COMMUNICATION SKILLS OF MEDICAL SPECIALISTS IN ONCOLOGY

Development and Evaluation of a Computer-Assisted Instruction Program

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COMMUNICATION SKILLS OF MEDICAL SPECIALISTS IN ONCOLOGY

Development and Evaluation of a Computer-Assisted Instruction Program

Communicatievaardigheden van medisch specialisten in de oncologie

Ontwikkeling en evaluatie van een computer-ondersteund cursusprogramma

(met een samenvatting in het Nederlands)

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door

Robert Lourens Hulsman

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Co-promotor:	Dr. W.J.G. Ros

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Voorwoord

Dit proefschrift is een verslag van een onderzoek dat van start ging in juli 1990. Diverse mensen van de Universiteit Utrecht en het NIVEL zijn in de loop der jaren betrokken geweest bij verschillende fasen van het onderzoek. Zonder anderen te kort te doen wil ik er hier een aantal met name noemen.

Allereerst wil ik Miriam Janssen bedanken. Gezamenlijk hebben wij dit project destijds ter hand genomen. Zij had het jarenlang voor dit onderzoek over om dagelijks tweemaal de grote rivieren over te steken. Gelukkig was haar Nederlands uitstekend, zelfs beter dan het mijne, want met mijn Limburgs is het nooit wat geworden. Tot oktober 1993 werkten wij als een soort siamese tweeling aan de ontwikkeling van de cursus en de opzet van het evaluatie-onderzoek. Diverse instanties hebben we afgereisd en deskundigen geraadpleegd over allerlei onderwerpen. Hoewel haar vervroegd vertrek naar een vaste baan beneden de rivieren op een moment kwam dat er nog veel gedaan moest worden aan werving van ziekenhuizen en verzamelen van onderzoeksmateriaal, had het ook een positief effect op mijn ontwikkeling als promovendus. Het gaf mij de ruimte om mijn gedachten te ontwikkelen en geheel naar 'eigen' inzicht dit proefschrift te schrijven. Zeer dankbaar ben ik Miriam dat zij aan het eind van de rit de ondankbare monnikentaak op zich heeft willen nemen om de laatste fouten in de tekst op te sporen.

Jacques Winnubst wil ik bedanken voor het als promotor scheppen van de voorwaarden en de ruimte die de uitvoering van het onderzoek mogelijk maakte. Gedurende het onderzoek vond hij de juiste balans door het initiatief aan de onderzoekers te laten, zonder de voortgang uit het oog te verliezen. Zijn vertrouwen in de voortgang van het onderzoek en het proefschrift werkte geruststellend en bemoedigend. Zijn naar het einde toe immer stijgende geestdrift heeft zijn weerslag gevonden in een sterk verhoogde oplage.

Jozien Bensing werd op het juiste moment hoogleraar zodat zij als autoriteit op het gebied van de medische gespreksvoering promotor kon worden. Zij is gepromoveerd op instrumentele en affectieve communicatie, en bleek zelf beide typen gedrag bijzonder goed te beheersen. Haar instrumentele, taak-gerichte communicatie heeft zijn weerslag gevonden in diverse passages in dit proefschrift. Haar bemoedigende affectieve communicatie heeft er zeer toe bijgedragen dat het allemaal tot een goed einde is gebracht. Haar raadgeving om niet te wanhopen zou iedere aanstaande promovendus op het hart moeten dragen. Aan haar heb ik te danken dat ik dit proefschrift in het Engels heb geschreven. Daarmee heeft zij mij doen inzien dat vooraf gevreesde problemen achteraf vaak erg meevallen.

Haar inspirerende bijdragen, haar onvoorwaardelijke steun en het van meet af rotsvaste vertrouwen in de goede afloop zullen mij altijd bijblijven.
Wynand Ros was degene die met een vooruitziende blik het onderzoeksvoorstel destijds samen met Jacques geformuleerd heeft. Ook was hij degene die mij destijds attendeerde op de vacature voor het onderzoeksproject. Van zijn onvoorwaardelijke en vasthoudende 'sociale steun' heb ik veel baat gehad. Op kritische momenten in het onderzoek was hij steeds behulpzaam in het vinden van de juiste koers. Veel bewondering heb ik tot de dag van vandaag voor zijn vermogen om gedachten uiterst gebalanceerd te formuleren. Altijd kon hij in een paar zinnen een onderwerp waarmee ik bij het schrijven vast zat zodanig herformuleren dat het door mij niet meer als probleem herkend werd, maar juist glashelder voorkwam. Dankzij zijn geduldig en bereidwillig doornemen van de talloze versies van de hoofdstukken heeft mijn schrijfvaardigheid zich ontwikkeld.

Esther Hosli, van haar gedisciplineerde en daadkrachtige kwaliteiten heb ik mogen profiteren tijdens Miriam's zwangerschapsverlof. Terwijl ik mij concentreerde op het in elkaar sleutelen van de cursus, verrichtte zij alvast de voormetingen in het AZU waar ze worstelde met weerbarstige participanten. Uiteindelijk speelde ze het zelfs klaar om eerder te promoveren dan ik, op de ziektebeleving van kinderen.
Na het vertrek van Miriam werd haar leemte opgevuld met stagiaires. Als eerste kwam Koen van der Kwast, student sociale psychologie aan de Universiteit van Amsterdam, van eind 1993 tot begin 1994. Van zijn plannen om de invloed van patiënt-kenmerken op de gespreksvoering van de arts te bestuderen is helaas weinig terecht gekomen. De confrontatie met de tragiek van de ziekte kanker was in dit onderzoek niet alleen gebonden aan de video-observaties van de patiënt-contacten in de spreekkamers van de deelnemende artsen, maar manifesteerde zich ook in ons onderzoeksteam. Koen overleed op 23 april 1996, op 28 jarige leeftijd, na drie jaar keihard gevochten te hebben voor zijn gezondheid en zijn bestaan. De onbegrijpelijke onrechtvaardigheid van zijn in de kiem gesmoorde leven heeft een blijvende indruk op mij gemaakt.
Renske Blokker was stagiaire vanaf zomer 1994 tot voorjaar 1995. Zij is van onschatbare waarde geweest voor het scoren van een groot aantal video-opnamen en het verzamelen van gegevens op een van de lokaties. Ze liet daar al direct zien niet terug te deinzen voor enige tegenslag in de dataverzameling. Mislukte opnamen moesten gewoon over! Na haar scriptie aan het formele eind van haar stage heeft ze geheel belangeloos mij behoed te verzanden in het scoringswerk, door nog een fors aandeel te leveren in het scoren van de resterende videobanden. Ik ben haar immer dankbaar voor haar enthousiaste en produktieve bijdrage aan dit onderzoek.
Ook de andere directe collega's van de Werkgroep Psychologie van Gezondheid en Ziekte mogen hier niet onvermeld blijven. Ivan Komproe, Mieke Rijken, Ingrid

Hoeks en later Nicolette van Heesch waren jarenlang mijn kamergenoten. Vijf mensen in een kamer die ook nog uitpuilde van de computers en andere materialen resulteerde niet in irritaties en onenigheid, maar juist in een hoop gezelligheid en kameraadschap. Met veel genoegen denk ik terug aan onze talloze discussies en verhalen.

Veel dank ben ik verschuldigd aan het team van deskundigen rond de ontwikkeling van de cursus. L.G. Vreeman en E.A. Langewis adviseerden over computer-ondersteund onderwijs. W.A. van Deijk (internist), J.M. van Doorne (prosthodontist), H.F.J. ten Kroode (psycholoog), M.H. Oosterwijk (psycholoog), V. Batenburg (psycholoog) verschaften advies over arts-patiënt communicatie. Speciale dank gaat uit naar Alexander de Graeff (internist) voor zijn bereidwillige en kritische beoordeling van onze scripts. Veel dank zijn we verschuldigd voor zijn aanwezigheid bij de video-opnamen voor het beeldmateriaal van de cursus. Hij had beslist als arts kunnen figureren in onze cursus, met name in de video-fragmenten van het 'goede voorbeeld'. Uitbeelden van het 'slechte voorbeeld' had hem wellicht aanzienlijk meer moeite gekost.

Dit proefschrift is voltooid tijdens mijn aanstelling aan het NIVEL. Een aantal collega's zijn daarbij van bijzonder belang geweest. Met name kamergenoot Jan Kerssens heeft mij met engelengeduld ingewijd in de geheimen van multi-level analyses en het interpreteren van de berekeningen. Peter Spreeuwenberg heeft mij vervolgens op gang geholpen met het zelfstandig uitvoeren van de analyses. Mijn andere kamergenote, Irma Kruijver, wil ik bedanken voor de talloze gezellige en ook ernstige discussies over belevenissen binnen en buiten het werk. Samen met Jan vormden we van het begin af aan een goed trio. Sandra van Dulmen wil ik met name bedanken voor haar bijdrage in het valideren van mijn observatie instrument. Ook was zij degene die mij attendeerde op haar artistieke 'ex' die de omslag illustratie heeft verzorgd.

Tevens wil ik alle artsen en patiënten die aan het onderzoek hebben deelgenomen bedanken voor hun inspanningen ten behoeve van het onderzoek. Zonder hun bijdrage had dit proefschrift niet geschreven kunnen worden.

Tenslotte gaat veel dank uit naar mijn dierbare Anneke. Hoewel de mascotte op mijn buro die ik van haar gekregen heb mij zeker geholpen heeft, denk ik toch dat zijzelf de beste mascotte is geweest. Dankzij haar zorgzaamheid heeft ze mij de ruimte en de stimulans gegeven om dit proefschrift tot een goed einde te brengen.

'Clearly, medically relevant research should not only sponsor the introduction into practice of new financing systems and new diagnostic and therapeutic technologies, but also more effective communication behaviors, if we are to continue to deserve the confidence and respect of the consumer'. (T.S.Inui and W.B. Carter, 1985)

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1

Introduction

Communication is an important tool in medicine, some even consider it the most important tool (Cassell 1985, 1991, Bensing 1991, Wagener 1995). Communication between physician and patient plays a crucial role in the diagnostic and therapeutic behaviour of the physician. The physician becomes acquainted with the patient's medical problem and he[1] informs the patient about diagnoses, the results of medical tests, medical decisions, procedures and treatments through the exchange of information. Poor interviewing techniques may lead to the doctor failing to recognize the patient's problems and the patient failing to understand instructions.

The whole process of medical care is conducted by communication. In the doctor-patient encounter, the medical care the physician can offer is tuned to the needs and expectations of the patient. However, this tuning process is not without problems. Problems in communication arise from the differing expertise and perspectives of physicians and patients. Where the physician mainly regards the medical problem from a biomedical expertise, for the patient, a disease is never a purely medical problem, but intrinsically connected to psychological, social and emotional experiences, consequences and concerns (Bensing 1991, Stewart

[1] In this book, both physicians and patients are referred to as males for reasons of readability. Therefore, he, his and him should be read as he/she, his/her and him/her.

1995). The diagnosis and treatment of a potentially chronic and life threatening disease like cancer provokes a strong emotional response in the patient of uncertainty and considerable psychological distress. This distress is repeatedly triggered in different stages of the disease (Couzijn et al. 1990, Winnubst et al. 1987). For a patient, 'coping with cancer' implies primarily coping with these psychosocial and emotional concerns. Cancer patients need considerable support to be able to cope with their disease and the related emotional concerns (Ros 1990). Communication is certainly the most important tool for a physician in learning about these concerns and providing the patient with adequate care and support.

Different studies have shown that physicians do not always meet the informational and emotional needs of patients with cancer (Ford et al. 1996). The psychological distress many cancer patients experience often remains unnoticed due to uninviting aspects of the physicians' interviewing techniques (Ford et al. 1996). Physicians often tend to be reluctant to discuss psychosocial topics with the patient (Roter 1995, Levinson 1993, Putnam 1988). According to Putnam (1988), physicians are reluctant to discuss psychosocial problems of patients because they feel that they should do something to solve them, whereas at the same time they feel unable to do so. Furthermore, their reluctance may be motivated by a *lack of time* caused by crowded waiting rooms. Physicians fear that discussing patient concerns may take extra time beyond the discussion of medical problems. It is well known that there is a close relationship between time spent in consultations and quality of care (Howie et al. 1997). Research about issues of list size and the use of time has shown that physicians vary their use of interviewing techniques according to the time available. When surgeries are booked at longer intervals, physicians tend to display more inviting behaviour, collect more details about the patient's illness, and spend more time in explaining the patient's problem and its proposed management. They also discuss prevention and health education more (Roland et al. 1986, Ridsdale et al. 1992, Ridderikhoff 1993).

Still, a positive doctor-patient interaction is facilitated when the physician is aware of the affective or emotional state of the patient, and is capable of communicating his concern, interest, support and understanding (Méndez et al. 1986). Effective communication is an important part of the development of a successful relationship between a doctor and a patient. The physician has great influence on how this relationship develops. The physician's attitude can encourage or discourage the patient to take initiatives in the consultation and to ask questions. The physician who holds that 'patients do not demand much time and attention' and his colleague who holds that 'patients do demand much time and attention' may both see their opinions confirmed by their own behaviour (Molleman et al. 1984). Since the physician has the knowledge and expertise and therefore the power in the interpersonal relationship, he is responsible for sharing these aspects

with the patient.
Behaviours that are conducive to patients' disclosure of sensitive emotional information include the adoption of a patient-centred interviewing style (Stewart et al. 1995, Ford et al. 1996). This style aims at sharing the power and control over the content of the medical interview and the decision- making process. It facilitates patient expression and participation in the consultation, by making the patient feel free to speak openly and to ask questions.
Furthermore, problems in doctor-patient communication often concern the *amount* and *kind* of information provided, and also *how* this information is provided (Ley 1988). While patients are in need of information, they are often badly informed and at the same time experience difficulty in perceiving and understanding the information (Cuisinier et al. 1986). Information is important for patients in coping with cancer, because lack of knowledge about the disease, the course of the illness and the treatment adds stress and problems for the patient (Couzijn et al. 1990). Adequate information provided by the physician about the illness and its treatment is important for the well-being of the patient. However, at times, cancer patients can be confused and overwhelmed by emotions that they are unable to perceive the information properly. This places additional demands on the communication skills of the physician. Skilful, patient-centred information giving is directed at tuning the amount and kind of information to the needs of the patient; taking the patient's ability to understand into account.

Policy makers
The importance of adequate communication in medical care is not only stressed in the communication literature, but is also recognized in various recent governmental policy recommendations.
In 1990 the 'Raad voor Gezondheidsonderzoek' (Health Research Council of The Netherlands) published an advisory document entitled: 'Kwaliteit van zorg' (Quality of Care). In this report it was clearly stated that an adequate doctor-patient relationship and the readiness to inform patients properly are important quality characteristics in care (RGO 1990). In 1991 the 'Gezondheidsraad' (Health Council of the Netherlands) stressed the importance of doctor-patient communication in their report 'Medisch handelen op een tweesprong' (Medical behaviour at the crossroads). Their advice concerned the medical schools in particular, which should be aware of the necessity of paying more attention to adequate communication with the patient and his family (Gezondheidsraad 1991).

In 1993 the 'Nederlandse Patiënten/Consumenten Federatie NP/CF' (Dutch Patient/Consumers Federation) published a report 'Tijd voor patiënten' (Time for patients) (Malsch et al. 1993). This report was written in response to a report 'Kiezen en delen' (Choosing and sharing) by the government's Dunning

Committee, which was established in 1990 to advise on enhancement of the cost-effectiveness of medical care (Dunning 1991). The NP/CF concluded that the patient perspective was not sufficiently considered in this report, and therefore initiated a study on the needs and expectations of patients about health care. The results indicate that patients consider aspects of interpersonal communication most important in the doctor-patient relationship, in addition to equality and respect. Patients expect the doctor-patient relationship to be characterized by mutual trust and respect, the physician is expected to provide sufficient time and information, and should display openness and frankness. The top 10 required changes in establishing patient-centred health care include: the patient receiving more information and participating more meaningfully in decision making; more time and attention; more care and less technology; and the physician acquiring more social skills. Furthermore, the physician should not focus his attention solely on the medical problem, but treat the patient as a whole person.

The importance of doctor-patient communication is also recognized in recent Dutch legislation on medical treatment. In the 'Wet inzake de geneeskundige behandelingsovereenkomst (WGBO)' (Medical Treatment Contract Act) enacted in 1995, in which the relationship between the physician and the patient is described, the adequate personal treatment of patients takes a central position. Particularly emphasized in this law is the patient's right to be properly informed.

Finally, the importance of adequate doctor-patient communication in the medical care of cancer patients is clearly recognized by the Dutch Cancer Society which reserved extra funds in 1993, in addition to their regular budget for psychosocial oncology, for research focused on the 'quality of care'. In particular, this initiative is designed to encourage research on the relational aspects of communication with incurable cancer patients. The 'Wetenschappelijke Raad voor de Sociale Oncologie' (Scientific Council of Social Oncology) has expressed its intention to continue to finance research in this area from the regular budget in the coming years (WRSO 1996).

Other sources

Adequate doctor-patient communication is an important element of the quality of medical care. This is not only acknowledged in the governmental reports, but can also be observed in annual reports of hospitals and other organisations which deal with patient complaints about medical care. Data on patient complaints show that a substantial proportion of them concern information exchange and interpersonal communication. In a recent study of the 'Consumentenbond' (Dutch Consumer Organisation) among 820 patients of the *Health Care Consumers Panel*, it was found that, although only 7 percent of these patients had ever made a complaint

about medical care, 43 percent of these complaints concerned relational and communication problems (Andela 1995).

In The Netherlands, different organisations are available to deal with patient complaints. Straten et al. (1997) provide a detailed overview of these organisations as well as of figures on patient complaints. For example the *'Medisch Tuchtcollege'* (Medical Disciplinary Tribunal), receives currently more than 700 complaints per year, about 6 percent of which in the period 1983 to 1996 were concerned with relational problems and insufficient information (van der Wal 1996). Of the complaints that were registered in 1996 by the *'Nederlandse Patiënten Vereniging' (Dutch Patient Association)*, 5 percent concerned interpersonal relations. Of the more than 1300 complaints received annually by the *'Landelijk Informatiepunt voor Patiënten LIP' (National Patient Information Centre)*, about 14 percent are concerned with relational problems between the patient and the caregiver. The 26 *'Informatie- en Klachtenbureau's Gezondheidszorg' (Health Care Complaint and Information Office)* receive more than 5000 questions and complaints of patients about medical care per year. About 26 percent of the complaints is concerned with interpersonal communication (de Ruiter 1995). Finally, the hospitals themselves receive complaints from their patients too. Data on these complaints are not centrally registered, so it's difficult to provide an adequate overview of the proportion of complaints relating to communication. However, annual reports of individual hospitals generally reveal about 20 percent or more of the complaints received are concerned with relational and communication problems.

Another source which illustrates the importance of adequate medical communication is a study by Lens et al. (1994), who investigated disfunctioning among 2000 medical specialists in 21 hospitals in The Netherlands. They found that in a period of five years disfunctioning was observed among 93 (5%) of the specialists. The most frequently occurring type of disfunctioning was 'lack of social skills', which was observed in 17 percent of the disfunctioning specialists. The authors concluded that when communication with colleagues was included, lack of communication skills occurred in 40 percent of the disfunctioning physicians.

Also, from the side of the physician, it is recognized that communication is an important factor in the quality of care. A group of six general practitioners organized intervision sessions about their own mistakes and near-accidents in medical care (van Pelt-Termeer 1995). For almost a year the physicians discussed 40 cases in which mistakes in care had occurred. For each case, a detailed and systematic registration of factors that contributed to the incidents was made. Analyses of these records showed that problems in communication were among

the most important factors in mistakes and near-accidents. This factor occurred in more than 25 percent of the incidents.

Teaching communication skills in medical schools

The above-mentioned complaints by patients about interpersonal communication in medical care can possibly be largely prevented if physicians receive more training in communication skills in medical schools and during their period of residence.

In 1994 a commission initiated by the united medical schools published 'Raamplan 1994' (Blueprint 1994) in which requirements are described for the quality standards of the Dutch vocational medical training (Metz 1994). One chapter explicitly concerns the doctor-patient relationship and interpersonal communication. This chapter describes that, among other guidelines, the physician is expected to display interest in, and have an unprejudiced and understanding attitude of the patient, his situation and his 'lifeworld'. He is expected to take the patient's perspective into account, including the consequences of the disease for the patient and his relatives. Furthermore, the physician should aim at a reciprocal relationship, taking the preferences as well as needs and expectations of patients into account, and show discretion and empathy when informing patients. The eight medical schools in the Netherlands have adopted this report as a guideline for the development of their educational programs (Metz 1995).

As yet, education of communication training in medical schools is rather limited. Batelaan (1995) made a survey of the educational programs on communication skills for students, as included in the standard curricula in the eight medical schools in The Netherlands. This survey was an update of a survey previously made by Wouda (1992). Batelaan focused on practical courses in which students can practice their communication skills in small groups. She surveyed the six undergraduate years of medical education and found that on average 6.3 mornings or afternoons (range 3.3 to 10.2) per year is spent on practising communication skills. Based on a unit length of 2.75 hours this corresponds to on average 17 hours (range 9 to 28 hours) per year per university. For study years of 42 weeks, communication skills courses occupy 1.5 percent (range 0.8% to 2.4%) of the annual curriculum.

When comparing the findings of Batelaan (1995) with those of Wouda (1992), it appears that in four medical schools the amount of curriculum time spent on teaching communication skills in the six undergraduate years has increased by 50 percent. The University of Maastricht reduced the total number of hours by 12 percent between 1992 and 1995, but still spends the most time of all medical schools on communication training: about 28 hours per year. In the remaining three medical schools, the number of hours remained unchanged in this period.

