hard-core performance tasks in the culture of the hidden curriculum and possibly corresponding to the action competencies of a doctor on call [140,141]. Perhaps instrumental abilities must be recognized as main learning objectives in this phase. Accordingly, an overall instrumental emphasis needs to be supplemented by patient-centred competences that should be learnt and examined.

Accrediting bodies and institutions both in the USA and UK now identify communication and interpersonal skills as a part of clinical competences and require that these skills should be assessed [2,15,121]. These recent changes have vitalized communication curricula during the last years in many medical schools.

A future model of learning about the patient-doctor relationship

Consultation training in a clinical setting means that the student confronts the patient as a person and psycho-social, ethical and existential dimensions of medical work. Thus, increased knowledge of how students learn about the consultation and a patient-centred approach can also contribute to a better understanding of how students attain personal growth in the professional socialization process. Themes concerning socialization into a professional role may be naturally discussed and reflected close to student's experiences in practice. These issues need to be approached when the time is ripe. Hence, timing and sequencing are also very important factors to consider when setting attainable learning objectives for clinical experiences of students' consultations. Reflection on experiences from consultations in clinical practice might help the students to be aware of the processes of socialization and also to identify and react on events of the "hidden curriculum". Moreover, a pivotal meta-cognitive step is taken if student's personal learning progression is explicitly identified and discussed in a small group setting including a facilitator. If students train to reflect on their learning experiences, they can become more aware of how they think in relation to meeting patients in consultations and in clinical settings [142]. Then the imperceptible hidden curriculum may become less hidden and within reach of critical reflection. Here, gender aspects of professional communication could also be addressed [143]. In addition to the results in *Study IV*, female residents' recent evaluation of a medical programme in Sweden pointed out that gender issues in professional development was not sufficiently covered [144].

As mentioned earlier, other researchers in medical education has made a comprehensive description of learning as an active, constructive, social and self-reflective process. All these perspectives can be applied to learning about the consultation. Because learning about the consultation involves how a student approaches a patient, psychosocial and self-reflective parts of learning appear especially significant. A learning relationship over time that includes trust, safety and reflection on experiences in consultations is recommended in the literature [91,93,145]. These supporting factors seem to be needed in order to facilitate integration of a patient-centred approach with clinical, diagnostic and problem-solving skills [16,60]. The student should be encouraged to use a patient-centred approach as both a tool in the analysis of the patient's medical problem and in understanding the person beyond symptoms (Study III).
It is essential that the hermeneutic dimension of communication and the patient-doctor relationship will be integrated in the clinical setting. When students' start to meet patients who are suffering from incurable diseases, a need to discuss existential issues emerge.

Moreover, in a disease-centred curriculum and infrastructure, support from the relational and social areas of learning are needed in the demanding accommodation process of starting to integrate the physician's and the patient's perspective.
Therefore, in consultation training, it seems vital that students need a safe and non-judging relationship with a facilitator and that this relationship has a chance to develop over time. If this requisite is established, students can learn from their way of talking to patients by means of audio or video feedback and reflect on their experiences together with their facilitator and peers. A student-centred perspective will facilitate learning a patient-centred approach. Thus, a parallel process in the clinical context is recommended in learning about the consultation and this aligns with the literature.

The presented future model depicted in Fig. XIII is an effort to synthesize research findings and theory with experiences from educational practice. The perspective of using an evolving learning process spiral in learning about the consultation is inspired by the theoretical contributions

discussed in this thesis. Learning of the consultation and the patient-doctor relationship as an active, constructive, social and self-reflective process is emphasized. Learning medical ethics and professional attitudes is also required. Reflection on experiences in practice is needed to facilitate the necessary conceptual changes and to reach the learning goals of consultation skills, integrated with clinical skills, professional attitudes and improved self-awareness.