This observation of limited curriculum time spent on training of communication

skills not only applies to the Dutch situation. Whitehouse (1991) reported that in British medical schools less than 2 percent curricular time is spent on formal communication skills training. They concluded that courses on communication skills are treated as a minor subject of a low significance within the curricula of medical schools (Whitehouse 1991, Frederikson et al. 1992).
During the residential years, when the physicians specialize in a particular medical discipline, the attention is even more sharply focused on acquiring specific medical and diagnostic skills at the expense of further development of communication skills (Moorhead et al. 1991, Roter et al. 1992, Orbell et al. 1993).

A need for postgraduate communication training

These data clearly illustrate the necessity of continuous efforts to enhance the quality of interpersonal communication. However, physicians are known to be sceptical of the behavioural sciences and reluctant to attend to courses on communication skills (Frederikson et al. 1992, Wagener 1995). They generally tend to be more attracted to the predictable scientific logic of the biomedical model, and tend to be reluctant to adopt a biopsychosocial model of medicine, which focuses on the patient's perspective and personal experiences (Bensing 1991). Medical specialists in particular tend to have a less patient-centred orientation than primary care physicians. Batenburg (1997) compared clerks and trainees of general practice and surgery of the Utrecht Medical School on their attitudes of patient-centredness. She found that clerks preferring general practice and general practice trainees showed more patient-centred attitudes than clerks preferring surgery and surgery trainees.
The difficulty of teaching communication skills in undergraduate medical education is clearly depicted by Erkelens in his recent Health Council speech (Erkelens 1997). From his own experience, he approves the central role of doctor-patient communication in adequate medical care. At the same time, he observes how medical students cleverly learn techniques in required courses, which they will hardly use in their clinical practice. This illustrates the relevance of continuous and deliberate efforts to remind physicians of the importance of adequate medical communication. Moreover, acquiring adequate skills in medical communication is a cyclic process of repeated learning efforts (Boshuizen et al. 1995). Postgraduate education is an effective way to refresh the earlier acquired skills and to develop new techniques.
Most of the conventional training in communication skills takes place in a group under supervision of an instructor. So, in order to follow a training program, some at least of the participant's mornings or afternoons are fixed. Hence, in spite of its generally brief character, conventional training programs are rather time-consuming. Following conventional training programs may interfere considerably with the busy schedule of a medical specialist. This time-demanding aspect may

very negatively influence the interest of physicians in a course on communication skills. A flexible training program can remove these objections.

Computer-Assisted Instruction

Providing education by means of computer-assisted instruction (CAI) offers learners flexibility in several ways. CAI has advantages over the more conventional forms of education, in particular due to its capacity to adjust to the learner (Hannafin 1988, Jonassen 1988). It puts the learner in control over his own learning process. Furthermore, CAI is a time-efficient learning method, which can be fitted more easily into a busy working schedule. Whereas a conventional course would require the participants to take days off, spend time on travelling, or adapt their daily program to pre-planned sessions; a CAI course can be followed at the workplace. CAI methods can enhance the access to learning, as it is flexible in its usage. The participant can follow the training program whenever it suits him personally since it is not fixed at particular times or places. Moreover, the participant can follow the training program individually and at his own pace.

Modern CAI programs have become dynamic learning tools. Due to the use of multi-media like text, pictures, sound and video, the course content of modern CAI applications can be presented in a lively and attractive way. Furthermore, the learner can play an active role by interactively controlling the presentation of the course content. In a CAI lesson, the learner is presented theory about communication skills and he can review illustrative video-examples of doctor-patient interactions. By means of interactive exercises, the learner can develop his mastery over the course content.

Aim of the study

In this study a new unconventional method of teaching communication skills to medical specialists was developed and evaluated. In medical education, CAI methods are being increasingly used in the biomedical area, but using CAI in the acquisition of social skills is almost without precedent. The study explores the potential of CAI to provide continuous medical education in communication skills for postgraduate physicians. The flexible characteristics of CAI make the training method particularly useful for medical specialists who, due to their occupational obligations, have limited opportunities to attend to postgraduate medical education programs.

The potential of CAI is evaluated by investigating the feasibility of the course as well as its effectiveness. The feasibility focuses on the learning behaviour of the physicians and their subjective evaluation of the content and educational method of the course program. The effectiveness is investigated by analysing three sources of information about the physicians' performance on communication skills before and after the course.

Overview of the chapters

Chapters 2, 3 and 4 provide a general background on three scientific areas which are related to this research project: communication skills, evaluation of educational programs, and computer-assisted instruction. More specific details relating to the design and content of the course and the set-up of the evaluation study are found in Chapters 5 and 6. The results of the study are presented in Chapters 7 and 8. Chapter 9 presents a general overview and discussion of the results.

In **Chapter 2** a general overview is presented of the theoretical concepts which relate to medical communication. The chapter focuses on the importance of adequate doctor-patient communication in cancer care, and more particularly, of a patient-centred approach towards communication. The patient-centred style focuses on the patient perspective, and providing support to the patient in dealing with his medical and psychosocial concerns. Furthermore, the patient-centred approach encourages the patient to participate actively in the interaction. As a result the patient can participate more meaningfully in the decision making process on the treatment and management of the disease.
In this chapter the performance of the patient-centred style is explained in three specific areas of communication which are relevant in cancer care: dealing with emotions, disclosure of emotionally disturbing information, and providing information.

CAI provides a new method of teaching communication skills. In the literature, no evaluation studies of this kind of course focusing on measuring behavioural changes among clinically experienced physicians could be located. However, several evaluation studies of conventional types of courses on communication skills for physicians have been carried out in the past decade. Conventional courses are group courses guided by an instructor, which generally consist of lectures, live or video models and role-play with simulation patients. **Chapter 3** provides an overview of these evaluation studies among clinically experienced physicians who have finished their undergraduate medical education. The review focuses on the training objectives (what is trained), the educational methods applied (how it is trained), the evaluation methodology (how effects are measured) and results (what effects were found). This review of evaluation studies of conventional methods provides a background for our evaluation study of the CAI training method.

In **Chapter 4** the characteristics and potentials of CAI as a teaching method are described. Since CAI provides an individualized self-motivated type of learning, the chapter focuses on motivational aspects of CAI. Furthermore, this chapter provides an overview of the educational methods which are applied in CAI for

teaching communication skills. These educational methods of CAI are compared with those of conventional training programs as described in **Chapter 3**. Finally, a brief review is presented of studies on the effectiveness of CAI. Evaluation studies of CAI courses on social skills are generally scarce. Only one study could be located in which the effects of CAI on communication behaviour of medical students was evaluated.

The development of Interact-Cancer is described in **Chapter 5**. In this chapter elements of Chapter 2 and 4 are brought together. Whereas Chapter 4 provides a basis for the instructional design of Interact-Cancer, the course content is based on the patient-centred approach described in Chapter 2. The course consists of four modules: basic skills, breaking bad-news, providing information, and dealing with emotions of patients respectively.

The research methods of the study are presented in **Chapter 6**. In this chapter are described the research questions and study design, applied measurement instruments and hypotheses. Further, the research procedures are described with regard to physician and patient recruitment and how measurements were performed. Two research questions were analysed in this study. The first question is concerned with the feasibility of Interact-Cancer, the second focuses on the course effects on the communication behaviour of the participating physicians.

In **Chapter 7** the results on the first research question about the feasibility of Interact-Cancer are presented. The feasibility of the course was investigated by analysing how the participating physicians used the course program, and what their opinion was about this kind of training in communication skills. Several characteristics of the learning behaviour of the participants are described. This provides insight into how the learners completed the course, in terms of session planning and time investment. Furthermore, the participants' subjective evaluation of the instructional design and content of the course is described in detail. This evaluation focused on a wide range of characteristics of both the educational methods as well as the individual modules of the course.

Chapter 8 presents the results of the second research question concerning the effectiveness of Interact-Cancer. Three sources of information were analysed to investigate the course effects of Interact-Cancer on the physicians' communication behaviour: 1) independent ratings of video recordings of consultations, 2) patient ratings of their satisfaction about the physician's communication, and 3) physician self-ratings about the interaction with the patient.

An overall discussion of the research findings and of the potential of CAI to provide continuous medical education in communication skills for medical specialists is presented in **Chapter 9**. The discussion focuses on the observation methodology which is applied to measure the patient-centredness of the physicians' communication behaviour. Furthermore, the measurement of patient and physician satisfaction about their interaction is viewed critically. Finally, the potential of CAI is considered from the perspective of course characteristics of CAI in relation to the preferences and motives of the learners.

2

Communication between physicians and (cancer) patients

Doctor-patient communication is as old as the medical profession itself. Communication is an inextricable part of the medical task of the physician. Through communication physician and patient inform each other about aspects of the disease. The medical interview enables the physician to elicit information about the onset, severity and course of the patient's problems and determine the contribution of psychosocial factors. Through communication patients get a better understanding of their problem and receive information on how to control it (Anderson et al. 1991).

The attention paid to research on doctor-patient communication has grown since the second half of the sixties, starting with the research of Korsch et al. (1968). Since that time much research has been directed towards describing and rating interview behaviours (Byrne et al. 1976, Roter 1977, Stiles 1978), analysing factors that determine the quality of communication (Greenwald et al. 1982, Maguire 1984, Waitzkin 1985, Hall et al. 1987, Ley 1988, Roter et al. 1988), and investigating the relationship between the physician's communication behaviour and outcome measures (Ben-Sira 1976, Comstock et al. 1982, Stewart 1984, Buller et al. 1987, Hall et al. 1988b, Bertakis et al. 1991).

Specific attention has been paid to communication with cancer patients for a longer period of time. Up to the seventies, this attention was mainly directed at the pros and cons of disclosing the diagnosis to cancer patients (Northouse et al.

1987). With the increasing autonomy of the patient and a decrease in paternalistic attitudes among physicians, this matter has developed in the direction of a policy in which honesty and frankness are taken as a starting point. Since the eighties, the focus in research has increasingly embraced the study of the role of different aspects of doctor-patient communication in the quality of care. The increasing complexity of treatments has made the importance of properly informing patients more vital. Also the idea has developed that communication is important in supporting the patient to deal with his life-crisis; accordingly doctor-patient communication may influence the patient's quality of life. Communication with cancer patients is not an easy task for physicians. They have to deal not only with complex physical problems, but also with a wide variety of psychosocial problems.
Different theoretical approaches are available for describing and analysing the process of doctor-patient communication. This chapter will start with the description of the two most prevalent theoretical approaches. Next, the patient-centred approach will be described in more detail, focusing on three elements in this approach. Finally, three topics in doctor-patient communication which are relevant in cancer care will be described. These are: dealing with emotions, providing information, and the disclosure of emotionally disturbing information.

2.1 Theories on doctor-patient communication

When describing doctor-patient communication, two dichotomies are often mentioned in the literature. One is the distinction between instrumental and affective behaviour, the other the distinction between doctor-centred and patient-centred communication (Ben-Sira 1980, Bensing 1991, Roter et al. 1992, Ong et al. 1995). These will be described briefly below.

2.1.1 Instrumental versus affective behaviour

The distinction between instrumental and affective behaviour originates in the work of Bales (1950). His 'interactional process analyses' described interactions in a simple way by focusing upon the exchange of various kinds of information as well as its related affective meanings like agreement, tension and solidarity. In the late seventies Ben-Sira related this basic idea to the medical consultation (Ben-Sira 1976). He defined the instrumental aspects of the behaviour of physicians as the *content* of behaviour, and the affective aspects as the *mode* of communicative behaviour. He considered affective behaviour to be an important addition to the physician's instrumental behaviour. It is the affective behaviour of the physician that makes the difference for the patients between being treated as a person rather than as a case. Affective behaviour is aimed at the reduction of anxiety in the patient, and it modulates the patient's evaluation of the physician's

instrumental behaviour (Ben-Sira 1980).

In the eighties Roter and Hall continued the use of the instrumental-affective distinction in analysing doctor-patient interactions (Hall et al. 1987, Roter et al. 1989). They define *instrumental or task behaviours* as 'technically based skills used in problem solving, which compose the base of expertness for which the physician is consulted' (Hall et al. 1987). They operationalized instrumental or task behaviour as: giving information about medical condition, therapy and procedures; counselling and advising about preventive behaviours; and asking for information, clarification and opinion (Hall et al. 1987, Roter et al. 1989). According to this description, instrumental behaviour is essentially verbal behaviour. *Affective or socio-emotional behaviour* may be expressed verbally as well as nonverbally. It is described as the expression of emotion through nonverbal cues, as well as verbal behaviours that are related to the interpersonal relationship (Hall et al. 1987, Roter et al. 1989). According to Roter and Hall (1989) all face-to-face behaviour carries affective content which may be transmitted at different levels. At the *intrinsic* level, the socio-emotional content of the verbal exchange is expressed explicitly. These exchanges consist of behaviours like friendliness, showing concern, giving reassurance, showing approval, showing empathy, giving support, and being open, honest, relaxed and encouraging. The *conveyed* level relates to the manner of expression through which verbal exchanges receive an implicit affective meaning. This implicit affective meaning is basically communicated through nonverbal behaviours like tone of speech, gestures and facial expressions.

Roter and Hall describe affective behaviour as somewhat unintentional behaviour, which simply is there, but which they nevertheless consider important in the establishment and maintenance of a positive interpersonal relationship between doctor and patient. In their definition, affective behaviour is not particularly directed at engaging in a discussion of psychosocial problems (Hall et al. 1987). This element is added by Bensing (1991). She also considers the purpose of affective behaviour to be the creation and maintenance of a good interpersonal relationship with the patient. According to Bensing (1991), affective behaviour includes also elements of maintaining a therapeutic relationship as described by Rogers (1951). Core conditions of the therapeutic relationship are *empathy*, the physician's ability to show the patient that he really understands the patient's problems; *respect*, the ability of physicians to accept their patients as they really are; and *warmth*, the degree to which physicians communicate a sense of caring for their patients.

Many patients with a chronic disease experience anxiety and uncertainty which needs explicit attention of the physician. Bensing (1991) states that 'when turning to the doctor the patient has two goals: the solution of an illness problem and the solution of an anxiety problem'. In her view, affective behaviour includes attentive, listening and emphatic behaviours and the ability of the physician to communicate concern, warmth and interest in the patient as a whole person. These behaviours

are essential for addressing to the psychosocial aspects of the health problem of the patient. Adequate affective behaviours give patients the feeling of being cared about, that the physician takes time for them, that he explains and listens, and that the physician is accessible when needed. In her research she found that non-verbal affective behaviour, in particular, is a basic requirement if patients are to feel that others care for them.

2.1.2 Doctor-centred versus patient-centred behaviour

Byrne and Long (1976) originally formulated the distinction between doctor-centred and patient-centred behaviour and defined it in terms of a 'power-shift' model. This model expresses their notion that the way a consultation proceeds (or should proceed) is directed not only by the doctor's special skills and knowledge but also by the patient's knowledge and experience. Both contribute to a balance of power between physician and patient. The doctor-centred style implies that the interaction is ruled mainly by the physician's medical skills and knowledge. Others label this style as disease-centred (Stewart 1991). In a patient-centred style, the interaction is influenced by the patient's personal knowledge and experience. A patient-centred style is characterized by 'sharing control' (Northouse 1987), striving towards an egalitarian relationship (Bensing 1991), or 'mutuality' (Roter et al. 1992).

Roter et al. (1992) describe the *doctor-centred style* as consisting of behaviours directed at meeting the physician's agenda. In their view, the physician's agenda is the gathering of sufficient information to test hypotheses in order to make a diagnosis and to recommend a treatment, and the need for a rapid and efficient visit. The doctor-centred style is biomedically oriented (Bensing 1991, Smith et al. 1991a). The physician controls the content of the interview, both by his initiation of new topics and by what he pays attention to and ignores in the patient's comments. The style is effective in maintaining the doctor's control of the visit, but is less effective in addressing patient's needs (Roter et al. 1992). Stewart (1991) describes her strongly related disease-centred style as consisting of behaviours that ignore the psychosocial aspects and focus on the purely medical aspects of the disease.

The *patient-centred style* is directed at enhancing patients' responsibility, autonomy and involvement in care (Smith et al. 1991a). It is the patient who leads in the succession and elaboration of subjects (Smith et al. 1991a). A patient-centred style implies non-coercive discourse based on norms of reciprocity rather than dominance and subordination. A patient-centred physician actively seeks the patient's point of view and behaves in a way that assists the patient in expressing himself, speaking openly and feeling free to ask questions (Stewart 1984). The patient-centred style is characterized by *humaneness*, which includes the expression of warmth, respect, kindness, willingness to listen, humility, empathy

and sensitivity, appropriate nonverbal behaviours and interpersonal skill (Hall et al. 1988a).

Patient-centred behaviour concentrates on the psychosocial aspects of the disease which includes patients' personal experiences, thoughts and feelings concerned with suffering a disease (Stewart et al. 1995). In the words of Mishler (1984), a patient-centred style is characterized by attending to the 'voice of lifeworld' which Mishler describes as recognizing the problems of patients within the context of their lifeworlds of meaning. The 'voice of the lifeworld' of patients represents their personal and social contexts of their problems (Mishler 1984). Attentiveness to the voice of the lifeworld is the recognition of the distinctive personal identity of patients and respect for the contextual grounding of their problems in their lifeworlds. This notion of the relevance of the personal and social context is also described by Smith et al. (1991a) who state that the patient-centred style is directed at eliciting the biopsychosocial story of the patient. The biopsychosocial story represents the interaction between the biological, psychological and social components of the patient's life; a view originally formulated by Engel (1980).

Byrne and Long's description of the patient-centred style depends on the stage of the consultation (Byrne et al. 1976). In the diagnostic phase, which is characterized by the physician asking for information from the patient, the style is characterized by listening, reflecting, clarifying, interpreting and silence. In the prescribing phase, when the physician is providing information and making decisions, the style is characterized by giving information, answering patient questions, seeking and using patient ideas, summarizing and pre-directional probing. The common element in the behaviour of the physician in both stages is the focus on the needs of the patient.

Adopting the patient-centred style does not mean that it should fully replace the doctor-centred style of communication. The doctor-centred style is required for the definitive categorization of most organic diseases and for decisions about disease probability and diagnostic procedures (Smith et al. 1991a). That physicians develop a doctor-centred style is more or less a natural consequence of medical education. While talking with patients about their medical condition, physicians develop diagnostical hypotheses which have to be tested. This leads to a style of communication consisting of short checks of hypotheses often formulated in closed-ended questions. Learning the patient-centred style is more like relearning to talk with patients. It has been noted that medical students do a better job of talking with their patients than fully trained doctors do (Roter et al. 1992). As students' medical education progresses, the science of medicine replaces its human dimension and students find it harder simply to talk with their patients (Helfer 1970, Roter et al. 1992).

Both styles are complementary. Byrne and Long (1976) noticed that doctors shift

between styles within and between consultations. The patient leads in areas where he is the expert (symptoms, concerns, preferences), the physician leads in his domain of expertise (diagnosis and treatment) (Smith et al. 1991a). This shift in input of both parties is best described as mutuality (Roter et al. 1992). Mutuality is achieved by the establishment of an atmosphere in which patient's contributions are appropriate and appreciated. The physician ascertains the patient's goals and expectations. He educates the patient about the nature of his problem, discussing the pros and cons of alternative evaluation and treatment approaches. The physician not only presents, but also explains recommendations and elicits the patient suggestions and preferences. He is open to negotiation of disagreements (Brody 1980, Roter et al. 1992).

2.1.3 Relationship between both perspectives

Since both dimensions described are theoretical models of describing doctor-patient communication, the question arises as to the ways in which both dimensions have similarities as well as differences. The similarities will be explained first.

Initially, doctor-centred behaviour has some correspondence with instrumental behaviour; and patient-centred behaviour has some correspondence with affective behaviour. This can be understood as follows. A physician with a doctor-centred style, determines himself to a large degree which topics will be discussed during the consultation, so he takes decisions without involving the patient. Because physicians are primarily biomedically oriented, a doctor-centred style basically implies instrumental behaviour: solving the medical problem. Bensing (1991) connects this behaviour to one of the needs of the patients described by Engel (White 1988); their need to know and understand. The physician answers this need by providing information, explanation and clarification.

A patient-centred style on the other hand, implies being open to patient's problems and concerns, showing interest and being attentive to the patient's lifeworld, and involving the patient in medical decision making. As a result, the patient has more influence on the content of the consultation and is encouraged to express himself more, not only about purely medical subjects, but also about related psychosocial subjects and subjective experiences. Patients are not primarily interested in the biomedical aspects of the disease, but rather in its personal consequences, like the effects of the disease and its treatment on daily life, as well as its emotional significance. In fact, again in the words of Engel, the physician has to meet a second need of patients; their need to feel known and understood (White 1988). Consequently, in a patient-centred consultation, attention is not only directed at the medical problem, but also at the emotional problem. From this perspective, affective behaviour becomes increasingly important, especially as regards the meaning Bensing (1991) has attributed to it. In fact, when comparing the

descriptions of affective and patient-centred behaviour many similarities are found. Both contain elements of humanity, respect, empathy, and sensitivity and establishing a good interpersonal relationship.

However, both dimensions should not be regarded as different approaches deriving from the same distinction in types of communication behaviour. Instrumental behaviour should not be linked solely to doctor-centred behaviour, nor should affective behaviour be regarded as the equivalent of patient-centred behaviour. Instrumental behaviour can be performed in a doctor-centred as well as a patient-centred style. For example, when information about biomedical topics (instrumental) is provided in a doctor-centred way, the physician will speak in a monologue, paying little attention to whether the patient is able to grasp and understand the information. When the physician provides this information in a patient-centred way, he will use a different manner in which he pays more attention to the individual needs of the patient he is talking to. The information exchange will have more the character of a dialogue.
A distinction can also be made regarding affective behaviour between a doctor-centred and a patient-centred orientation. A physician who pays only brief and superficial attention to the socio-emotional problems of the patient, can be regarded as having a more doctor-centred style. Patient-centred affective behaviour implies trying to get truly involved with the individual perspective of the patient. This requires asking the patient about his personal experiences, giving him room to freely express himself about his own experiences and being supportive and showing concern.

2.1.4 Selection of a model

In this study the distinction between patient- and doctor-centred behaviour is taken as a starting point, stressing the importance of physicians developing a patient-centred style of communication. The patient-centred approach aims to teach physicians to be sensitive to the needs of the patient and to communicate with the patient, not only from the medical perspective, but also from the perspective of the patient. It is generally regarded important for physicians to learn to take the psychosocial perspectives of their patients into account (Roter et al. 1992, Stewart et al. 1995). This implies teaching them a patient-centred style of communication. In this respect, the patient- versus doctor-centred distinction is more comprehensive than the instrumental-affective distinction. Whereas the instrumental-affective distinction represents a more neutral description of types of communication behaviour, the patient-centred approach does reflect a fundamental philosophy about what a good doctor-patient interaction should be like, and how a good interaction can be established. Definitions of adequate instrumental and affective behaviours can be derived from this primary notion. The

patient-centred model is valuable because the model is explicit about the behaviour of an effective doctor and it provides a vocabulary and a focus for teaching and learning (Stewart et al. 1995). From this model distinct criteria can be derived, which can be used in the judgement of the doctor-patient interaction. What a patient-centred style of communication is like and why it is so important, is described in the following sections.

2.2 The patient-centred approach

Central in the patient-centred approach is the awareness of a distinction between the physician's biomedical perspective and the patient's psychosocial perspective on the problem of the patient. Generally, in medicine the biomedical perspective dominates whereas attention paid to the psychosocial aspects of the disease is often limited. Patients need more than a scientific biomedical formulation and treatment of their problem. They generally want to feel understood and valued and to be involved in making sense of their health problems. Many also want to be involved in decisions on disease management (Stewart et al. 1995). Patient-centred medicine is directed at integrating the physician's biomedical understanding of disease with each patient's unique experience of illness (Stewart et al. 1995). In the words of Mishler (1984): doctors should give priority to "patients' lifeworld contexts of meaning as the basis for understanding, diagnosing and treating their problems". Patients are looking for cure (solving the health problem) as well as care (solving the emotional problem) (Bensing 1991).
The patient-centred approach is especially relevant in the case of chronic diseases (Moorhead et al. 1991). Chronic diseases are accompanied with a high amount of emotional problems, because they have a bad prognosis, interfere with daily living and have debilitating symptoms. Moreover, physicians are often very limited in what they can do about a patient's chronic disease. Paying attention to the patient's personal experience of the disease, may help the patient to cope more adequately. The physician may help the patient by alleviating fears, correcting misconceptions, encouraging the patient to discuss his discouragement, or simply by 'being there' and caring what happens to him (Stewart et al. 1995). Caring implies that the physician is fully present and engaged with the patient. Care is a matter of recognizing that every patient is different (Stewart et al. 1995). Engagement with the patient's perspective implies addressing different aspects of patients' experiences like their ideas about what is wrong with them, their feelings and fears about being ill, the impact of their problems on their functioning, and their expectations (Stewart et al. 1995). When physicians address these aspects, patients may become more satisfied and the doctor-patient interaction may become more effective and of a better quality.

The following sections will go into three aspects of the patient-centred approach.
1. The patient perspective is the starting point for adequate doctor-patient interaction. Since cancer patients are the target group of our research, common psychosocial experiences of patients will be described in relation to different phases in the disease process of cancer.
2. Sharing of power and control is an important prerequisite to get the patient-perspective to the front in the interaction. It is not self-evident that patients and physicians do have equal control over their interaction. Many patients take submissive positions and are reluctant to speak about the things that bother them.
3. Supportive communication is a target of the patient-centred style. It implies helping patients to cope with their emotions and insecurities and helping them to deal with their psychosocial problems which are triggered by their disease.

2.2.1 The illness experience of cancer patients

In the Netherlands, an extensive study of the psychosocial problems cancer patients experience has been performed by Schrameijer and Brunenberg (1992). They found in their study group of 188 patients that the majority (87%) of the patients suffer psychological problems, deriving especially from the threat to life, as well as physical problems (60%) like fatigue and pain. Almost half (48%) of the patients appeared to suffer relational problems. A smaller proportion (20%) reported practical and financial problems.
Suffering from cancer is surrounded with a great deal of insecurity. Having cancer puts enormous psychological strain on the patient and this is nourished by several characteristics of the disease. The cause of many kinds of cancer is still unknown. Moreover, the course of the disease process is often unpredictable, the treatment often very burdensome and the outcome uncertain. Although advances have been achieved in the treatment of cancer, it is a disease which (still) can not be treated easily. More than half of the patients (women 50%, men 66%) with cancer die within 5 years of diagnosis (Schrameijer et al. 1992).
Schrameijer and Brunenberg (1992) describe the problems cancer patients experience within the context of four phases in the disease process (derived from Weisman 1979 and Winnubst et al. 1987). In each phase of the disease the patient experiences moments of suffering and existential problems. Patients suffer many insecurities, especially about the future.
In the *first phase*, which involves diagnosis and treatment, most patients experience an existential crisis because of the association of cancer with death (Couzijn et al. 1990). In this phase, relatively little is known about the severity of the disease and how the patient will bear the forthcoming treatment. The patient experiences moments of uncertainty which alternate with moments of hope. As the cause of cancer is unknown, some patients blame themselves in an attempt to answer this question about causality. Further, many patients suffer social

problems, as a consequence of not being able to fulfil various social roles and because of an increased dependency on others. Often patients experience a loss of self-esteem, partly due to decreased social respect, formerly experienced in the fulfilment of social roles, and partly due to a distortion of the body image. Many patients suffer a feeling of loss of control and experience a diminished influence over their own lives.

The *second phase* is characterized by a decrease of the intensity of care, due to the completion of the initial treatment, possibly accompanied by discharge from hospital. Patients have to become more self-reliant again. In the meantime the prognosis has become more clear. The troubles patients experience in this phase are mainly determined by the expected prognosis, by (side)effects of the treatment and by the extent to which the patient suffers pain. In general patients feel, relatively speaking, most optimistic in this phase, but still the feeling of insecurity in respect of the future remains. Sometimes it can take years before this insecurity disappears into the background and becomes relatively less important. Even as much as three years after treatment, many cancer patients experience a diminished feeling of control, have more worries about their health and feel insecure about the disease (Schrameijer et al. 1992).

The disease process enters the *third phase*, when the treatment appears to be ineffective or the disease starts again. This reconfrontation with the disease again causes an emotional crisis, comparable with the first phase. Sometimes patients are able to cope better with this crisis, due to being more prepared. Sometimes however, the reconfrontation may hit the patient even harder due to a lowered mental resistance in the struggle with the previous episode. The patient as well as his relatives may feel that hope has dissipated.

When the disease appears to be incurable, the disease process enters the *fourth phase*. This phase is characterized by mentally preparing oneself for the forthcoming death. Patients often experience anticipatory grief (Couzijn et al. 1990). The patient not only fears the approaching end of his life; the loss of bodily functions and loss of autonomy are also prospects to be feared. Often it is not the fear of death itself that is most burdensome, many patients worry most about the wellbeing of their partner and children (Cook Gotay 1984, Holland 1989). Beside that, it is the fear of possible suffering which becomes more prevalent. In this phase many patients suffer more pain than before. They may increasingly think about suicide but the actual bringing this into practice hardly occurs.

In any phase of the disease process many cancer patients experience social problems (Dunkel-Schetter 1984, Schrameijer et al. 1992). People in their environment show defensive reactions due to being afraid of the disease. Many try to avoid contact with cancer and as a consequence with the patients who suffer the disease. Cancer patients often experience social isolation. Further, those

contacts that do exist are not always satisfying, since many people do not know how to behave towards cancer patients. People often concentrate on positive talk, to distract the patient from thinking about his negative situation (Dunkel-Schetter et al. 1982). In so doing they erect a barrier to serious talk. Although cancer patients often feel the need to discuss their situation with others, they are often reluctant to be open-hearted. This reluctancy is motivated by the fear of stigmatization and increases when the prognosis deteriorates (Northouse et al. 1987).

As it appears, cancer is not only a serious physical disease, it is also related to a broad range of psychosocial problems. These problems are an inseparable part of the disease like all other physical consequences and discomforts of the disease and its treatment (Ben-Sira 1980, Bannink 1990). However, the psychosocial problems associated with cancer do not always receive sufficient attention from the physician. The unequal position of patient and physician in the interaction is an underlying factor in this, as will be explained in the following paragraph.

2.2.2 Sharing power and control

In their interaction, doctors and patients often do not have equal positions. Physicians often take a dominant role in leading the patient through the consultation, whereas patients are inclined to take submissive roles. This pattern is regarded as the traditional form of doctor-patient relationship, and is still seen as the most common one (Roter et al. 1992). A consequence of this division of roles is illustrated by a study of Tuckett et al. (1985, cited in Roter et al. 1992) who found that during medical consultations, 75% of the patients did not ask the questions they initially intended to ask. Apparently, patients are reluctant to speak and to express their thoughts and worries (Vess et al. 1988). When patient and physician have relatively equal positions in their interaction, the psychosocial frame of reference of the patient may get as much attention as the biomedical frame of reference of the physician. Therefore, the sharing of power and control is an essential element of the patient-centred approach. Furthermore, by activating the patient the physician helps him to develop an increased sense of competence and confidence in examining one's expectations, preferences, and perspectives. This allows the patient to participate more meaningfully in the decision making process for treatment and disease management (Roter 1997).

Several reasons may contribute to why patients take submissive roles in the interaction with their physician (McIntosh 1974, Buller et al. 1987). Some patients do not talk about everything that bothers them because they are afraid to talk about certain topics or to have some feared expectations confirmed, as a result of their heightened anxiety and uncertainty about prognosis and treatment (Vess et al. 1988). Further, patients may experience barriers between themselves and the physician because the latter is too busy and is perceived to be socially distant.

Many patients look up to their physician and think that he expects a submissive role. Physicians may even deliberately behave in a way that causes these barriers, to discourage patients from asking too much questions. Further, patients do not want to complain, or be a nuisance. Finally, while patients often have a limited understanding of medical problems and treatments, they have a desire not to expose their ignorance of medical matters. So many patients are reluctant to ask questions for fear of being perceived as ignorant or as wasting the doctor's time (Street 1991).
Physicians do not take this submissive attitude of patients into account. If patients have questions, doctors expect that patients will ask them (Roter et al. 1992). However, passive, dependent patients do not always express their opinions to their physician if he does not explicitly ask them to do so, or if he does not show enough interest by means of an open, inviting attitude. As a result, some important topics might be left unspoken and some of the needs or interests of the patient do not get any attention (Goldberg et al. 1980).

A physician can help the patient to overcome his reluctance and stimulate him to take a more active role in the interaction by taking a less dominant position, and by creating a more open, inviting atmosphere. Establishing a *good interpersonal relationship* is regarded as a prerequisite for optimal medical care (Irwin et al. 1989, Bensing 1991, Roter et al. 1992, Ong et al. 1995). Irwin et al. (1989) define a good interpersonal relationship between patient and physician as an effective working relationship in which there is mutual trust. A positive interpersonal relationship can be established through an affiliative style of communication which includes behaviours like communicating interest, friendliness, empathy, a non-judgemental attitude, and a social orientation (Buller et al. 1987). A positive doctor-patient interaction is facilitated when the physician is aware of the affective or emotional state of the patient and is capable of communicating his concern, interest, support, and understanding. Many patients consider this, as well as kindness, sympathy and encouragement as highly relevant doctor characteristics (Méndez et al. 1986).
Besides inviting and encouraging patients implicitly by creating an open atmosphere, physicians should also encourage them more explicitly to express themselves and say what is really bothering them (Cuisinier et al. 1986). Behaviours of physicians that have an 'activating' effect on the patient are the so called *partnership building behaviours* (Street 1991). These behaviours are directed at trying to elevate the patient's status within the relationship, and to increase the likelihood of patient participation (Hall et al. 1988b). Roter et al. (1992) define these behaviours as: asking for patients' opinion, for understanding, and for suggestions, requesting questions, seeking patients' ideas, making interpretations, reflecting patients' statements, facilitating patients' response and

making acknowledgement. Partnership building is related to taking into account the individual frames of reference of patients (Cuisinier et al. 1986). It reflects the willingness of the physician to allow the patient greater control over the topics of the consultation and over the decisions reached (Street 1991).

2.2.3 Supportive communication

As described in the previous paragraph, being confronted with cancer is accompanied by feelings of anxiety and insecurity. Patients are confronted with the problem of how to cope with the disease. An important coping strategy is seeking support of others; relatives, friends, caregivers and other patients (Dunkel-Schetter 1982, Cuisinier et al. 1986, de Ridder et al. 1996). Social support has been extensively studied over the past twenty years. It has gained a prominent position in research on the well-being of patients suffering from chronic diseases (de Ridder et al. 1996). This is not the right place to go into the many theoretical discussions which can be found in the literature about the kinds of social support and its effectiveness (Wortman 1984, Dunkel-Schetter 1984, Thoits 1986, Cutrona et al. 1990, Ros et al. 1992). Instead, a brief overview will be presented of the general characteristics and functions of social support and the link with communication behaviour.

Generally, receiving social support is considered to be beneficial in coping with stressful events (Albrecht et al. 1984, Irwin et al. 1988, de Ridder et al. 1996). Patients who receive more socio-emotional support are found to be less psychologically distressed (Irwin et al. 1988). Social support augments the repertoire of coping behaviours and helps the patient to adapt to the situation and may correct non-adequate reactions (Komproe et al. 1995). Since having cancer is a stressful experience, it is expected that social support is beneficial in coping with the disease.

In the literature, various distinctions can be found between different types of social support. A popular distinction is between informational, emotional, instrumental or material, and appraisal support (House et al. 1985, Albrecht et al. 1987). Various authors have divided these types into two broad categories: problem focused support and emotion focused support (Albrecht et al. 1984, Thoits 1986, Cutrona et al. 1990, Cutrona et al. 1994).

Problem focused support is directed at solving or eliminating the problem that is causing the distress and increasing the recipient's sense of mastery or personal control over his situation. *Emotion focused support* encompasses efforts to comfort or console, without direct efforts to solve the problem causing the stress. The first category includes informational and instrumental support, the second includes emotional and appraisal support.

Cutrona (1990) proposes that problem focused support is more effective in case of a controllable stressful event, while emotion focused support is optimally beneficial

in the context of uncontrollable events. Since suffering a chronic disease implies both relatively uncontrollable aspects, like prognosis, as well as relatively controllable aspects like pain, caution should be exercised in stating that one kind of support is more important than the other. The ability to control the situation may also depend on the stage of the disease. In the first phase, when a lot of arrangements have to be made, problem focused support may be relatively more important. In later stages, emotional support may become relatively more important. In general, both kinds of support are equally important in providing optimal care.

Social support is a process inextricably woven into communication behaviour. Communication is a central mechanism through which support is conveyed (Albrecht et al. 1987, Giles et al. 1991, Burleson et al. 1994). In the case of interaction with patients suffering from a chronic disease, good communication is supportive communication. Albrecht et al. (1987) define social support as a process that 'refers to verbal and nonverbal communication between recipients and providers that reduces uncertainty about the situation, the self, the other, or the relationship, and functions to enhance a perception of personal control in one's life experience'. According to Albrecht et al. (1984) supportive communication behaviour serves several functions. First of all it may serve to meet the recipient's need to vent feelings and for reassurance. Further, it may reduce uncertainty, provide resources and companionship, and aid in mental and physical recovery. Finally, it may increase the patient's combativeness. Social support tends to assist patients in recovery from illness in three broad ways, including: assistance with physical rehabilitation, social role rebuilding and socio-emotional improvement (Albrecht et al. 1984).

The question arises what communicative behaviours can be characterized as supportive. The functions of supportive messages can be both problem or emotion oriented. *Problem oriented supportive communication* is established through providing the patient information about his situation, about possible interventions to combat the disease, and about future expectations. *Emotion oriented supportive communication* is directed at providing confirmation of the patient's self-concept, offering of acceptance and reassurance, establishing mutual trust, showing concern. One basic aspect of emotion oriented social support is simply 'being there', not only as a doctor, but also as a human being (Cuisinier et al. 1986). This basically gives the patient the feeling that he is not alone and a feeling of acceptance and assurance. 'Being there' also means encouraging the patient to say what is really bothering him, and allowing him to relieve internal pressures. Providers offer support when they act as catalysts by enabling recipients to ventilate about their stressors, thus offering indirect help with easing initial states of uncertainty (Albrecht et al. 1987). This kind of support is established through

emphatic behaviours. Listening, showing concern, offering sympathy and allowing patients to move from one topic to another until all their frustrations have passed, are behaviours of importance here. Providers who are active listeners enable the patient to articulate their problems and uncertainties. This mere opportunity to express themselves may reduce patients' uncertainty and increase their sense of control because their worries become more crystallized and shared entities. Facing the worries more objectively is a first step in resolving the troubles. Verbalizing personal concerns during a time of stress can help clarify feelings, to develop strategies for managing them more effectively, and to begin active problem-solving (Wortman 1984, Albrecht et al. 1987).

The physician as provider of support

Social support is communicated by various resources like spouses, relatives, friends and various professional caregivers. Often a distinction between types of resources is made in terms of social networks (Albrecht et al. 1987, Janssen 1992). Different resources may be of different importance to the patient. Relatives and friends are expected to provide support for the patient in coming to terms with the disease. However they are not always able to do so since they are, like the patient, confronted with a whole range of adaptive tasks (de Ridder et al. 1996). It has been reported that cancer patients often lack the support of the people in their environment (Dunkel-Schetter et al. 1982, Cuisinier et al. 1986). Many patients do not have anybody else with whom they can discuss their emotional problems. Other people in the environment of the patient are not always very understanding of the emotional suffering of the patient and may not always be able to support the patient. Due to their struggle with their own emotional response they may feel entirely helpless and incompetent (Ben-Sira 1984). Reactions of important others towards the patient are determined by negative feelings about the patient's illness and a belief that a positive and optimistic interaction with the patient is appropriate. This contradiction may result in avoiding open communication or even physically avoiding the patient (Dunkel-Schetter et al. 1982). Vess et al. (1988) found that even communication with spouses changes depending on the outlook. When the medical information about the illness is positive and the outlook is optimistic patients openly encourage and engage in discussions with their spouses. However when information is negative, the spouses become more worried and communication is reduced.

In general, effective supporters are those who share a context with the patient and have a certain credibility and status (Albrecht et al. 1984, 1987). The physician is an important provider of social support because he is fully aware of and informed about the patient's condition and is expected to have effective tools to handle the disease. In fact, chronically ill patients conceive of physicians as the most important resource of support (Ben-Sira 1984). The patient largely expects the

resolution of his emotional problem from the physician since his stressful experience is to a great extent determined by his perception of the seriousness of his condition and prognosis (Ben-Sira 1984).

2.3 Medical communication in cancer care

In this section three topics in doctor-patient communication which are relevant in cancer care will be discussed. These topics will be described from the perspective of patient-centred communication, implying taking into account the psychosocial perspective of the patient, sharing power and control, and being supportive.

1. Dealing with emotions. When taking the psychosocial perspectives of patients into account, physicians have to pay attention to emotions of their patients. Although having cancer is a highly emotional affair, emotional matters are hardly ever discussed.

2. Providing information. Information is important for patients, since information is their basis for knowing and understanding their situation. Information helps patients in coping with their disease, in reducing their insecurities. Being well-informed is also a basis for sharing power and control.

3. Disclosure of emotionally disturbing information. In cancer care physicians often have to provide bad news to their patients. Not only the diagnosis, but also disappointing results of the treatment or the declining condition of the patient are frequent topics of bad-news conversations. Often it is difficult for physicians to provide the patient this kind of information.

2.3.1 Dealing with emotions

Cancer patients experience emotional problems, which are an inseparable part of their disease. Their emotions and their sorrow have become their daily reality. Physicians however often consider the emotional disturbances of patients as a secondary problem, which will alleviate with an effective treatment of the physical disturbance. Their attention is primarily directed at the physical problem, thereby neglecting the emotional problems of the patient to a great extent. Paying more attention to the patient's emotional experiences enhances the patient's feeling of being supported, which in turn may help the patient to cope better with the disease and enhance his wellbeing.

The emotional crisis many patients experience after being diagnosed as suffering from cancer, often shows various degrees of denial, anger and aggression (Couzijn et al. 1990). Most patients also experience periods of anxiety, depression, helplessness, relationship difficulties and cognitive impairments at some time during the course of their illness (Fallowfield 1991). Further, cancer patients often

experience a feeling of threat to their self-esteem, loss of control and uncertainty (Cuisinier et al. 1986). Common fears experienced by many cancer patients are: fear of pain, of recurrence, of progressive deterioration, of dependency on others and death (Dunkel-Schetter et al. 1982). These negative feelings may be triggered by the awareness of having cancer, as well as by the treatment which often has aversive side effects.
Denial is a common reaction of patients in coping with cancer. However, patients do not constantly deny their situation during the illness; periods of denial alternate with periods of acceptance (Vess et al. 1988). It has been reported that 25% to 47% of cancer patients show a mixed profile, fluctuating between varying degrees of acceptance and denial over a six month period (Cuisinier et al. 1986, Brock et al. 1993).
Patients may widely differ in the period they suffer emotional distress. According to Couzijn et al. (1990) the emotional crisis may last from a few days up to several months. They found that generally the period of three months after diagnosis is considered to be the most distressing. Their estimation of psychologic morbidity in the diagnostic phase of cancer is 20% to 33%.