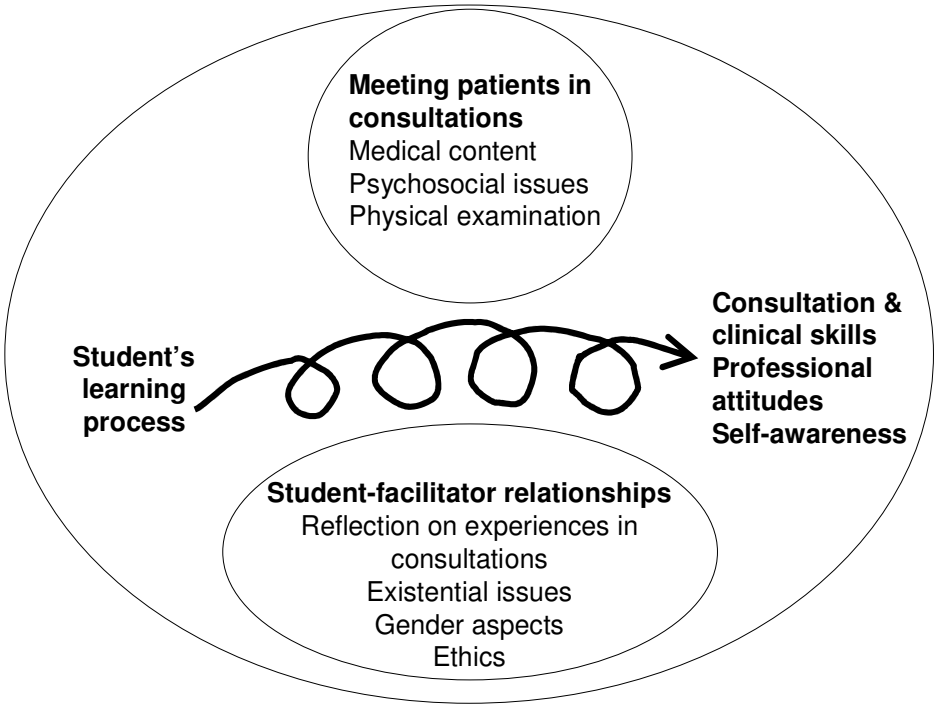


Fig. XIII. Medical students' learning of the consultation and patient-doctor relationship integrated in the clinical context. An experience-based learning model. The learning process spiral illustrates students' longitudinal development to learning goals.

CONCLUSIONS

- Students' descriptive evaluations and teachers' course records were helpful in a long-term evaluation forming a learner-centred knowledge-building process of developing a consultation skills course. Students' feedback was both initiating and validating longitudinal course implementation. (Study I)

- A corresponding pattern was found between students' descriptive evaluations and key features of course development. Students' wish to be active in learning consultation and clinical examination skills in practice corresponded to concentration on these learning objectives in learning activities and if a linkage was communicated between explicit learning goals, the learning process and an examination in practice including feedback. Students' experiences of support and encouragement from facilitators corresponded to course leaders' support to facilitators. Descriptions of awareness and confidence from students corresponded to a strengthened relationship to the facilitator and enhanced reflection. (Study I)

- Supervisors' explorations of T10 students' communication abilities in video consultations generated a hypothesis of an "Open invitation" followed by an "Instrumental strategy". A tentative metaphor of an instrumental influence in students learning of communication during clinical education was also suggested. (Study II)

- In T10 students' written accounts of a memorable consultation, three themes emerged: "The person beyond symptoms", "Facing complexity" and "In search of a professional role". Involving students in writing reflections seemed to stimulate them to articulate learning experiences. (Study III)

- In a cross-sectional study of six hundred students across the medical curriculum, patient-centred attitudes (mean PPOS scores) were unchanged, thus not confirming a decline reported in previous studies. Earlier reported gender differences of patient-centred attitudes were confirmed. Independent of age or work experience in health care, female students had higher PPOS compared to male students ($p<0.0001$). Female students had significantly more experience of work in health care than male students ($p=0.0023$). (Study IV)

- Senior students' displayed patient-centeredness in writing but might have difficulties in integrating their know-how when performing physician's clinical tasks. (Study II, III and IV)

Implications

- Asking students to write an individual course description appears to bring a sense of mutuality to evaluations and create a new understanding of how students' learning events were experienced in the whole of a course. Evaluators and course organizers should also consider organizational factors affecting course development. Continuity and perseverance in the evaluation process must be emphasized for achieving relevant and useful results.