In dealing with their emotions, it is helpful for patients if they can express their emotions towards others like family members, caregivers or other patients. When patients with serious physical illness become anxious or depressed, they tend to feel that they are the only ones who are not coping. They may feel guilty and ashamed at their 'inadequacy' or 'weakness', and be afraid to mention that they find it difficult to cope (Maguire 1984). Venting their feelings towards others leads to a relief of the emotional tensions and anxieties (Albrecht et al. 1987). Further, discussing their feelings with others allows patients to receive feedback about the meaning and appropriateness of their feelings and that their reactions are common and normal (Dunkel-Schetter et al. 1982, Northouse et al. 1987). Being valued by others enhances the self-esteem of patients (Northouse et al. 1987).
However, disclosure is often a problem for patients because they fear that other people may avoid talking to them or may not want to engage in honest and open communication (Northouse et al. 1987). Since many people in the environment of the patient avoid speaking openly with the patient about his situation, also patients themselves avoid to speak openly and to express their feelings towards others. Patients fear that an open discussion of their feelings will upset others and they may believe that it is inappropriate to express their feelings or concerns to others (Dunkel-Schetter et al. 1982). Although patients regard their physician as an important provider of support, they are even reluctant to share their feelings with him, because they often perceive him to be more interested in biomedical problems than in personal problems (Dunkel-Schetter et al. 1982, Northouse et al. 1987).

Indeed, physicians do not always sufficiently attend to the psychosocial needs and problems of their patients. Cuisinier et al. (1986) report a study among general practitioners in which was found that whereas the physicians recognized psychosocial problems among half of their patients, in half of the cases they were not discussed with the patient. Physicians are reluctant to explore psychological and social factors which are relevant in the disease process of the patient (Maguire et al. 1976, Cuisinier et al. 1986, Fallowfield 1991, Ford et al. 1996). According to Ben-Sira (1984): professional emotional support for alleviating the individual's distress, particularly from a physician, is the most sought after and least attainable.
Several reasons may contribute to this lack of attention. Many physicians think that addressing to patients' psychosocial issues is time-consuming and likely to overwhelm a tight schedule (Roter et al. 1997). Sometimes doctors fail to pick up the psychosocial suffering because they lack the skills necessary for effective communication. Sometimes doctors avoid too much involvement with their patients' distress, and use distancing tactics out of a fear of losing their own emotional balance. Some doctors consider psychological issues not part of their responsibility (Fallowfield 1991). Physicians often consider the emotional problem secondary to the physical problem, assuming that the therapeutic success of the physical disturbance would concomitantly also alleviate the emotional disturbance, thus viewing affective behaviour as either an ineffective therapeutic tool, or altogether superfluous (Ben-Sira 1984).
Other factors that contribute to the reluctance of physicians to cover the possibility that patients have psychological or social problems are summarized by Maguire (1984). First of all, Maguire reports that physicians generally assume that patients who develop problems would tell their physicians at their own initiative. Further, physicians do not accept responsibility for eliciting these problems; they feel they don't have the time and they fear they might be faced with problems they cannot deal with. Finally, probing patients' emotional responses to serious illness is avoided because it brings the physician close to suffering and the real impact of illness and treatment. Physicians are not always emotionally able to deal with life-threatening conditions of their patients. Discussing emotionally laden psychosocial problems inhibits them in determining the form, content and timing of communication as objectively as possible (Greenwald et al. 1982).

Dealing with emotions of patients does not mean that the physician should be able to offer the patient some kind of psychological therapy, that would definitely go beyond his task. Signalling the moods of patients and paying active attention to them offers the patient the social support he needs in his vulnerable situation. At times it is important for the physician to pay attention to the information the patient can provide about thoughts, feelings, worries and social circumstances (Fallowfield

1991). In encouraging the patient to express himself, it is important for the physician to listen and express care and concern. In a more open atmosphere, patients become less reluctant to talk about their feelings. Physicians can then help patients to regain more control over their situation and feelings. Allowing patients to disclose their feelings plays a pivotal role in helping individuals adjust to cancer and other life crises (Northouse et al. 1987). Effective communication alleviates anxiety and results in improved care (Vess et al. 1988).
When they allow patients to disclose their feelings, physicians can pay more attention to the emotional response, and give feedback which increases patients' feelings that their response to cancer is normal (Northouse et al. 1987). Allowing patients to express their concerns, acknowledging these concerns and acting as a sounding board helps patients to interpret and manage their experiences (Dunkel-Schetter et al. 1982). It enhances problem solving and allows patients to view their circumstances from a more meaningful perspective.
Besides allowing patients to disclose their feelings, patients can also regain a sense of control if physicians inform them properly about their circumstances. Many anxieties and uncertainties are induced by a lack of knowledge (Molleman et al. 1984, Cuisinier et al. 1986, Northouse et al. 1987, Ros 1990). Information has a positive impact on the patient's sense of control and responses to the illness. It may prevent the patient from developing unnecessary worries and reduce the uncertainties and anxieties of the patients (Molleman et al. 1984). Well informed patients are reported to experience fewer periods of anxiety and depression as well as less pain and complications in their disease process (Cuisinier et al. 1986). Information is generally beneficial because it gives patients a framework in which to interpret and clarify life threatening events.

2.3.2 Providing information

Providing information is an important aspect of every medical consultation (Inui et al. 1985, Waitzkin 1985, Roter et al. 1988, Street 1991). Providing information often takes up much of the time a physician spends with cancer patients during a consultation (Northouse et al. 1987). Roter et al. (1988) found in their meta-analyses that 35.3% of all interactions of the physician involved providing information, making it the most frequent kind of exchange. Being well informed is very important for cancer patients. However the literature shows that patients often are not satisfied about the information they get from their physicians. Several factors from the physician's side as well as from the patient's side may contribute to this. This, and how the provision of information can be improved, is described in this section.

Cancer patients are in great need of information about the different aspects of the disease process (Cuisinier et al. 1986, Gautam et al. 1987, Blanchard et al. 1988,

Woodard 1992). Lind et al. (1989) reported that 80% of the patients in their study believed that physicians should tell them everything. The other 20% believed that they should be told as much as necessary (Peteet et al. 1991).
Cancer, with its often precarious prognosis, unpredictable course, and invasive treatments generates uncertainties and fears which result in an increased need for clarification (Dunkel-Schetter et al. 1982, Molleman et al. 1984). Badly informed patients feel more insecure and have more unrealistic anxieties (McIntosh 1974, Cassileth et al. 1980, Molleman et al. 1984, Sardell et al. 1993). Providing information to the patient is an important factor for the wellbeing of the patient. For cancer patients the exchange of information is highly important because it is one of their main sources of information about changes in their health status (Street 1991). Information may reduce uncertainty, alleviate concerns and has been reported to improve health (Molleman et al. 1984, Cuisinier et al. 1986, Northouse et al. 1987). Information reduces uncertainty by giving patients a framework in which to interpret and clarify the emotionally disturbing event. Information helps patients to regain a sense of control over circumstances surrounding the disease (Northouse et al. 1987). It helps patients to cope with their crisis response to the diagnosis, to adjust to symptoms and treatment, and to develop skills, knowledge and attitudes to regain health status (Cuisinier et al. 1986).

Various authors indicate that physician information-giving is positively related with patient satisfaction (Comstock et al. 1982, Putnam et al. 1985). However, cancer patients are often not very positive about the *amount* and *clarity* of the information they receive from their physicians (Cuisinier et al. 1986, Vess et al. 1988, Fallowfield 1990). Hall et al. (1988b) found in their meta-analysis of 41 studies, in which several outcome measures were related to various provider process variables, that the satisfaction of patients with the information provided is often lower than satisfaction with other aspects of health care. Sometimes the dissatisfaction reported by patients was attributed to an insufficient *amount* of information. It has often been reported that patients want more information than they receive (McIntosh 1974, Taylor 1988, Stiles et al. 1992). Waitzkin (1985) found that physicians tend to misperceive their own informative behaviour as well as their patients' desire for information. In fact they overestimate the time they spend on informing patients, while on the other hand they underestimate their patients' need for information.
On other occasions the dissatisfaction of patients reflects a discrepancy between the kind of information *desired* and the kind *provided*. Patients like to receive information about the cause, diagnosis and prognosis of their disease, while on the other hand physicians concentrate on information about the treatment (Kindelan et al. 1987, Roter et al. 1992). Chaitchik et al. (1992) reported that medical information has a different value for physicians and patients. In their

study, physicians seem to define medical information objectively in terms of references to type of disease and its stage, type and rationale for treatment, and so on. Patients on the other hand, define medical information in terms of its personal relevance regarding prognosis, recovery, suffering pain and other inconveniences, and the burden of the disease and its treatment. The importance of personal relevance is also noted by Fallowfield (1991) who considers that information exchange should not only consist of medical technical details about the disease and its treatment, but should also include the thoughts, feelings, worries and social circumstances of the patient.

It has been reported that physicians experience various difficulties in the exchange of information. In a study among general practitioners it was found that they encountered communication difficulties in 20% to 25% of their consultations, 80% of which were difficulties in the transmission of information (Pendleton 1983). Greenwald et al. (1982) found in their study of physicians' attitudes toward communication with cancer patients, that 25% of 'cancer-oriented' physicians find it difficult to talk with cancer patients about their condition.

Several factors add to the difficulty of providing information (McIntosh 1974, Cuisinier et al. 1986, Northouse et al. 1987). One is that information has to be conveyed in a restricted period of time, which makes high demands on the efficiency of the exchanges and offers little opportunity to detect and correct misunderstandings. A high workload has a negative influence on the exchange of information. Busier doctors pay less attention to the details of the patient's illness and focus more on broadly defined symptoms, attend less to psychosocial issues, they spend less time giving information and may become less facilitative (Waitzkin 1985, Roland et al. 1986, Howie et al. 1989, Ridsdale et al. 1992, Ridderikhoff 1993).

Furthermore, physicians are confronted with different levels of comprehension on the part of the patients. Patients of a lower social class or lower educational level often receive relatively less information (Waitzkin 1985, Roter et al. 1992). This has been ascribed to the lower level of verbal activity among lower social class patients. Physicians provide more information if patients ask for it. Less well educated patients tend not to do this explicitly, because of the social distance with the physician or because of their less verbally oriented background.

Another factor is that physicians are not always well informed about the information needs of patients. There appears to be a considerable discrepancy between what physicians think the patient should know and the patient's desire for information (Maguire 1984).

A fourth factor concerns the physician's desire not to alarm the patient. Physicians are confronted with the difficulty of finding a good balance between informing and protecting the patient (Northouse et al. 1987). It has been reported that physicians

sometimes deliberately withhold information to prevent strong emotional reactions from the patient (Cuisinier et al. 1986, Taylor 1988, Chaitchik et al. 1992). It has also been suggested that physicians may withhold information to prevent themselves from reacting emotionally (Greenwald et al. 1982, Cuisinier et al. 1986).
Finally, physicians may be reluctant to inform patients because they may be afraid to show signals of insecurity, which has unfavourable effects on the trust the patient has in the medical capacities of the physician. Anxious, uncertain patients are extremely sensitive to subtleties in the physician's behaviour. Above all, physicians want to prevent patients from becoming worried and depressed (McIntosh 1974).

On the patient side, several factors might contribute to the observed sub-optimal levels of their satisfaction about the *amount* and *clarity* of information. One factor of importance is the heightened level of emotional arousal patients experience. Because of this, adequate processing of the information provided might be disrupted (Vess et al. 1988). This is often noted in relation to strong emotional reactions from patients after hearing the diagnosis, but might also be true in general. Thus, patients may feel badly informed because they are *too stunned to register* information (after receiving diagnoses) (Cuisinier et al. 1986, Hogbin et al. 1989, Brewin 1991, Michaels 1992), because they may simply *not recall* information (Morrow et al. 1983, Cuisinier et al. 1986, Hogbin et al. 1989), or they may *deny or repress* information (Maguire et al. 1988, Hogbin et al. 1989). So, inadequacy of information is not always the result of the physician providing insufficient information, but may also reflect difficulties of the patient in perceiving and retaining the information adequately (Ong et al. 1995).

Effective communication of information
It is the responsibility of the physician to recognize the informational needs of the patient and the factors that undermine the effectiveness of the information exchange (Fallowfield 1991). Patients differ widely in their ability to comprehend, their pre-existing knowledge, their interests, their absorption capacity of information, and their ability to remember previous information. When providing information, the physician should take this into account in establishing a patient-centred style. A basic starting point in providing information is therefore, that the information should be relevant to and attuned to the needs of the patient, and to his level of understanding. When information is provided in an effective manner, it means that it can be easily grasped and remembered by the patient. Ley (1988) has done some deliberate research on improving effectiveness in the provision of information. In his clear and detailed monograph he presents several recommendations for improving the quality of information provision. Ley uses a

model which stresses the importance of patient understanding and recall of the information provided as central keys to patient satisfaction about communication with their physicians. He weighs the quality of information exchange with the physician against the level of recall of the information by the patient.
His recommendations can be summarized as follows. In general, the way information is provided should be tuned to the individual situation and capabilities of the patient. Since people recall best what they are told first, it is advisable to start information sessions with the most important information. Medical terminology should be avoided, or -if that is not possible- explained to the patient. Advice should be phrased in concrete, specific rather than general, abstract statements and tuned to the specific life situation of the patient. When providing large amounts of information, parts of it should be repeated or summarised, especially if the information is complex and the patient shows signs of not fully understanding it. Information should be provided in small blocks, alternating with checks to see if the patient understands it and still is able to grasp it. Finally, it is preferable to convey information in written form whenever possible, so patients can reread the information at any time after the consultation.

2.3.3 Disclosure of emotionally disturbing information

In cancer care, information can often have an emotionally disturbing effect on the patient. The disclosure of the cancer diagnosis is often a heavy sentence for the patient, due to the life-threatening nature of the disease, the incurability of many kinds of cancer, the sometimes unpredictable course of the disease and the often aversive side-effects of the treatments. Not only can disclosure of the diagnosis be emotionally disturbing for the patient, many other kinds of information can be too. The occurrence of metastasis, the reoccurrence of the disease or the ineffectiveness of the cure are frequent topics of bad-news conversations (Ford et al. 1994).
The opinion of physicians about the necessity to inform patients about the cancer diagnosis, has changed strikingly over the past decades. This can be clearly illustrated by two frequently cited studies (Taylor 1988, Holland 1989, Peteet et al. 1991, Woodard 1992, Sardell et al. 1993). The first study is of Oken, who reported in 1961 that 90% of physicians in a university hospital favoured withholding the cancer diagnosis. In the second study, carried out by Novack et al. in 1979 who used about the same research method, it was found that 97% of a comparable population favoured telling the patient of the diagnosis (Peteet et al. 1991). Since that time, the dominant opinion among a majority of physicians has been that patients should be told the truth (Woodard 1992).
Being clear towards and honest with the patient is -although at the moment of first disclosure rather shocking for the patient- eventually better for a relationship of trust between physician and patient. Being well informed is also a better starting

point for the patient in developing adequate coping reactions and probably motivates the patient better to undergo the often aversive treatments. Information helps patients to gain psychological control over their disease (Woodard 1992). Badly informed patients are often associated with being uncertain and having unrealistic fears, a condition that patients describe as 'worse than knowing the facts' (Cassileth et al. 1980).

Still, physicians find it a difficult and unpleasant task to tell a patient bad news and many feel reluctant to do so (Taylor 1988, Peteet et al. 1991). One often-mentioned reason for physicians to be reluctant to give bad news is their fear of the emotional response of the patient (McIntosh 1974, Cuisinier et al. 1986, Taylor 1988, Chaitchik et al. 1992). By telling a patient that he has cancer, the physician undermines the future prospects of the patient, inducing strong negative emotional responses of anxiety and depression (Ford et al. 1994) and a profound loss of hope (Sardell et al. 1993). Couzijn et al. (1990) describe the emotional response of cancer patients in the diagnostic phase as consisting of feelings of shock, uncertainty, confusion, anxiety, sorrow and depression. The physician's own emotions are also at stake. Physicians are not always emotionally able to deal with life-threatening conditions (Greenwald et al. 1982, Cuisinier et al. 1986).

As a consequence, some specialists try to avoid this confrontation in several ways. One way is to avoid a clear and unequivocal discussion of the illness, for instance by not mentioning the word cancer to the patient and replacing it with various kinds of euphemisms (McIntosh 1974). Other reactions are to postpone the message as much as possible, trying to keep the duration of the consultation as short as possible and paying no or insufficient attention to the patient's emotional reactions. Sometimes bad-news is even conveyed by phone, thus avoiding direct face-to-face contact with the patient (Lind et al. 1989, Peteet et al. 1991, Woodard 1992). When talking with their patients, physicians do not like to concentrate on how patients experience their situation, but on what can be *done* to treat the patient, in an attempt to alleviate his trouble. When receiving bad news, the patient often needs some time to recover emotionally. However, one of the main difficulties physicians experience in communication is tolerating silence (Maguire 1984). To avoid unpleasant silences, the physician might talk too much, elaborating on the details of the intended treatment, ignoring the response of the patient to the bad news and not wondering if the patient is able to understand what's happening at that time.

In summary, an adequate manner of breaking bad news is characterized by a physician who gives the diagnosis candidly in clear and intelligible words, who pays attention to the patient's emotional response, enabling him to deal with his first reactions, and who tries not to overload the patient with information. Balancing the quantity and quality of information presented to the patient at the time of diagnosis is essential in maintaining a hopeful attitude (Sardell et al. 1993).

2.4 Outcomes of doctor-patient communication

In the literature, generally four outcomes are mentioned on which adequate doctor-patient communication can have beneficial effects: satisfaction of the patient about the interaction, recall of (medical) information provided, compliance with the prescribed medical regimens, improved mental or physical health status (Comstock et al. 1982, Putnam et al. 1985, Buller et al. 1987, Roter et al. 1987, Hall et al. 1988b, Kaplan et al. 1989, Hall et al. 1990, Bertakis et al. 1991, Steptoe et al. 1991, Roter et al. 1992, Stewart 1984, Stewart et al. 1995, Ong et al. 1995, Frederikson 1995, Winefield et al. 1996).

These outcome measures can be regarded as hierarchically related to each other, according to the cognitive model of Ley (1988). A prerequisite for an improved health status is good compliance; whereas, in turn, a prerequisite of compliance is adequate recall and understanding of the medical prescriptions and satisfaction about the communication (Ley 1988). Hence, measurements of compliance and health status do not provide unequivocal information about the quality of the interaction. They can be regarded as more distal outcome measures, whereas satisfaction and recall are more proximal outcome measures of adequate communication. This makes measurements of recall and satisfaction more suitable methods for direct evaluation of the quality of the doctor patient communication. However, measurement of the patient's recall requires specific knowledge of what information is discussed in the interaction. Hence, application of this measure in research can be quite laborious, especially if a study includes a large number of patients. Furthermore, measurements of recall focus mainly on the exchange of information and disregard socio-emotional and interpersonal aspects of the interaction.

The measurement of satisfaction is a more general method in evaluating the quality of the interaction which can be applied more easily. It can comprise a wide range of aspects of the relationship in the cognitive, affective and behavioural domains. Patient satisfaction is by far the most recognized and widely used outcome measure (Kaplan et al. 1989, Bensing 1991, Ong et al. 1995, Lipkin et al. 1995).

Satisfaction of patients is known to be related to the physician's communication style. More specifically, there are numerous indications that patient satisfaction is related with a patient-centred communication style. Comstock et al. (1982) found that ratings of patient satisfaction correlated highly with physician courtesy, information-giving and listening behaviour. Hall et al. (1988b) concluded from their meta-analysis of 41 studies of correlates of provider behaviours that patient satisfaction is related to a number of physician behaviours, among which the amount of information imparted by the providers is the most important. The other

behaviours were greater technical and interpersonal competence, more partnership building, positive nonverbal behaviour, more social conversation and more positive talk. Buller et al. (1987) found that patient satisfaction was positively related to an affiliative style of communication; whereas it was negatively related to a dominant and controlling style of the physician. Henbest et al. (1990) could not demonstrate a significant relationship between patient-centred behaviour and patient satisfaction. However they found that consultations with patient-centred scores in the highest quartile had the greatest percentage of patients highly satisfied (46%) compared with consultations with patient-centred scores in the lowest quartile (15%). Bertakis et al. (1991) found that patient satisfaction was positively related to discussion of psychosocial topics, whereas it was negatively related with discussion of biomedical topics. Patients were less satisfied when physicians displayed a more dominant style. Smith et al. (1995b) found that training for residents in patient-centred interviewing, informing patients, relationship building, and personal warmth and confidence induced greater general satisfaction and confidence in the physician on the part of the patients. Frederikson (1995) analysed the relation between different aspects of providing information to patients and patient-satisfaction. She found that patient satisfaction is most strongly related to dealing with patient concerns, exploring patient expectations, exploring patient ideas, and discussing consequences of problems. She concluded that a patient-centred exchange of information is more effective when physicians take patients' concepts, perceptions and views into account, rather than providing vast amounts of standardized information. Winefield et al. (1996) found a positive but weak correlation between patient satisfaction and an overall rating of the physician's patient-centredness (r=.19). No correlations were found with specific physician behaviours.
A finding which is replicated in most studies, is that patients are generally highly satisfied (Comstock et al. 1982, Buller et al. 1987, Henbest et al. 1990, Bertakis et al. 1991, Steptoe et al. 1991, Frederikson 1995, Cohen 1996). This may diminish the magnitude of correlations of satisfaction with communication variables. Bensing (1991) recommends that satisfaction measures should capture a wide range of physician behaviours, to be able to cover all aspects of the doctor-patient interaction. Furthermore, since satisfaction is mainly determined by negative behaviour, she advises to focus not only on satisfaction, but also more specifically on dissatisfaction of patients.

The relationship between the quality of the physician communication and patient satisfaction about the interaction is not straightforward. In the literature, several patient characteristics are mentioned which influence this relationship. A widely mentioned patient factor is *age* (Bertakis et al. 1991, Cohen 1996). Older patients are found to be more satisfied with medical care than younger patients.

Other factors which are frequently mentioned in the literature are: *gender* (Roter 1991), *educational level* (Wolf et al. 1978, Roter 1991), and *health status* (Buller et al. 1987, Cohen 1996). Hall and Dornan (1990) performed a meta-analysis of 110 studies to examine the relation of patients' socio-demographic characteristics to their satisfaction with medical care. They found that patients' satisfaction is positively related to their health status. Their findings on the relations of satisfaction with gender and educational level were somewhat inconsistent. Their meta-analysis showed that women are generally less satisfied with medical care, which contradicted the conclusions of older reviews. Furthermore, a higher educational level has both been related to relatively higher as well as lower satisfaction (Hall et al. 1990).

It is unclear whether these relations with patient characteristics can be explained by attitudinal differences between the patient groups, or by differences of the communication behaviour on the part of the physician. With regard to the age-differences for example, it may be that younger patients are less satisfied because they are more critical. The difference may also be explained by differences in experience with medical procedures. Older patients generally have more experience because they visit the physician more frequently (Buller et al. 1987). The difference may also be related to differences in physician behaviour, where older people may be treated more patiently and with more courtesy (Hall et al. 1990, Cohen 1996). Roter (1991) found that different aspects of physician communication are performed better by physicians in their interaction with women, with older patients, and with well educated patients.

It should be noticed that the socio-demographic characteristics are minor predictors of satisfaction. Hall and Dornan (1990) found in their meta-analysis that relations between satisfaction and patient's socio-demographic characteristics are generally extremely small, even when statistically significant. Nevertheless, when comparing the satisfaction of different patient groups on interaction with their physicians, these aspects should be taken into account.

2.5 Summary

In this chapter aspects of the process and outcomes of physician-patient communication have been described. An overview is presented of two main theoretical paradigms of medical communication. The instrumental versus affective paradigm presents a neutral descriptive distinction between cognitive and affect oriented types of communication behaviour. The doctor-centred versus patient-centred paradigm presents a more comprehensive directional approach of communication from which guidelines for adequate communication can be derived. Both models are not different ways to describe the same phenomena in medical

communication, but exist independently of each other. Instrumental and affective behaviour can each be expressed in a more doctor-centred or a more patient-centred manner. The patient-centred approach is described in more detail, focusing on the need to bring the patient's psychosocial perspective and concerns to the front. Three principles of a patient-centred style of communication are described: attention to the patient's lifeworld, particularly their illness experience; sharing power and control in the interaction with the patient; and being supportive in helping patients to adapt to their life crisis.

Guidelines can be derived from the patient-centred approach on how communication tasks have to be performed. In cancer-care these tasks are: dealing with emotions, providing information, and disclosure of emotionally disturbing information.

Patient-centred communication is considered to be related to positive outcomes like satisfaction, recall, health status, and well-being. Among these, patient satisfaction is considered as a relatively direct indicator of the adequacy of the communication behaviour of the physician.

3

Teaching communication skills a review of evaluation studies

In this chapter, studies from the past decade will be reviewed in which medical communication skills training programs are evaluated. Physicians are taught communication skills in medical schools both during their undergraduate (pre-clinical) and their graduate (clinical) years[1]. In medical schools in the Netherlands, the awareness of the importance of the doctor-patient relationship emerged in the early seventies. At that time, medical schools started to develop course programs on communication skills and attitudes (Bensing et al. 1985, Wolfhagen 1993). In other countries also the attention to training communication skills had increased since that time. In the late seventies and early eighties about one-third of the medical schools in both the United Kingdom and the United States still offered no training in communication skills (Whitehouse 1991). However, this percentage has continued to decrease and since the early nineties all medical schools have offered some kind of communication skills training. Nevertheless, it is still treated as a minor subject of little significance. In most medical schools in Britain and the Netherlands, less than 5% of the curriculum time is spent on training of communication skills (Bruggemans 1991, Frederikson et al. 1992). Frederikson et

[1]A distinction is made between three groups of physicians according to stage of education and clinical experience: undergraduates (students), graduates (residents) and postgraduates (practising physicians).

al. (1992) found that explicit evaluation of the training programs occurs relatively rarely. A large number of the British schools do not explicitly assess the communication skills obtained by students. The attention is mostly directed to assessment of clinical skills, making communication skills a subsidiary issue. Physicians, who wish to enhance their communication skills after their medical education, may attend postgraduate training courses. Unfortunately, the availability of these courses is often limited, since they are rare.

This review will focus on those communication programs for physicians that have been evaluated in the literature. The purpose of this review is to present an overview of the evaluation studies on aspects such as the kind of participants, the applied training methods, evaluation methodologies and outcomes in respect of training effects. The review of the training programs will focus on the kind of skills the participants are taught and the type of educational methods applied in teaching the skills. Thereafter, the different evaluation methodologies will be examined in terms of research design applied, and the kind of instruments used to evaluate the effects. Finally, the results regarding the training effects will be reviewed.

3.1 Methods and procedure

Studies on communication skills training were located by using the following procedures. First of all CD-ROM searches were performed on MedLine and Psychlit. Key words used in the retrieval of research literature were: interpersonal communication, communication (skills), interview skills, counsel(l)ing, physician-patient relations, (medical) education, (graduate, postgraduate, continuing), internship and residency, training, evaluation (studies).
Furthermore, reference lists of the articles found in the CD-ROM searches were inspected for undetected papers. The focus was on effect-studies dating from 1985 up to the present. Reviews and descriptive papers on training of communication skills which contained no evaluation were discarded. Also excluded were non-English articles, letters and one-page news items. The review is directed at training providers, so studies directed at improving doctor-patient communication by means of training patients were disregarded.
This review focuses on physicians with clinical experience, including graduates (residents) as well as postgraduates. Studies directed at undergraduates as well as studies directed at health professionals, excluding physicians, were not included in this review.

The studies will be reviewed on three main aspects: the kind of training evaluated, the methods of evaluating the training effects, and the results of the evaluation. The description of the evaluated training programs will focus on the objectives, the applied educational methods and the required time investment. The evaluation methods relate to the applied research design and the instruments used to measure training effects. The training effects are presented by focusing on the findings of each type of measurement instrument.

3.2 Results

In the search, 13 studies were found which met the selection criteria; seven directed at graduates and six at postgraduates. One study by Smith et al. is described in two separate papers (Smith 1995a, Smith 1995b)[2] taken together in this review and referred to as Smith (1995). Descriptions of the training and evaluation methods of the studies are summarized in Tables 3.1 and 3.2. The results relating to the training effects are summarized in Tables 3.3 and 3.4. These tables can be found at the end of this chapter.

3.2.1 Participants

In both graduate and postgraduate studies, the medical disciplines represented are general practice and internal medicine. In Faulkner (1995) the participants were a multi-disciplinary group not only of physicians, but also nurses, consultants, and other health professionals. In the Gask (1987) study the majority of the participating general practitioners were medical trainers themselves. In the Gask (1989) study, both graduate and postgraduate physicians participated; the latter were working in psychiatry but intending to take up posts in General Practice.

The average number of participants in the studies is 37, ranging from 6 to 80. A control group is applied in seven studies. The average size of intervention groups is 19, ranging from 6 to 40 participants.

Recruitment procedures are not described clearly in all studies. Information about response rates is given in only two graduate and two postgraduate studies (Putnam 1988, Smith 1991b, Evans 1987, Roter 1995). Both Putnam (1988) and Smith (1991b) report a 100% response for recruitment of graduates. Recruitment of postgraduates is less successful; reported initial responses were 16 to 20% (Evans 1987, Roter 1995). In three studies the postgraduates were approached by letter (Evans 1987, Levinson 1993, Faulkner 1995), in one by phone (Roter 1995). The drop-out rate is reported in five studies (Gask 1988,1989, Smith 1995,

[2]In this chapter, the abbreviation *et al.* is left out in references to the studies reviewed, for reasons of readability. Full references of these studies can be found at the end of this chapter.

Levinson 1993, Roter 1995). Average drop-out rate in these studies was 14%, ranging from 6 to 22%. Two studies explicitly mentioned the absence of drop-outs (Putnam 1988, Smith 1991b), in the remaining six studies this aspect is not reported.

Comments

It is striking that the interventions evaluated are related to a limited range of medical disciplines. Only general practice and internal medicine are represented in these studies. Communication is especially important in these disciplines since they have to handle both a wide range of physical problems as well as psychosocial problems. However, adequate doctor-patient communication is also important in all other medical disciplines.

The success rate in recruiting participants appears to be quite different among postgraduates as compared to graduates. Since graduates can be approached in medical schools, their recruitment is relatively uncomplicated. The two studies which reported a response rate of 20 percent or less among postgraduates show that it takes relatively more effort to recruit postgraduates. Apparently, postgraduate physicians are reluctant to participate in communication skills training. Only one study reported an 'unexpectedly' large response when recruiting participants, but this response is expressed in absolute numbers and not as a percentage (Faulkner 1995).

3.2.2 Training objectives

All reviewed training programs are directed at enhancing the communication skills of the participants. Generally, this enhancement is focused on teaching a patient-centred approach to physician-patient interaction. The general purpose of this approach is to give physicians a more complete picture of the patients' personal situation and pay more attention to the psychosocial problems related to their disease. However, each training program has more specific objectives, which are not the same in all studies. When reviewing these objectives, it appeared that the content of the program was not always clearly described (Sideris 1986, Gask 1987,1988, Smith 1995a, 1995b, Levinson 1993). In those instances, the training objectives could be derived, to some extent, from the evaluation methods and the results sections of the articles.

Based on these data, the various training objectives were classified in four basic objectives: *receptive behaviours, information behaviours, interpersonal and affective behaviours* and *patient management skills*. The first three objectives mainly concern *how* to communicate adequately with patients. The fourth kind of objective concerning patient management skills can be found in four studies (Gask 1987, Smith 1991b, Smith 1995, Roter 1995). Patient management skills focus on how the physician should manage the newly acquired personal data of the patient,

such as depression, somatization, grief, stress, or fears (Smith 1995b). These skills relate to being able to interpret patient data, making adequate diagnostic decisions, and the development of an appropriate treatment plan (Smith 1991b, Roter 1995). Since patient management skills affect the conversation content more (e.g. treatment policy), and the conversation style less, these skills are not considered in this review.

A cumulative list of the meaning and operationalization of the three basic objectives is found in Table 3.5. A certain overlap between the categories cannot be excluded. Some behaviours mentioned in the studies can have different functions and may well fit in more than one of the three categories. However, efforts were made to allocate each behaviour to the most plausible category.

Table 3.5: Operationalizations of the basic training objectives

1. Receptive behaviours
- open-ended questions
- asking patient's opinion
- verbal encouragement
- active listening
- picking up verbal and non-verbal cues
- respectful silence
- no interruptions

2. Information behaviours
- providing information
- patient education
- counselling
- distressing information, bad news
- non-technical terms

3. Interpersonal and affective behaviours
- relationship building
- express mutuality
- elicit patient concerns, psychosocial problems and emotions
- reflections
- personal warmth and confidence
- empathy
- expressing concern

Receptive behaviours focus on encouraging patient participation in the interaction. This is one of the central aspects of patient-centred communication. It stresses non-directive and active listening, giving the patient every opportunity to tell his story, and attending to cues that may indicate circumstances of his lifeworld. This category concerns general facilitative behaviours that create conditions for the patient to respond.

Information behaviours are directed at improving the effectiveness and efficiency of the information exchange. This is done with different aims: reducing anxiety and improving satisfaction and compliance of patients. Furthermore, a well-informed patient is more able to participate in decision-making about treatments. Informing patients well constitutes the basis for the establishment of a more equal position of patient and physician in their relationship.
The third aspect, *interpersonal and affective behaviours*, concern the establishment of a good interpersonal relationship and creating an open and facilitative atmosphere, in which the patient feels free to speak and to mention everything that bothers him. This category is closely related to the category of *receptive behaviours*, but is focused more particularly on the affective domain of the interaction and of patient concerns, including psychosocial topics. This is another basic aspect of patient-centred communication.

Findings
The objective of *receptive behaviours* is found in ten studies (Bensing 1985, Gask 1987,1988,1989, Putnam 1988, Roter 1990, Smith 1991b, Smith 1995, Levinson 1993, Roter 1995). Focus on *information behaviours* is found in nine studies (Sideris 1986, Putnam 1988, Gask 1988,1989, Roter 1990, Smith 1995, Evans 1987, Levinson 1993, Faulkner 1995). The objective related to *interpersonal and affective behaviours* is found in eight studies (Smith 1991b, Smith 1995, Bensing 1985, Gask 1987,1988,1989, Levinson 1993, Roter 1995). In four studies all three areas of communication are covered (Gask 1988,1989, Smith 1995, Levinson 1993). Another three studies are dedicated to the single aspect of '*providing information*' (Sideris 1986, Evans 1987, Faulkner 1995). The Faulkner (1995) study is specifically dedicated to the disclosure of bad news. The remaining six studies focus on two objectives which always include *receptive behaviours*.

Comments
The training objectives are not always clearly described in the studies and sometimes had to be derived from the evaluation methods. In case of Sideris (1986), this revealed a striking contrast. While the training program is described as being directed at affective objectives; the measurements all concern information providing behaviours.
It can be seen that different aspects of the patient-centred approach are found in all training programs. The most frequently observed objective in the reviewed training programs is concerned with the *receptive behaviours*. Other objectives are related to *information behaviours* and *interpersonal and affective behaviours*. This shows that the relevance of patient-centred objectives like taking the patient perspective into account, sharing control over the interaction and providing support are familiar to communication skills trainers.

3.2.3 Educational methods

Educational methods relate to the techniques by which the communication skills are taught. These techniques range from cognitive methods, essentially concerned with promoting knowledge, to experiential skills-oriented methods which involve training in practical exercises and tasks. In the literature, four kinds of educational method are generally distinguished in training programs: instruction, modelling, skill practice, and feedback (Dickson 1989, Anderson 1991).

By means of *instruction* the participants receive information about the aims of the training program, about general aspects of doctor-patient communication and specific communication skills. Instruction can be provided in group sessions by means of a *lecture* with a live instructor or self-instruction methods like a videotape or textbooks and *manuals* with written information about doctor-patient communication.

Modelling allows the use and performance of the target skills to be demonstrated (Bandura 1977). Modelling can comprise both positive as well as negative examples. This may be done with live models or by means of prerecorded audio- or video-examples of target skills. Modelling gives the participants clear examples of the use of specific skills.

Recorded models may involve enacted situations or be derived from daily practice with real patients, sometimes of the participants themselves. Although models derived from daily practice may not always display perfect examples of target behaviours, the examples are very realistic. The models display both poor and adequate behaviours which make them suitable for discussion and suggestion of alternative behaviours by both instructors and participants.

Next, the learners may *practice* the skills in a role-play while interacting with the other participants or simulation patients. The interaction may be observed by an instructor and an audience of colleagues, and may be recorded on audio- or videotape. In practice sessions, participants have the opportunity of becoming acquainted with specific skills and situations. Role-play offers the participants a safe situation to practice skills in and they are allowed to make mistakes. This helps participants dealing with problems which, if handled inexpertly, could be very distressing or damaging for real patients, such as breaking bad news (McAvoy 1988).

Next, the interaction is analysed and the physician may receive *feedback* from the instructor, audience and the simulation patient. Direct-feedback is provided immediately following the interaction with a real or simulation patient. If the interaction was recorded on video, feedback can be provided based on reviews of the recording.

In addition to these four educational methods, another often applied method is *individual and group discussion.* Individual discussion concerns a direct trainer-learner dialogue; group discussion concerns the exchange of information on

experiences among the participants. This technique is especially valuable with experienced participants. Discussion allows for interaction between practical experience of the participants and the theoretical knowledge of the instructor. These discussions can relate to different aspects of the training, such as the content of the manual or lecture, modelled or practised case examples, or feedback on displayed behaviours.

The training curriculum may be *prefixed (teacher-centred)*, meaning that the teacher is responsible for setting objectives, or *learner-centred* implying that the training objectives are largely influenced and determined by the learners (Smith et al. 1994). The learner-centred training method allows for matching of the content of the training to the needs of the learners, thereby enhancing the efficiency and effectiveness of the training. However, the learner-centred approach may be especially effective in individualized training programs, since in group courses the individual needs of the learners may interfere mutually.

Findings[3]

In all but one of the studies reviewed, *instruction* is part of the training method. The only exception is the long course of Levinson (1993). This course does not have a set curriculum, but has a learner-centred curriculum instead. Manuals are provided in seven studies; lectures are presented in eight studies, in one of these by means of viewing an instructional videotape (Gask 1989). In four of these studies instruction is provided both by manuals and lectures (Evans 1987, Putnam 1988, Smith 1991b, Roter 1995).

The use of *modelling* is explicitly mentioned in seven studies: six graduate courses, and one postgraduate course (Gask 1987). In none of these studies life models are applied. In some studies models are presented on audiotape (Sideris 1986, Putnam 1988), in others on videotape (Gask 1987,1988,1989). In two studies the kind of modelling applied is not described explicitly (Smith 1991b, Smith 1995). Models are mostly derived from daily practice, sometimes of the participants themselves (Sideris 1986, Gask 1988,1989).

Role-play is applied in eight studies. In two studies participants practised with each other (Putnam 1988, Gask 1989), in other studies the participants interacted with a simulation patient (Faulkner 1995, Roter 1990, Roter 1995). In the remaining three studies the kind of applied role-play is unclear (Levinson 1993, Smith 1991b, Smith 1995). In three studies the role-played interactions were recorded on videotape (Levinson 1993, Faulkner 1995, Roter 1995).

Feedback on the behaviour of the participants is provided in eight studies, based on role-play (Levinson 1993), on interaction with real patients (Gask 1987,1988,

[3]Since Bensing et al. (1985) have not described their training method, this study is ignored in the description of the applied educational methods.

Putnam 1988, Smith 1991b) or both (Gask 1989, Roter 1990, Roter 1995). Feedback may be provided in group sessions (Gask 1987,1988,1989, Levinson 1993, Roter 1995) or by the trainer in individual sessions (Putnam 1988, Smith 1991b). When feedback was based on interaction with real patients, physicians were asked to record some patients during their surgery hours and bring those recordings to the training sessions. During the training the audio or video recordings were reviewed and discussed and the physician was provided feedback on his performance (Gask 1987,1988,1989, Smith 1991b, Roter 1995). In the Faulkner (1995) study, feedback on the video recording of the roleplay was not provided during, but some time after the training. After analysis of the tapes, all participants received a written feedback sheet together with their videotape.
Discussion is a distinct part of nearly all programs, mostly concerning group discussion. In only three studies it is not explicitly mentioned in the description of the training (Putnam 1988, Smith 1991b, Smith 1995). However, discussions can be an implicit part of any of the other educational methods.
A *learner-centred* approach was found in two training programs (Levinson 1993, Smith 1991b). Both programs are conducted in individual or small group settings, allowing much space for individual learning needs and experiences.

Comments
All types of educational methods are well represented in the studies reviewed. Modelling is, however, less frequently found in the postgraduate studies. Nearly all training programs provide a balance between cognitive learning, and experiential skills-oriented learning. A minority of training programs offer a learner-centred approach, probably because this type of training is more difficult to organize. The content of a learner-centred training program is less predictable and as a result such programs are more difficult to prepare. Some of the teacher-centred training programs provide room for individual needs of learners by reviewing recordings of the physicians with real patients.

3.2.4 Duration and location of training

All studies but one (Bensing 1985) provide some information about the duration of the training; four only provide the number of hours (Sidiris 1986, Putnam 1988, Evans 1987, Levinson 1993), four only provide the time period for which training sessions are scheduled (Gask 1989, Roter 1990, Smith 1991b,1995), the remaining four studies provide both types of information. Insofar as it was mentioned, the training programs took from 4 to 36 hours; training periods ranged from two days to six months. Information about the locations of the training program was rarely provided. The impression is that graduates are generally trained in their departments, whereas postgraduates are invited to come over to the training institutes.

3.2.5 Measurements and instruments

To evaluate the effectiveness of the training, three different methods can be used. Firstly, the communicative behaviours may be evaluated by means of independent *behavioural observations* of doctor-patient interactions. Secondly, training effects may be evaluated by asking the participating physicians to rate the effects they experience: the *subjective evaluation*. Finally, *outcome effects* of the improved interaction on the patient may be evaluated.

The behavioural observations can be regarded as the most important indicators of training effects, since these are related most directly to the aims of interventions to improve communication behaviours. Patient-outcome measures are relatively important, because these focus on the eventual goal of the interventions. Physician self-ratings are generally less important, since these cannot be measured reliably due to the fact that the physicians are not blind assessors of their own behaviour.