- Involving students in writing and reflecting on a consultation appears to stimulate them to articulate learning experiences. It could also be helpful for supervisors in order to better understand the student's perspective and learning process.

- The patient-centred approach was originally developed within the field of general practice. To students, general practice and primary care represent a rich learning resource for integration of this approach in undergraduate education. This can be achieved within curricula of professional development. Thus, general practice departments can play a central role in organizing longitudinal consultation skills attachments, in cooperation with clinical colleagues teaching professional skills.

- Along with consultation skills and clinical skills, clinical facilitators' student-centred attitudes in teaching appear to parallel students' learning of patient-centred attitudes. Consequently, education and support to clinical teachers seems to be needed so as to improve students' learning of the consultation and the patient-doctor relationship.

- Medical students' learning of the skills and attitudes of the consultation and the patient-doctor relationship is complex. These learning goals need to be explicitly identified and examined through the last phases of undergraduate clinical education.

- Students' learning of the consultation and the patient-doctor relationship is suggested to benefit from integrating a patient-centred perspective in a student-centred learning relationship through clinical education; and by adopting a process-oriented and experience-based model including feedback and reflection.

Future development and research

The next step would be to implement and assess the future model, described above, in clinical education. Professional development curricula appear to be the best vehicle for improving learning of a patient-centred perspective in a clinical context [124,146]. Nowadays, efforts to implement these curricula in the clinical phase are highlighted at many medical schools. However, timing is also important. Students' learning of other important clinical skills such as problem-solving and clinical reasoning is also quite demanding and must be taken into account if the development of patient-centred skills is to be properly sequenced.

From the reports mentioned above and meetings with students and educators, it seems appropriate to focus and identify critical steps and processes in both the overt and hidden curricula. Until then, a tentative beginning is that there are three general phases of clinical education that have to be addressed: the beginning, the middle and the end. The last part of the clinical curriculum calls for longitudinal reflective processes on consultation experiences in practice. By then the students have

acquired more clinical knowledge and skills, and are thus more susceptible to the required accommodation process. This would enable the student to apply a patient-centred approach in his/her clinical performance and reach a deeper learning of the patient-doctor relationship.
The parallel process described above and in this thesis can also be widened to the postgraduate level. Courses in teaching and supervising the consultation and the patient-doctor relationship could be provided within the framework of vocational professional training. Young doctors and students would mutually benefit from this. Accordingly, if students' facilitators learn how to supervise consultation skills, students will gain from meeting them. Research could also be performed on these development activities by means of systematic and disciplined inquiries, using feedback data from both young doctors and students. Research methods of social sciences and education can be helpful in research of clinical professional development in both undergraduate and postgraduate curricula.

However, organizational factors also need to be addressed. It is essential that the issue of professional development is lifted above the level of specialities and epistemological territories. Paraphrasing the sociologist Becher who coined the expression "academic tribes", one might say that this matter concerns all "medical tribes" [147]. If not, the risk of turbulent turf battles becomes high and the result might be disintegration. Therefore, cooperation between medical schools, vocational educators and medical associations is needed. Support from postgraduate vocational training and accrediting bodies is necessary so as to include a patient-centred perspective in professional development through undergraduate and postgraduate education. Here, learning and long-term reproduction of professional knowledge and skills, including reflection on practice and professional ethics has to counterbalance economic short-term demands of efficiency in "health production".
The public confidence of the medical profession in the future is dependent on physicians' proficiency in both medical content knowledge and process skills. Hence, in order to provide correct treatment and to meet the patient as a "person beyond the symptoms", the future physician needs to learn how to build the patient-doctor relationship.

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