• Behavioural observations

Observation-analysis is the most direct method of evaluating training designed to change communication behaviours. Doctor-patient interactions are generally evaluated by recording them on audio- or videotape and by rating the interactions afterwards on various observation categories. Video recordings provide a more complete picture of the interaction than audio recordings, since the latter lack the registration of non-verbal behaviours. Nevertheless, video recordings are not always applied since they need more arrangements and are considered more intrusive.

The skills measurement may concern interactions with real patients or simulated (standardized) patients. Both methods have their specific advantages. Analysing interactions with real patients provides the most realistic image of how a physician generally communicates. However, the doctor-patient interaction is not only controlled by the physician, but also by the patient. Moreover, in view of the fact that all patients are different, it is imaginable that uncontrolled patient factors may obscure the measurement of a training effect. One solution to eliminate the undesirable influence of real patients, is to evaluate the communication behaviour of the physician by recording a number of patient encounters. Another way to keep patient factors under control is to use simulation patients. Simulation patients are 'standardized patients'; their behaviour is the same in different situations and towards different physicians. The kind and difficulty of the problems the physician has to face are controlled. When the physician behaviour is evaluated by analysing interactions with simulation patients, recording of only one encounter is sufficient. Since interacting with a simulation patient may be somewhat artificial, sometimes the physician is kept unaware of interacting with a simulation patient

(Hoppe et al. 1990). It has been demonstrated that physicians are not always able to recognize simulation patients (Sanson-Fisher et al. 1980b, Norman et al. 1982). Obviously, this depends on the acting skills of the simulation patient as well as on the way the patients are presented to the physician.
Since observations with real patients have a higher validity by definition, but the variability in behaviour of simulation patients is more controlled, in some studies observations are made both of interactions with simulation as well as real patients.
Standard observation instruments or study-specific instruments may be used to code the interview-behaviours. Standard instruments aim at a comprehensive classification of all speech acts that occur in an interaction (Bensing et al. 1991). This type has to be applicable in a wide range of situations. Study-specific rating scales are specially designed to meet the purpose of the study. Study-specific rating scales are often more compact, focusing solely on the target communication skills of the evaluated training (Bensing et al. 1991).
Raters should be blind to the status of the observed consultation; whether it concerns a pre- or post-intervention recording, or a physician who participates in the intervention or control group.

Findings
In eleven studies, the interview behaviours of the participants were observed and analysed. In four studies the interaction was recorded on audiotape, in the other studies video recordings were used. In one study both audio and video recordings were applied, each in different contexts (Smith 1995a). In five studies interactions of the physicians with real patients were observed (Bensing 1985, Sideris 1986, Gask 1988, Putnam 1988, Levinson 1993), four studies used simulation patients (Gask 1987,1989, Roter 1990, Faulkner 1995), in two studies interactions with both real and simulation patients were observed (Smith 1995, Roter 1995). In the Roter (1995) study, simulation patients were used, not to measure communication skills, but to measure clinical proficiency. In four studies the simulation patients were presented openly to the physicians (Gask 1989, Roter 1990, Roter 1995, Faulkner 1995), in the two other studies this aspect is not explicitly mentioned (Gask 1987, Smith 1995). The number of observed patients per physician per measurement time is one for simulation patients, and ranges from five to about nine for real patients.

Most of the used observation systems are study-specific, in four studies standard systems are used (Bensing 1985, Putnam 1988, Roter 1990, Levinson 1993). The number of observation categories range from 6 to 15 in the study-specific observation systems and from 22 to 50 in the standard systems. In all studies, interactions are scored by rating the frequencies of target behaviours. Sometimes these are expressed as proportions of the total number of interactions.

Inter-rater reliabilities were reported in eight studies (Table 3.6). Gask (1987) refers to Gask (1988) for information about the reliability of the observations. Also Bensing (1985) refers to a previous study in which the inter-rater reliabilities were determined. The number of consultations scored for determination of inter-rater reliability ranges from 3% to 50%. The percentages are inversely related to sample sizes.

Table 3.6: Reported inter-rater reliabilities and percentage of rated consultations

Study	Total N	Inter-rater N	Reliability
Bensing (1985)	-	-	r=.40 - .87
Sideris (1986)	79	10 (13%)	r=.87 - .92
Gask (1987)	-	-	-
Gask (1988)	20	10 (50%)	.88 (Kappa)
Gask (1989)	40	10 (25%)	.94 (Kappa)
Putnam (1988)	268	-	r=.96 (.93 - .99) (intra-class)
Roter (1990)	48	7 (15%)	r=.85
Levinson (1993)	412	34 (8%)	r=.80 (.58 - .94)
Faulkner (1995)	-	-	-
Roter (1995)	648	20 (3%)	r=.69 - .80

In four studies no information is provided whether raters were blind to the research conditions (Bensing 1985, Sideris 1986, Putnam 1988, Roter 1990), in the remaining four studies this information is provided (Gask 1988,1989, Levinson 1993, Roter 1995).

Comments

In all studies which apply behavioural observations, the ratings of observation categories focus on the observed frequencies or proportions of target behaviours in consultations. In none of the studies were additional ratings included such as evaluations of the adequacy of the observed behaviours. Although quantifying the interaction into a number of behavioural frequencies has some advantages, it also has some limitations (Inui et al. 1985). Quantification implies reduction of information, which may result in an incomplete description of the interaction. What is lost for example, is information about the sequence of behaviours, as well as information about the context in which the behaviours took place. Contextual information may concern patient characteristics like responsiveness, intelligence, mood, or topic under discussion, reasons for the encounter, and so forth. By taking these data into account when rating the behaviours, information about the quality of the interaction behaviours may be added to the ratings. This aspect is maybe even more important than the sheer quantity of behaviours.

In two studies, the inter-rater reliabilities were not calculated on the research material, but derived from other studies. However, referring to data of other studies provides no satisfying information about the reliability of the data in the study described. Inter-rater reliabilities do not only give information about the reliability of the coding system, but also about the reliability of the coding behaviour of the raters. This aspect depends especially on how well the raters are trained in the use of the coding system. In addition to inter-rater reliabilities, intra-rater reliabilities should also be calculated. These provide information about the stability of the coding behaviour over time. Since the rating of a recorded consultation is rather time-consuming, it often takes a couple of weeks before all consultations are rated. In none of the studies, mention is made of checks for the intra-rater reliability.

• Physician self-ratings

The second method of evaluating the effectiveness of a training is the use of *self-rating* questionnaires, which measure the subjective effects as perceived by the physicians. Topics in these questionnaires may concern general aspects of doctor-patient interaction, like attitudes or knowledge, or may concern interaction-specific aspects, like perception of their own performance of different communicative behaviours, or their perceptions of patient perspectives in the interaction. Sometimes the interaction is rated by both physician and patient, to determine their congruence by comparing their ratings afterwards. Physician ratings may be most sensitive for response bias. For example, physicians may be willing to indicate course effects to reduce cognitive dissonance, regardless of whether they experience actual improvements.

Findings

Physician self-ratings are used in seven studies. In two studies, physicians were asked to assess their own communicative behaviour (Sideris 1986, Smith 1991b). In the study of Sideris (1986), both the physicians and patients rated the interaction for purposes of comparing these ratings afterwards and calculating a level of congruence.

In five studies the self-ratings are related to the recognition of psychosocial problems of patients. In these studies, two different approaches were found. The first approach, found in three studies, focuses on measurement of the physicians' knowledge of and attitudes towards psychosocial medicine in general (Gask 1987, Smith 1991b, Smith 1995a). Gask (1987) used a non-systematic subjective self-rating, the other studies used structured questionnaires (Smith 1991b, Smith 1995).

The second approach, used in two studies, focuses on how physicians rate the psychosocial problems of real patients (Gask 1988, Roter 1995). In both studies

the physician's ratings of the patient's degree of psychosocial problems were compared to the patient's scores on the General Health Questionnaire (GHQ).

Comments
Self-ratings of communication behaviour provide a check on the awareness of the physicians on their own behaviour. Self-awareness is important in accomplishing and sustaining improvements in behaviour. If physicians are aware of and satisfied with changes in their communicative behaviour, it is easier for them to maintain their improvement. However, research findings of training effects on physician self-ratings have a limited meaning as indicators of real changes in actual behaviour in the interaction. Improvements on self-ratings like 'knowledge about' or 'attitudes towards' the detection of psychosocial problems of patients are a necessary, but not a sufficient prerequisite for an improved behavioural performance in this respect. Behavioural observations are still needed to confirm whether the actual behaviour has changed. Moreover, comparing the self-ratings with some external criterion provides information on the validity of the perception of the physician.
A methodological weakness of the physician self-ratings is that the physicians are not blind to their training condition. Self-ratings are generally reactive measures; the measurement itself may influence the outcome. Post-training improvements of self-ratings may not only be the result of a training effect, but may also reflect the willingness of the respondent to show that the training efforts have not been useless.

- **Patient-outcomes**

The third method to evaluate the training effect is to focus on the *patient-outcomes* of improved communication behaviours. Patient measures are relevant because they focus on benefits patients may experience as a result of the improved interaction. Patient-outcomes may range from proximal measures concerning patient behaviour or perceptions related directly to the observed consultation, to distal measures concerning the more general functioning of the patient. Proximal measures may concern the impact of physician behaviour on the behaviour of the patient in the interaction, their satisfaction with different aspects of the interaction, or their retention of received information. Distal measures may concern measures of compliance to the prescribed medical regimen, general health status, emotional distress, way of coping with the disease, or general well-being.
However, a problem regarding these measures is that their relation to indicators of the quality of communication is often difficult to measure (e.g. satisfaction), or that they are only partly dependent on the doctor-patient communication (e.g. general health, quality of life). As a result, it is often difficult to demonstrate training effects on patient-outcome measures.

Findings

Measurements of *patient-outcomes* are applied in eight studies, six concerning real patients, two concerning simulation patients (Gask 1989, Roter 1990). Proximal and distal outcome measures are equally represented. The proximal measures concern ratings of communication behaviour (Sideris 1986) or satisfaction with the consultation (Gask 1989, Putnam 1988, Roter 1990, Smith 1995, Evans 1987). The distal outcome measures concern compliance (Sideris 1986, Putnam 1988), anxiety (Evans 1987) and general health (Putnam 1988, Roter 1995).

All studies use different approaches regarding measuring these outcomes. In each study, satisfaction is measured with different instruments: one multi-item single factor instrument (Roter 1990), two different multi-item multi-factor instruments (Putnam 1988, Smith 1995b), and one single-item instrument (Evans 1987). Compliance was measured by rating health behaviours of the patient after the consultation. Putnam (1988) discriminates between behavioural, medication and appointment compliance, measured on a 4-point scale one week after the consultation. Sideris (1986) measures compliance one to three month after the consultation, resulting in a yes/no rating.

In the study of Putnam (1988), the general health measure focuses on 'symptom-status'. In the study of Roter (1995) general health focuses on 'psychiatric distress' measured by the GHQ.

Comments

Since proximal measures are related more directly to the behaviour of the physician in the interaction, they are more sensitive to changes of physician behaviour due to training effects. Satisfaction is the most frequently used outcome measure in this review. Distal outcome measures are not only determined by the quality of the doctor-patient communication within a specific consultation, but also related to other factors in the life of patients. The applied outcomes are health status and compliance.

3.2.6 Research designs

The study-design is a fundamental aspect regarding the generalizability of the results. In the reviewed studies, three different research designs are found.

Firstly, the *pretest-posttest design*, which aims at measuring target skills before and after the training, so the before and after training levels of performance can be compared. A limitation of this design is that differences in pre- and post-intervention levels of performance cannot be ascribed exclusively to the intervention. Uncontrolled, non-specific factors may have increased or attenuated the measured effect (e.g. the Hawthorne effect).

A second type of design is the *posttest control group design*. In this design the post-intervention behavioural level of the intervention group is compared to the level of a control group. Since the assumption that both groups have equal baseline levels of performance is not tested, this design provides no proof that possible differences in behaviour are a result of the intervention. Differences found at the posttest might just as well be ascribed to a priori differences in performance levels of the intervention group and the controls. The likelihood that the pre-intervention levels are the same in both groups increases when the participants are assigned randomly to the conditions. In designs without a pre-measurement, the behaviour of the trainee is observed and evaluated to see whether it meets the intended standards, regardless whether this is the result of the intervention or not. This has been described as the social comparison method (Stone 1982, Bögels 1994). In these social comparison studies, the eventual level of performance of the participants is more important than the effectiveness of the training.
Finally, the *pretest-posttest control group design* aims at tackling the disadvantages of both above-mentioned designs. With the pretest the base-line levels of both groups can be compared, and the design allows for controlling the non-specific learning effects. Especially when participants are assigned randomly to one of both conditions, the risk of systematic differences at baseline between both groups is limited. However, random-assignment is not always possible in field studies.

Findings
The *pretest-posttest control group design* is utilized in four studies (Putnam 1988, Smith 1991b, Smith 1995, Levinson 1993), of which two apply a randomized control group (Levinson 1993, Smith 1995). Three studies use a *posttest control group design* (Sideris 1986, Roter 1990, Roter 1995). In one of these the control group assignment was randomized (Roter 1995). In five studies, a pretest-posttest design is applied without a control group (Bensing 1985, Gask 1987,1988,1989, Evans 1987). In one study, a pseudo *posttest design* was used of which the measurements were partly integrated in the training (Faulkner 1995).
Posttests are performed at different intervals after the training. Most studies do not provide clear information about measurement intervals. Presumably, they are generally performed directly following the training (Gask 1987,1988,1989, Smith 1991b,1995). Levinson (1993) performed posttest measurements one month after the intervention. Roter (1990) evaluated the participants' performance two months after training in order to assess retention of learned skills.
Follow-up measurements of patient variables are found in two studies, respectively involving compliance (Sideris 1986) and general health (Roter 1995). Sideris measured compliance one to three months after the consultation. Roter performed follow-up measurements of general health at two weeks and three and six months

after the consultation. Follow-up measurements of physician self-ratings are found in one study, concerning a 15-month follow-up measurement of psychosocial attitudes and skills (Smith 1991b).

Comments
Only two studies use an adequate design; the *pretest-posttest (randomized) control group design*, which allows for conclusions about training effects on communication behaviours (Putnam 1988, Levinson 1993). One study uses the *posttest randomized control group design*, which is suboptimal because of the lack of a pretest, but acceptable because of the randomization (Roter 1995). The other studies do not allow convincing conclusions about the effectiveness of the evaluated training programs to be drawn. In these studies, results can only be regarded as indications of possible training effects.
In none of the studies are follow-up measurements of communication behaviours applied, so the studies reviewed give no indication of long-term training effects. Since physician self-ratings have limited validity, their follow-up measurements have limited meaning in demonstrating long-term training effects. Follow-up measurement of patient-outcomes also has a restricted value in showing a long-term training effect, especially if these concern distal outcome measures.

3.2.7 Effects of communication skills training programs

The effects of the training will be reviewed separately for each type of measurement; behavioural observations, physician self-ratings and patient-outcomes. In Tables 3.3 and 3.4, only statistically significant results are displayed, with an alpha of 5 percent or less.

• Results regarding behavioural observations

In two of the ten studies which include behavioural observations, no conclusion can be drawn about training effects on communication behaviour. In the study of Smith (1995) the results of the observations are not reported in the papers reviewed, since they will be reported on in a forthcoming paper. In the Faulkner (1995) study, conclusions about the effectiveness of the training are not allowed because of the study design, which does not include pre-measurements or a control-group. The results will therefore be reviewed of the remaining eight studies.
In each study, the observation categories have been divided in three clusters, corresponding with the distinction in training objectives: *receptive behaviours, information behaviours* and *interpersonal and affective behaviours*. Displayed in the tables are for each study the total number of categories in each cluster and the number of significant categories.

Findings

Of the eight studies with behavioural observations, nearly all report some effects of the training. Only the short (4.5 hour) intervention in the Levinson (1993) study did not result in detectable changes in communication behaviour. In none of the studies are effects reported on all rated observation categories. Generally, in each study effects are found on half, or less, of the rated number of observation categories. In the five studies with study-specific observation instruments, the number of significantly improved categories range from 0 to 8 of the 7 to 15 rated categories (Sideris 1986, Gask 1987,1988,1989, Roter 1995). In the four studies in which standard instruments are applied, which generally include at least 20 observation categories, effects are found on only 2 to 12 observation categories (Bensing 1985, Putnam 1988, Roter 1990, Levinson 1993).

When comparing the effects between the clusters of observation categories, on average the highest proportion of significant observation categories is found on *interpersonal and affective behaviour* (53%), and the lowest percentage is found among the *information behaviours* (37%). Of the observations regarding *receptive behaviours*, on average a significant training effect is found on 43% of the observed categories. The study of Levinson (1993) is not included in these percentages, because in this study the total number of observation categories per cluster is not provided.

When taking the type of research design into account, it is striking that the studies with the most adequate designs report the fewest training effects. In two studies, training effects on behavioural observations are reported based on a pre-post test (randomized) control group design. One of these, the randomized study, reports the absence of any training effect (Levinson 1993). In the other (nonrandomized) study, effects were found on only two categories (Putnam 1988). In the study of Roter (1995), with a posttest randomized control group design, four out of seven communication behaviours were found to be significantly higher in the intervention groups. Although this is a more positive result, it cannot with certainty be regarded as a training effect, because of the lack of a pretest.

Comments

In four of the eight studies, the results of the behavioural observations are reported highly selectively (Gask 1987, Roter 1990, Levinson 1993, Roter 1995). For example, in the study of Roter (1990) results are presented for only 6 of the 22 observed categories. The same applies to Levinson (1993) who report about only 8 of the 34 observed categories. In these studies, it remains unclear how many behavioural categories have actually been analysed, and according to what criteria the categories presented were selected. Thus, it remains unclear as to how many and what kind of categories showed no significant training effects.

A second weakness in the descriptions of the results is the absence of information

about whether raters were blind to the condition of the observed interaction. If raters know if the observed interaction concerns a pre- or posttest, and belongs to an intervention or a control condition, bias from this perspective cannot be excluded.

In studies which include a control group, the effectiveness of the intervention may be reduced due to cross-over of information between conditions. Especially in field studies, the use of a control group is complicated. It is often practically impossible to keep the participants of intervention and control condition completely separate. This problem is recognized only in the study of Putnam (1988) where the participants of the intervention group were explicitly instructed not to tell anything about their training to participants of the control group. However this kind of instructions is no watertight guarantee that cross-over between groups is absent.

In all studies, multiple statistical tests are performed, each compared to the same significance level. Applying multiple tests is likely to capitalize on chance, implying that results which are found by chance are attributed to the intervention. The probability of finding a significant result is higher when the number of tests increases. As a result, finding a limited number of training effects among a large number of statistical tests cannot only be explained as a training effect, but also as a result of capitalization of chance. One solution to reduce the risk of chance capitalization is the Bonferroni-Holm-method (Holland 1988). In this method the level of significance is adapted for each test in order to correct the results for chance. When applying this method to the findings of the studies, it can be expected that the number of significant effects will decrease, since many of the reported results are significant at the 5 percent level. However, since the exact p-values are not always presented in the studies, the Bonferroni-Holm method cannot be performed to compute the corrected number of significant results.

- **Results regarding physician self-ratings**

In the two studies, where the physicians' self-ratings relate to the perception of their own communication behaviour, positive results were found (Sideris 1986, Smith 1991b). The physicians perceived their communication behaviour as having improved after the training.

Of the five studies in which the physicians rate their recognition of psychosocial problems of patients, all report positive results concerning improved recognition (Gask 1987, 1988, Smith 1991b, Smith 1995a, Roter 1995). Follow-up measures of physician self-ratings are applied by Smith (1991b). They found that after 15 months the increased attitudes towards psychosocial medicine had remained consistent, while the physician's self-assessment of psycho-social skills had declined.

Comments

The physician self-ratings reveal quite positive results. Whether these can be regarded as course effects, or can be explained by other factors like social desirability is unknown. The physicians cannot be regarded to be 'blind' to the intentions of the measurements, and may be willing to respond positively for reasons described in cognitive dissonance theory (Festinger 1957). After having invested efforts and time into the course, participants may be more willing to admit that they have learned and gained benefits from the course.

• Results regarding patient-outcomes

In four of the five studies in which results are reported on the *satisfaction* of the patients with the physician-interaction, some training effects were found on general patient satisfaction with the consultation (Evans 1987, Gask 1989, Roter 1990, Smith 1995b). In the study of Evans (1987), a significant result was found on only one of the 17 items. In the studies of Gask (1989) and Roter (1990), the satisfaction measures concern ratings of simulation patients. It is doubtful that these results represent the opinions of real patients, since both groups may use different criteria. In Smith (1995b) effects were found on two of the five satisfaction scales, concerning 'confidence in the physician' and 'general satisfaction'. Despite the fact that the training objectives in this study concern *interpersonal and affective behaviours* and *stimulating patient participation*, no effects were found on patient satisfaction about 'opportunities to disclose' and 'physician affective behaviour'. Putnam (1988) found no training effect on satisfaction, which the authors mainly ascribed to a lack of sensitivity of their satisfaction-measure. Patients in this study were generally satisfied, so the satisfaction scores showed little variation. In a fifth study, data on patient satisfaction were not reported because of lack of sensitivity of the measurements due to high baseline satisfaction levels of the patients (Smith 1991b).

In one of the two studies in which *compliance* was measured, a training effect was found (Sideris 1986). Putnam (1988) found no effect which might be a result of a limited training effect on the communication behaviour. Sideris (1986) measured compliance one to three months after the consultation by comparing the health behaviours of the patient, such as use of medicines, diet or life-style, to the instructions given by the physician. It is unclear whether these patients were seeing their physicians for the first time. Since the patients in the study were all patients with a chronic disease, who can be expected to consult their physician regularly, it is questionable whether their health behaviour can be related solely to one single observed consultation.

As regards *symptom status*, which is measured in one study, no effect of improved communication behaviour is found (Putnam 1988). However, this may be the result of the limited effect of the training that was found in this study on the

observed communication skills.
In one of the two studies in which *psychosocial health* is measured, a clear effect was found (Roter 1995). Patients in the intervention groups showed a stronger reduction of emotional distress compared to the control group. The study only focuses on changes over time, no information is presented about the actual GHQ scores. It is unknown whether patients in the intervention and control groups differed at their initial GHQ levels. In the other study, which directed at patient-anxiety, no unequivocal effect was found (Evans 1987). In this study, the posttest state-anxiety was significantly lower, whereas the trait-anxiety was significantly higher compared to the pretest. This result can be explained in two directions. Pre- and posttest concerned different patient groups. Provided that trait anxiety is a relative stable characteristic, it may be that the higher post-training level is not a training effect, but can be explained by a bias in the selection of patients. An opposite explanation is based on the assumption that there is a strong relationship between state-anxiety and trait-anxiety. Hence, the unusual low posttest state anxiety can be regarded as a training effect. However, the lack of a control group in this study prohibits too far-reaching conclusions about the training effects on levels of patient-anxiety.

Comments
Regarding the proximal measures, results on the patient satisfaction with the consultation are not very consistent. Of five studies in which satisfaction is measured, four report some results, none of these are very convincing for different reasons. Improvements were found on none or only a limited number of items or scales, or responses were obtained from simulation patients instead of real patients.
Also the results on the distal outcome measures do not show convincing course effects. Results in two of four studies point to an improved compliance and a reduction of patient distress. It is doubtful whether these effects on distal outcome measures can be related solely to the interaction in one single consultation. Especially follow-up measurements have limited meaning in ascribing improvements to a training effect. In the follow-up period, patients may have had more contacts with the same or other health care providers. This may affect the outcomes and interfere with the effect of the observed intervention.

3.3 Discussion

In this review an overview is presented of evaluation studies of six graduate and six postgraduate training programs on communication skills, published since 1985. The studies were compared regarding target group, aspects of the training,

method of evaluation, and reported results. The results of the studies reviewed indicate that physicians can be trained in communication skills. Training effects are reported on ratings of communication behaviour, on physician self-ratings and on patient-outcomes. When comparing the results on these three types of measures, most training effects are found on the physicians' subjective evaluations. These results generally concern enhanced knowledge about, positive attitudes towards, and better recognition of psychosocial aspects of patients' health problems. Results with regard to the patient-outcomes mainly point to enhancement of satisfaction. Mixed results were found with regard to compliance, and no improvements could be demonstrated on health status.

Since the primary goal of the studies reviewed is an improvement of the doctor-patient interaction, the discussion will focus on the behavioural observations. The results concerning the behavioural observations show that overall training effects are found on a limited number of the observation categories; generally less than 50% of the observed behaviours. This may be regarded as a limited result, especially in studies where study-specific observation systems are applied, since in these studies effects are reasonably expected on all observation categories. It may also be regarded as an indication of problems to formulate complete protocols of adequate behaviour. Also in the domain of clinical proficiency it is observed that 'obligatory' behaviours are frequently not performed (Grol 1988, Bensing 1991). Not every behaviour is relevant in every encounter; this may reduce the chance of finding improvements.
When comparing the course effects on the three course objectives, it was found that improvement of the *interpersonal and affective behaviours* was most successful, whereas improvements of *information behaviours* appeared to be relatively less successful. The success on improvements of *receptive behaviours* was in between.

Several reasons may explain the relatively limited number of significant training effects. First of all, this review is concerned with training of clinically experienced physicians, who have already developed certain routines in their communication behaviour. Among experienced physicians it may be relatively more difficult than for undergraduate physicians to acquire new skills or to modify existing behaviours.

Furthermore, it may take some time before the newly acquired or modified communication behaviours become integrated in the daily routine behaviour of the physicians. This is illustrated by a study of Bowman et al. (1992) who performed follow-up measurements among postgraduates who had previously participated in Gask's (1988) graduate study. Bowman found a continued improvement of the

level of communication behaviour of the participants. The study suggests that physicians' communication behaviour still improves during their daily clinical practice.
This finding has implications for the intervals at which training effects are measured. Most of the studies reviewed included only one post-course measurement, which is generally performed directly after the course. Only two studies applied delayed post-course measurements (Levinson 1993, Roter 1990). Nevertheless, these studies did not reveal noticeable more behavioural improvements than the other studies. It is unknown how much time the integration process of the newly acquired behaviours may take. Incorporation of follow-up measurements in the study design may provide more insight in this matter.

Another important factor which may be responsible for the limited course effects is related to the number of participants in the studies. Too small a number of respondents increases the probability of a type II error. On average, the intervention groups in the reviewed studies consist of about 20 physicians. Several factors may be responsible for these limited numbers of participants. First, the course-programs may have a restricted enrolment capacity according to available facilities. Small training groups are easier to handle and provide more opportunities for individualized learning experiences and personal feedback of the trainer. Next, graduate and postgraduate physicians have, due to their clinical responsibilities, generally very little time available to attend to additional courses. Since the reviewed courses on communication skills often involve learning activities on several days, the required time-investment may be too demanding. A final reason for a limited response of participants in postgraduate studies may be a reluctance of physicians to attend communication skills training. According to Frederikson (1992), physicians develop reluctant attitudes towards communication skills in medical schools. There, in the pre-clinical years courses on communication skills are embedded in a context of behavioural sciences which are often not taken too seriously by the students. Furthermore, some authors even assume that the improvement of medical knowledge in the clinical years is detrimental for the quality of the social skills acquired in communication skills training in the earlier years (Roter et al. 1992, Moorhead et al. 1991).

Limited effects of courses on communication behaviour may be related to problems physicians may experience translating the learned skills to daily practice. Moorhead et al. (1991) showed that even when the attitudes and knowledge of the physicians about patient-centred communication have been improved, this hardly results in a more patient-centred style of consultation behaviour. Some studies in this review even suggest that physicians are reluctant to discuss psychosocial topics with the patient (Roter 1995, Levinson 1993, Putnam 1988). According to

Putnam (1988) physicians are reluctant to discuss psychosocial problems of patients because they feel that they should do something to solve them. Since the solution of such problems is often beyond the scope of power of the physician, this urge is highly frustrated. So, feeling responsible to offer a solution but at the same time fearing not to be able to offer a solution, may result in dissatisfaction with consultations where problems cannot be resolved rapidly (Moorhead et al. 1991). Consequently, physicians may suppress communication skills which invite patients to discuss their worries and problems.

In this respect it is striking that in the literature there is never a discussion about the limits of the possibilities to improve physician behaviour. In most, maybe even all, studies it is assumed straight away that the initial level of performance of the participants is poor by definition and therefore can and should be improved. However, if the level of behaviour of the participants is adequate before the intervention, it can be expected that the training effect will be limited. The finding in this review that training of *interpersonal and affective behaviours* is more successful than training of *information behaviours* may be explained by this phenomenon. Physicians are possibly more skilled in the informational domain than in the affective domain. Nevertheless, the initial level of the participants is not evaluated in any of the studies.
The probability of relatively high initial levels of performance should not be discarded. Since most studies use volunteer participants, the probability of self-selection bias in recruitment may be substantial (Roter 1995). This self-selection may result in an over-representation of participants who feel relatively safe in communicating with patients. They do not fear the confrontation with their own behaviour, nor the criticism of others during the training. People who have no specific interest in the field of doctor-patient communication may interact relatively less adequate with their patients, but at the same time may feel less urged to participate in a training.

A final comment concerns the generalizability of the results. A remarkable finding is that in studies with the most adequate research designs the fewest results are reported concerning improvements of communication behaviours. When focusing on the two methodological sound studies, the effectiveness of communication skills training does not look very promising (Putnam 1988, Levinson 1993). The remaining studies used pre-experimental designs like pretest-posttest and posttest control group designs. Since the generalizability of results based on these designs is limited, they can at most be regarded as 'indications' of possible training effects.
On the other hand, the difference in findings between more and less adequate research designs may be explained by limitations of randomization itself, which may reduce the chance of finding significant results. Black (1996) gives an

overview of limitations of randomized trials. He concludes that randomized trials provide an indication of the minimum effect of an intervention, whereas non-randomized studies offer an estimate of the maximum effect.

In conclusion, the evaluation studies of training programs on communication skills reviewed show limited training effects. When taking into account that studies which demonstrate positive training effects generally have a higher probability of being published in scientific journals, the real effectiveness of interventions may be even more limited (Kulik et al. 1986a).

Table 3.1: Graduate studies, training and evaluation methods

Study	Participants	Training			Evaluation						
		Objectives	Method	Duration	Design	Observation				Physician self-rating	Patient outcomes
						Patients	Number	Recording	Instrument		
Sideris et al. 1986	Int. Med. N=25+25[1]	information behaviours	lecture modeling discussion	4 x 1 hour ? period	posttest control group pt: 1-3 mnth follow-up	real	40 pre, 39 post	audio	specific: 9 cat.	communication behavior	assessment of communication behaviour follow-up: compliance
Gask et al. 1988	Gen.Pract. N=14	receptive behaviours information behaviours affective behaviours	manual modeling discussion video-feedback	18 x 2 hours 6 month period	pre- posttest	real	5 pre, 5 post	video	specific: 14 cat.	detection of psychiatric disturbance	GHQ[4]
Gask et al. 1989	Gen.Pract. N=20	receptive behaviours information behaviours affective behaviours	lecture (video) modeling role-play direct-feedback video-feedback	6 x ? hours 2 month period	pre- posttest	simulation	1 pre, 1 post	video	specific: 15 cat.	--	satisfaction (simulated pts)
Putnam et al. 1988	Int.Med. 2nd year N=11+8[1]	receptive behaviours information behaviours	manual lecture modeling role-play audio-feedback	1.5 hrs group 2.5 hrs indiv. ? period	pre- posttest control group	real	6 pre, 8 post	audio	standard: 5 cat. 2 pt. cat.	--	satisfaction compliance health status
Roter et al. 1990	Int. Med. 1st year N=3x16[2]	receptive behaviours information behaviours (patient management)	manual role-play discussion direct-feedback written-feedback video-feedback	? hours 1 month period	post-test control group	simulated	1 post	video	standard: 22 cat.	patient management (qualitative)	satisfaction (simulated pts)
Smith et al. 1991	Int.Med. 1st,2nd,3rd year N=28+20[1]	receptive behaviours affective behaviours (patient management)	manual lecture modeling role-play audio-feedback	? hours 1 month period	pre-posttest control group - 15 month follow-up (N=13)	--	--	--	--	psychosocial: - knowledge - attitudes - skills self-rating	--
Smith et al. 1995a, 1995b	Int.Med. Fam.Pract. 1st year N=15+11[1]	receptive behaviours information behaviours affective behaviours (patient management)	lecture modeling role-play	? hours 1 month period	pre-posttest Randomized control group	simulated real	--	video audio	--	(1995a): psychosocial: - knowledge - attitudes	(1995b): - satisfaction

Table 3.2: Postgraduate studies, training and evaluation methods

Study	Participants	Training			Evaluation						
		Objectives	Method	Duration	Design	Observation				Physician self-rating	Patient-outcomes
						Patient	Number	Recording	Instrument		
Bensing et al. 1985	Gen. Pract. N=6	receptive behaviours affective behaviours	?	?	pre- posttest	real	± 17 pre, ± 13 post	video	standard: 32 cat	--	--
Gask et al. 1987	Gen. Pract. N=10	receptive behaviours affective behaviours (patient management)	manual modeling dicussion video-feedback	18 x 2 hours 6 month period	pre- posttest	simulated	1 pre, 1 post	video	specific: 7 cat	recognition of PSP[4]	--
Evans et al. 1987	Gen. Pract. N=40	information behaviours	manual lecture discussion	2 x 3 hours ? period	pre- posttest	--	--	--	--	--	10 pre, 10 post patient-questionnaires: - anxiety - satisfaction
Levinson et al. 1993	Gen. Pract. Int. Med. N=15+15[1]	receptive behaviours information behaviours affective behaviours	lecture discussion	4.5 hours ? period	pre- posttest randomized control group	real	5 pre. 5 post	audio	standard: 34+9 cat 2 pt cat	--	--
	Gen. Pract. Int. Med. N=20		role-play direct feedback video-feedback	2.5 days ? period	pre- posttest					--	--
Faulkner et al. 1995	Health prof. N=4x20[2]	information behaviours	lecture discussion role-play	1.5 day (± 9 hours) 2 day period	test during training	simulated	1 post	video	specific: 6 cat	--	--
Roter et al. 1995	Gen. Pract. Int. Med N=23+24[1,3]	*1: problem-defining* receptive behaviours affective behaviours	manual lecture discussion role-play direct feedback video-feedback	2 x 4 hours 2 week period	post-test randomized control group pts: 2 wks, 3, 6 mnth follow-up	real simulated	± 9 1	audio	specific: 8 cat	recognition of PSP[4] patient management	GHQ[4]
	Gen. Pract. Int. Med N=22+24[1,3]	*2: emotion-handling* receptive behaviours affective behaviours									

[1] First N is the size of the intervention group, second N is the size of the control-group.
[2] Separate workshops are described together.
[3] The control group is the same for both interventions.
[4] PSP = psycho-social problems, GHQ = General Health Questionnaire
[5] Effect is measured qualitatively
[6] first digit is the number of significant results, second digit is the total number of observation categories

Table 3.3: Graduate studies, results

Study	Observations[6]				Physician self-ratings	Patient-outcomes
	Receptive behaviours	Information behaviours	Affective behaviours	General remarks		
Sideris et al. 1986	--	0/9 + total score	--		+ sumscore - individual items	+ compliance
Gask et al. 1988	1/5	2/3	3/3	0/2 pat. cat.	+ detection psych. disturbance	(not analysed)
Gask et al. 1989	3/4	4/5	1/5		--	+ satisfaction (1/5 items)
Putnam et al. 1988	1/4	1/1	--	↑ patient exposition	--	- satisfaction - compliance - health status
Roter et al. 1990	2/4	0/2	--	limited presentation	--	+ satisfaction
Smith et al. 1991	--	--	--		+ knowledge + skills-rating + attitude follow-up: + attitudes - skills-rating	--
Smith et al. 1995a, 1995b	not reported	not reported	not reported		(1995a): + 7 / 15 scales + self-confidence	(1995b): + satisfaction (2/5 scales)

Table 3.4: Postgraduate studies, results

Study	Observations[6]				Physician self-ratings	Patient-outcomes
	Receptive behaviours	Information behaviours	Affective behaviours	General remarks		
Bensing et al. 1985	4/14	3/7	3/5	- discussion of PSP[5]	--	--
Gask et al. 1987	3/5	?/3 not reported	--	limited presentation	± recognition of PSP[4,5]	--
Evans et al. 1987	--	--	--	--	--	+ general satisfaction (1/17 items) + higher trait anxiety + lower state anxiety
Levinson et al. 1993	no effect	no effect	no effect	--	--	--
	2/?	0/?	0/?	+ ↓pt distress + ↓ affect limited presentation	--	--
Faulkner et al. 1995	--	--	--	inappropriate design	--	--
Roter et al. 1995	3/4	--	1/3	limited presentation	+ ↑ recogn. of PSP[4] + ↓ GHQ-score	
	2/4	--	2/3	limited presentation		

[6] first digit is the number of significant results, second digit is the total number of observation categories
+ effect is statistically significant
- effect is not significant
↑ variable increased
↓ variable decreased
-- non applicable

Reviewed studies

Bensing J.M., Sluijs E.M. (1985) Evaluation of an interview course for general practitioners. *Social Science and Medicine*; 20: 737-744.

Evans B.J., Kiellerup F.D., Stanley R.O., Burrows G.D., Sweet B. (1987) A communication skills programme for increasing patients' satisfaction with general practice consultations. *British Journal of Medical Psychology*; 60: 373-378.

Faulkner A., Argent J., Jones A., O'Keeffe C. (1995) Improving the skills of doctors in giving distressing information. *Medical Education*; 29: 303-307.

Gask L., McGrath G., Goldberg D., Millar T. (1987) Improving the psychiatric skills of established general practitioners: Evaluation of group teaching. *Medical Education*; 21: 362-368.

Gask L., Goldberg D., Lesser A.L., Millar T. (1988) Improving the psychiatric skills of the general practice trainee: An evaluation of a group training course. *Medical Education*; 22: 132-138.

Gask L., Goldberg D., Porter R., Creed F. (1989) The treatment of somatization: Evaluation of a teaching package with general practice trainees. *Journal of Psychosomatic Research*; 33: 697-703.

Levinson W., Roter D.L., (1993) The effects of two continuing medical education programs on communication skills of practising primary care physicians. *Journal of General Internal Medicine*; 8(6): 318-324.

Putnam S.M., Stiles W.B., Jacob M.C., James S.A. (1988) Teaching the medical interview: An intervention study. *Journal of General Internal Medicine*; 3: 38-47.

Roter D.L., Cole K.A., Kern D.E., (1990) An evaluation of residency training in interviewing skills and the psychosocial domain of medical practice. *Journal of General Internal Medicine*; 5: 347-354.

Roter D.L., Hall J.A., Kern D.E. et al. (1995) Improving physicians' interviewing skills and reducing patients' emotional distress. *Archives of Internal Medicine*; 155: 1877-1884.

Sideris D.A., Tsouna-Hadjis P., Toumanidis S.T., Vardas P.E., Moulopoulos S.D. (1986) Attitudinal educational objectives at therapeutic consultation: Measures of performance, educational approach and evaluation. *Medical Education*; 20: 307-313.

Smith R.C., Osborn G.G., Hope R.B., et al. (1991b) Efficacy of a one month training block in psychosocial medicine for residents: a controlled study. *Journal of General Internal Medicine*; 6: 535-534.

Smith R.C., Mettler J.A., Stoffelmayr B.E., et al. (1995a) Improving residents' confidence in using psychosocial skills. *Journal of General Internal Medicine*; 10(6): 315-320.

Smith R.C., Lyles J.S., Mettler J.A., et al. (1995b) A strategy for improving patient satisfaction by the intensive training of residents in psychosocial medicine, randomized study. *Academic Medicine*; 70: 729-732.

4

Computer-Assisted Instruction in teaching communication skills

The idea of using computers in instruction originates from the late 1950s and early 1960s (Price 1991). At that time computers were very large and very expensive. Due to technical developments both in audio-visual media as well as in computer media, interactive video and computer-assisted instruction (CAI) programs have become much more accessible for educational purposes (Keane et al. 1991). The equipment has become smaller and cheaper over the years. One of the important milestones which heralded a new period of expanding technical potentials and increasing interest in the use of computers as teaching tools was the introduction of the personal computer in the early 1980s (Price 1991, Keane et al. 1991). Another important development at that time was the marketing of videodisc players which started around 1978 in the United States (McNeil et al. 1991). Since that time, interest in the development of educational computer software has increased tremendously.

Originally, computers could present only text information. In recent years, the potentials of CAI have increased dramatically with the development of colour screens, advanced graphic displays, computer controlled video recorders and videodisc players, and recent developments in digital audio and video technologies. Although CAI offers many options for flexibility and accessibility of learning, CAI is still considered to be in the early stages of development and implementation (Hansen 1989, Price 1991).

In this chapter is described what a CAI program is, what its features are, as well as its strengths and weaknesses in teaching communication skills.

4.1 Concepts in Computer-Assisted Instruction

Computer-Assisted Instruction[1] refers to using computers to deliver instruction (Jonassen 1988) and achieve educational or training objectives (Hannafin et al. 1988). According to Götz's (1991) definition, CAI can be understood as a learning aid which is navigated with the assistance of a computer according to didactics and methodology and to the media utilized. Learning is accomplished through the interaction between the learner as a learning subject and the computer as a medium of instruction. The computer interacts with the learner on the basis of the previously programmed didactic and methodological structure (Götz 1991).
These definitions bring the main features of CAI to the fore. First, CAI presents *instructional content*, i.e. knowledge or skills, using *different media*. Further, these media are controlled by a *computer program*, generally referred to as educational software or courseware, which runs on computer equipment (Jonassen 1988). Next, this process of controlled presentation of information is guided by *didactical principles* which aim at a clear and instructive presentation of the course content. And finally, the course content is presented *interactively*, meaning that the presentation can be influenced dynamically by the learner.
A unique feature of CAI is its potential for combining several media, like text, graphics, pictures, animation, sound and video, in presenting the course content (Hansen 1989, Seabury et al. 1993). By combining these media, CAI is capable of providing the learner with opportunities to acquire substantive information, view illustrations, analyse and critique simulations, solve problems, answer questions, practice skills, and receive feedback (Gentry 1992). Thus information from these different media can be integrated in a structured and flexible way (Garrud et al. 1993). Combining these media offers the opportunity to present course content in a lively and attractive way.

4.1.1 Individualized learning

One of the outstanding features of CAI is the *individualized* learner approach. CAI

[1] In the literature, many equivalent labels of CAI are found, mostly consisting of three words, of which the first always is 'computer'. Synonyms of *assisted* are *aided*, *based* or *managed*. Synonyms of *instruction* found in the literature are *education*, *learning*, *teaching* or *training* (Kulik et al. 1980, Hannafin et al. 1988, Romiszowski 1988, Götz 1991, Larsen 1992, Garrud et al. 1993, Min 1995). If the use of video is a paramount feature of the CAI program, often the label Interactive Video Instruction is used (Romiszowski 1988, Hansen 1989, Gentry 1992, Seabury et al. 1993), or even Computer-Assisted Interactive Video Instruction (Yoder 1993).

offers an individualized way of learning in two respects. Firstly, the learning is individualized as regards the scheduling of learning sessions; CAI offers individualization in planning and pace (Garrud et al. 1993). The learner is free to decide *when* and *how often* he will work on the course, and *how long* the sessions will last. This flexibility in planning of sessions makes a CAI course potentially far more accessible than regular group-courses with a teacher. In the latter, the learner has to accommodate to a pre-fixed schedule of lectures (Maguire et al. 1988).

Secondly, CAI learning is individualized in terms of the learning process. As the learner navigates through the course content, he may be able to control the order and level of detail of the presented information. While interacting with the program, the learner supplies constant information about his progress. Consequently, based on this information, the CAI program can tune the learning process to the individual needs and level of understanding of the learner. An extensively adaptive CAI program offers each learner the option of following a lesson at his own level of knowledge and skills. As a result, it is theoretically possible that no two learners will cover exactly the same information in the same sequence (Hannafin et al. 1988). It should be noted however, that the amount of individualization of the learning process that a CAI program offers the learner is largely determined by the *instructional design* of the CAI program. The level of individualization depends on the extent to which the CAI program is designed to respond to individual reactions of the learner.

4.1.2 Instructional design

The instructional design involves the (pre)definition of how the course content is presented, and what didactical principles are to be applied in the course. Instructional design relates to matters such as how different sections of the program can be reached. Typical sections of a CAI lesson are: topic selection menu's, information sections, visual/auditive examples, practice questions, and the like. Further, instructional design is about how different sections are moulded: the way topics are presented, whether they are presented in a fixed or variable order, when exercises are presented, what kind of exercises will be presented, whether the content is presented with text or visually supported by pictures, graphics, etc.

The instructional design determines the ways and the extent to which the learner can interact with the program. *Interaction* is a central concept in CAI, since it is one of the main characteristics of CAI programs which contributes to its effectiveness (Hannafin et al. 1988, Cronin et al. 1992). Interaction refers to the active exchange of information between the computer and the learner. Through interaction CAI lessons foster a kind of dialogue between the learner and the computer as a way of strengthening the value of the lesson (Hannafin et al. 1988). It helps to attract and sustain attention of the learner, which assures that

messages are received and that critical attributes of the course are attended to (Hannafin et al. 1988, Garrud et al. 1993). Interaction invites the learner to play an active role in the learning process by helping the learner to process the information adequately and more profoundly, by engendering the thought processes necessary for learning (Jonassen 1988). Furthermore, it allows the learner to test his knowledge. Erroneous ideas and reactions can be traced and corrected by feedback (Whyte et al. 1995).

Through interaction the learner can exert control over the sequence of events and navigate actively through the course. The extent to which the learner can control the course program interactively is determined by the kind of instructional design that is used. As regards the level of control, a distinction is made in the literature between *program control* and *learner control* (Ross et al. 1988, Jonassen 1988, Götz 1991, Cronin et al. 1992). This distinction in control is closely related to two basic types of underlying instructional designs, described in the literature. These are *linear* and *branching or adaptive* designs (Hannafin et al. 1988, Jonassen 1988, Price 1991).

Program control means that the learner has relatively little control over the sequence of topics in the lesson. Program control is related to a *linear design*. In a linear designed program, the flow of instruction is pre-determined to a fixed sequence. The number of interconnections between the separate topics of the lesson are limited. With a linear design, all learners proceed through the same instructions in the same order, regardless of their responses.

Learner control means that the learner can direct the flow of instruction provided by the system, thereby guiding the system to respond to his own needs and interests as he perceives them. Examples of learner control are: the tempo of a lesson, decisions about the order in which units are administered, when to proceed to a posttest, how many practice exercises are required, when to review lesson segments, whether or not to seek additional instruction (Hannafin et al. 1988).

Learner control is related to a branching design, which implies a complex network of interconnections between separate topics of the lesson. Each topic refers to several other topics through a number of interconnections. Hannafin et al. (1988) distinguish five kinds of branching: forward, backward, random, absolute and conditional. *Forward* branching allows the learner to skip information. *Backward* branching allows the learner to return to an earlier portion of a lesson. In a *random* branching design the learner has the freedom to select any topic in any order he likes. This design is used when the order or the sequence of a group of lesson segments is not important. *Absolute* branching means that all learners jump to the same specified section of a lesson, regardless of their individual performance. Finally, *conditional* branching implies that the jump to a specific section executes only under specified circumstances. Otherwise stated, each

learner may jump to a different section, due to differences in performance during the course.

When comparing linear with branching designs, both designs have their specific characteristics and potentialities. The limitations of *linear designs* are that they offer no individualization, no opportunity for faster learners to skip unnecessary instruction, no adaptation to differences in entry level and no opportunities to review previous instruction. However, the principal advantage of linear designs is the capacity of the developer to maintain control over the sequence of the instruction (Hannafin et al. 1988). Topics can be presented in a logical and coherent sequence. As a consequence, linear designs are less complicated to program, requiring few conditions that affect program operation.
The limitation of a low level of individualization in linear designs can be overcome by 'branching' designs. *Branching designs* are technically more difficult to develop but they allow for greater individualization, which means that the needs of the individual learner can be met more precisely (Price 1991). In branching designs, the interconnection between topics may be quite complex, so care should be taken that each combination of topics results in a clear and coherent presentation and does not cause inconsistencies in the lessons.
Learner control is most effective when learners have some expertise in the content area, are trained in the use of learner control, possess high aptitude, are highly inquisitive, and are unlikely to skip important material or quit the lesson prematurely (Cronin et al. 1992).

Although a large amount of learner control offers the learner flexibility and individuality, it cannot be stated that a high level of learner control (adaptive design) is generally more favourable than a low level of learner control (linear design). Early guidelines for CAI promoted extensive learner control. The line of reasoning was that learner controlled designs put the learner in control of both the structure and content of the program. As stated above, this makes such programs inherently more personalized and therefore more meaningful to the learner. Current research indicates, however, that learner control may not always be advisable (Cronin et al. 1992).
Hasselerharm et al. (1990) compared the effect of different instructional control strategies on performance. They found in their study no differences between three conditions with varying levels of program and learner control. Students in the learner control condition judged the control strategy more positively than students in a program control condition. Still, the options to vary the sequence of different kinds of information were not used intensively. The authors considered a learner controlled strategy not advisable for low achievers, because they tend to skip the exercises.

Others have reported that learner control of various aspects of instruction like difficulty of practice, instructional support, pace, sequence, etc., was less effective than program control (Jonassen 1988, Hannum et al. 1989). McNeil et al. (1991) found in their meta-analyses of interactive video instruction programs a lower effect-size in learner controlled programs compared with program controlled programs. A learner controlled design assumes the learner will make wise choices depending on knowing what is best for him. However, learners do not always make the most effective choices. Many learners, especially low achievers, lack the knowledge to make appropriate decisions in learner controlled programs (Hasselerharm et al. 1990, Cronin et al. 1992). Inadequate decisions can result in creating a learning path along which successive topics do not adequately fit to each other, which might disturb their comprehensibility. Matters of instructional integrity (important sequence decisions and presence of prerequisites) should preferably be controlled by the designer, not by the learner (Hannafin et al. 1988).

4.1.3 Types of CAI

In the literature a distinction is made between at least three types of CAI: drill and practice, tutorial and simulation programs (Reeves 1986, Hannafin et al. 1988, Jonassen 1988, Hansen 1989, Price 1991, Wang et al. 1994). A *drill and practice* CAI program aims at reinforcing knowledge learned elsewhere, in another course. Drills do not teach new concepts, skills or information. Drills can be used to strengthen already learned associations and to build skill in concept classification and rule using (Wager et al. 1988). The purpose of this type of CAI is to reinforce or strengthen correct responses, while identifying and correcting incorrect responses. The student has to answer a series of questions. If the answer is incorrect, the question is presented again, sometimes appended with hints or explanations. The correct answer generally is given after two or three incorrect responses (Price 1991).

Tutorials are regarded to be the most versatile forms of CAI (Jonassen 1988). They are used to present new information, skills or concepts. Tutorials may be seen as replacing the bulk of the teaching function of textbooks, lectures or audiovisual systems in which new information is presented (Hannafin et al. 1988). Tutorial CAI programs imitate the human teacher (Price 1991). Tutorials present information in small segments, often in text form, sometimes supplemented by visual or audio illustrations, ask questions frequently, evaluate the responses and provide the learner with feedback. Questions and feedback serve a different role in tutorials from the one used in drills. In tutorials their function is to direct attention, verify comprehension and detect misunderstandings (Hannafin et al. 1988). Tutorial programs are generally program controlled (Min 1995).

The third kind of CAI, *simulations*, is designed to approximate, replicate or emulate features of some task, setting or context. A simulation is a representation

of reality. Good simulations present a believable set of circumstances, reasonable response options, logical consequences for responses, and a revised set of circumstances based upon the ongoing interaction of the student. A simulation offers stimuli to which the learner can respond, and allows the student to control input parameters and to observe the output (Min 1995). The learners' actions are followed by a change in the stimuli, which serves as feedback. This is what Reigeluth et al. (1989) define as natural feedback. This feedback allows the learner to deduce relationships among his actions and resulting consequences (Jonassen 1988). Real simulation programs are learner controlled (Min 1995).

The type of CAI employed has implications for the appropriate amount of learner control and consequently for the type of design that is applied. A realistic simulation needs relatively more learner control than a tutorial, to be effective. Not all kinds of tasks are equally suitable for simulation programs. Most educational computer simulation programs are found in the 'hard' sciences like physics, chemistry, biology and economics (Min 1995). Simulation of behavioural skills has a more restricted potential, due to the wide range of possible behaviours. Manual/mechanical skills can be almost perfectly simulated. However, simulating social skills often becomes more artificial because of their complexity (Hansen 1989). Mechanical skills are usually characterized by a relatively narrow range of adequate behaviours. In the area of social skills the definition of the adequate and inadequate type and sequence of behaviours is not strict. In this area a specific situation allows for a huge range of possible behaviours. For practical reasons, it is not possible to put all these different behaviours in a simulation program. Consequentially, most CAI courses on social skills are tutorial-based programs.

4.1.4 Motivational aspects of CAI

Motivational aspects are highly relevant because of the individualized approach of CAI towards learning. Learning behaviour is not triggered by a set schedule of course sessions, or by a human teacher who supervises the learner's progress. With CAI, the learner has to be fully self-motivated. Accordingly, a CAI lesson has to be attractive and should be pleasant and rewarding to follow. The level of motivation is related to the perceived difficulty of the course. If perceived levels of difficulty are too high or too low, the motivation of the learner will be relatively low (Cronin et al. 1992). This difficulty-level not only relates to the content and the exercises, but also to the operation of the course program. The content of a CAI course is not as directly accessible as for example written course material. The learner has to acquire some experience to operate the program and understand its possibilities. It is important that both the content and the operation of the program match the level of understanding and experience of the learner. If the content and operation of the CAI course are not well designed or lack motivational appeal, the

learner involvement wanes and the computer is abandoned (Keller et al. 1988). Many CAI programs are initially appealing because of novelty effects like animated graphics, sound effects, interaction and feedback. However, it is important to keep the learner motivated after the novelty effect of these features has extinguished (Keller et al. 1988).

One model which systematically describes how to design motivational aspects of courseware is the ARCS model, developed by Keller et al. (1988). The ARCS model describes four factors of motivation: Attention, Relevance, Confidence and Satisfaction. The *attention component* is concerned with getting and sustaining attention. This component has mainly to do with the design of the course and how the course content is presented. An implicit requirement in a program designed to hold the attention of the learner is that he should not be easily distracted by disturbing aspects of the program. If the program looks nice and attractive, is consistently designed, and operates smoothly in an understandable way, attracting and retaining the learner's attention will not be a problem. The *relevance component* is concerned with the relationship of the material presented to the interests and goals of the learner. This component focuses on the content of the course. The course content has to be perceived as helpful in achieving the learner's major goals. Programs are also perceived to be relevant when the content is related to current interests and past experiences of the learner. The *confidence component* is concerned with the belief of the learner that there is an acceptable probability of success. People do not feel competent until they have acquired a new skill. Learners need freedom to make mistakes without embarrassment and a degree of challenge to enable them to perform well. Features in the instruction that promote feelings of personal control over outcomes and an expectation of success will help develop confidence and persistence. The *satisfaction* component is connected with opportunities to practice the newly acquired knowledge and skills. Positive, respectful feedback is most adequate in motivating the learner. Furthermore, if the outcomes of the learners' efforts are consistent with their expectations, learners feel satisfied and motivated to continue.

4.2 Learning communication skills with CAI

This section describes the learning experiences CAI programs can offer in the context of learning communication skills. A complete learning process for communication skills is facilitated by two basic types of learning: cognitive learning and experiential learning (Maguire et al. 1988, Kern et al. 1989). Cognitive learning consists of the *acquisition* of basic knowledge of content or behaviour. Experiential learning consists of the *application* of this knowledge to a range of

relevant cases or situations, and *self-assessment* of what has been learned (Reigeluth et al. 1989). As described in the previous chapter, in conventional courses on communication skills, generally four educational methods are used to bring about both types of learning. These are: instruction, modelling, role-play, and feedback (Dickson 1989, Anderson et al. 1991, Whitehouse 1991, Frederikson et al. 1992). Instruction and modelling belong to the cognitive learning domain; these methods facilitate the acquisition of knowledge. Role-play and feedback belong to the experiential learning domain. These methods facilitate the application and assessment stages of learning.

The educational methods found in CAI correspond to a large degree with these four educational methods in conventional courses (Binsted 1987, Hansen 1989, Seabury et al. 1993). As regards cognitive learning, both CAI and conventional courses do provide instruction and modelling. It is on the level of experiential learning, specifically the application of the learned knowledge, that the major differences between CAI and conventional courses occur. In particular *role-play* cannot be found in CAI courses. Role-play is an essential educational method in the acquisition of communication skills. It implies doing exercises to experience the application and performance of specific skills. These exercises are generally followed by receiving personal feedback on the performance of the skills practised. In CAI, this experiential (in vivo) educational method is replaced by a cognitive (in vitro) type of exercise; answering *practice questions*.

In this paragraph, the characteristics of the four educational methods of CAI courses will be described, as well as their similarities and differences compared with the educational methods in conventional courses of communication skills.

4.2.1 General aspects

When comparing a CAI course to conventional courses on communication skills, the most outstanding difference relates to the way in which the course content is presented. In conventional courses the content is provided by a human teacher who arranges the training sessions and coaches the learners in acquiring their knowledge and skills. In CAI, the learning process is pre-programmed by the program designer, and the learner interacts with computer and video-equipment. In addition to the danger of equipment malfunction (Gentry 1992), the lack of human qualities and lack of human interaction may affect the *learning process* and may restrict the potential of CAI, compared with learning by 'live supervision' (Poulin et al. 1990, Price 1991, Gentry 1992). Although CAI can offer the learner a dynamic learning process, the scope of its dynamics is predetermined by the instructional design. Complete two-way communication which allows both parties interchangeably to take the initiative, is not possible in CAI as it is with a human teacher.

The lack of human interaction may also affect the *motivation* of the learner to

complete the course. The absence of a (human) instructor who supervises the progression of the learners and evaluates their performances, may result in a different attitude towards the course. CAI does make a stronger appeal to the internal motivation of the learner, whereas in conventional courses the motivation is controlled more by the training sessions schedule. Furthermore, the computer does not, like a human instructor, notice reduced motivation or interest on the part of the learner or deal with it. When a CAI course is not able to motivate the learner, this may diminish the learning effects.

A particular strength of CAI is helping the learner to design a programmed plan (Hansen 1989). CAI can help the learner to devise a plan before engaging in a complex activity, which should raise skills development to a higher level. CAI can foster plan-oriented behaviour by helping learners recognize and understand such behaviours in complex social situations. In this respect, a helpful feature of interactive video programs is the system's ability to break down the linear succession of complex events into manageable parts that learners can conceptualize and practice (Poulin et al. 1990). The program can help the learner to interpret the meaning of a particular action. It can elaborate on a given event by accessing a parallel event with an alternative approach.
Limitations of conventional modes of instruction are related to organisational aspects (Gentry 1992). For example, role-play in conventional courses typically requires the participation of more than one learner and an instructor for feedback. A supervised practical requires the participation and cooperation of veteran (experienced) practitioners and their clients. CAI programs can efficiently provide vicarious experience of a wide range of clinical problems that may not be otherwise readily available, without organisational problems (Lambert et al. 1990). A CAI course can be made available every day of the year, while a conventional course is generally organized in a specific period, requiring the participants to adapt to the schedule. The around-the-clock availability of a CAI course, may contribute to its effectiveness (Sittig et al. 1995).

4.2.2 Instruction

As far as instruction is concerned, CAI does not differ much from conventional types of courses. CAI instruction can be presented by means of written texts on the computer screen, which is comparable with manuals provided in conventional courses; or by means of verbally presented texts, which is comparable with conventional lectures. Both modalities have their specific strengths and weaknesses. When the instruction is provided by means of written text, the learner can proceed through the subsequent screenpages by pressing a button. The advantage of this method is that learners can set their own pace in acquiring the information. However, this way of presenting information can be somewhat

monotonous and not very motivating for the learner. This may encourage some learners to skip quickly through these screen-pages and read the information superficially. This behaviour may be triggered by the fact that reading large amounts of information from a computer screen is less comfortable than reading them on paper. This may make the instruction less effective. It is important that the instruction is provided in a pleasant way that keeps the learner motivated, particularly when it consists of large amounts of information.

A verbal presentation of the instruction may be preferable to the learner. Listening to a narrator who presents the information verbally, may require less effort from the learner than reading. However, a consequence of a verbal presentation of the instruction is that the narrator sets the speed of information delivery. The learner can neither slow it down, nor speed it up. The learner can also easily miss a piece of information simply by not listening, or because of a temporary loss of attention due to a phone call, a visitor, or the like. This limitation of verbal presentation of instruction can be solved by including an option in the program that allows the learner to review the information if necessary (backward branching).

An additional advantage of verbally presented instruction, is that the computer screen can be used to present keywords, pictures and graphics to support the verbally presented text. With the help of supportive visual aids, the importance of different aspects of the instruction can be stressed more easily, and the information can be presented with a clear structure. It is regarded beneficial to keep the amount of textual information on the screen limited and focused on essentials (Price 1991).

Compared with conventional lectures, one advantage of CAI instruction may be that it can be provided in a more *flexible* way. The interactive design of CAI allows for a *dynamic presentation* of the instructional content. In contradistinction to 'face-to-face' teaching, where learners often listen passively, in CAI the learner plays a more active role (Min 1995). Furthermore, learners may process the information in accordance with their own interests and at their own tempo. CAI offers the learner the freedom to select the topic of his present interests. The CAI presentation of information may be more lively and attractive when compared with manuals because of the option of switching between different media and between theory and examples. Information can also easily be structured hierarchically and divided into core information and background information. Access to background information can simply be integrated into the core information of the course and made dependent on the needs of the learner.

A disadvantage of CAI may be that, whereas in lectures there are generally opportunities for (group) discussion, in CAI the opportunities to debate the content of the instruction are limited. As a result, CAI does not provide conditions for the exchange of different experiences and opinions among colleagues.

4.2.3 Modelling

Modelling, the presentation of visual examples of adequate and inadequate behaviours, is an important educational method in CAI in learning communication skills (Binsted 1987, Gentry 1992, Seabury et al. 1993). There are no major differences between the way modelling is applied in CAI and in conventional courses. In conventional courses, behaviour is modelled by means of real persons or video-recordings of interactions. In CAI, behaviour is modelled only by means of video-recordings.

Since in CAI the display of the video-examples is program controlled, the presentation can be manipulated to single out important aspects. For example, movements can be shown in slow motion, or displayed in steps by pausing at important points, or repeated several times to amplify the learner's perception of the modelled example. Without video-examples, learners may receive instruction on the general principles that underlie patient-physician interaction, but it is more difficult for them to translate these principles to daily practice (Yoder 1993). The video-fragments show the learner how to use certain techniques in what communicative situations, and what undesirable effects inadequate communication skills can have on patients.

Most video-examples are recordings of dramatized situations. It is important that these dramatizations are highly realistic, particularly when the learners are experienced people who are familiar with these situations in daily practice. Otherwise the learners may consider the models unconvincing, which in turn may affect their motivation to attend to the course. So, effective modelling means presenting concrete illustrations of difficult situations, which closely resemble the daily reality of the learners, and adequate solutions. This helps the learners to transfer the learned skills to their daily practice.

Differences as regards modelling between CAI and conventional types of courses are comparable with those in instruction; they cover flexibility in reviewing models and the options of discussing the examples displayed. In CAI the presentation of modelled behaviour may be more flexible than modelling in group courses. The learner has the opportunity of reviewing the behaviour modelled as often as he likes, which is not possible in group courses. Group courses, on the other hand, supply the opportunity to discuss the modelled behaviours with the instructor and other course-members, which is not possible in an individually-based CAI course.

4.2.4 Practice questions

The function of practice questions in CAI is comparable with the function of role-play in conventional courses. Practice questions offer the opportunity to learn from discovery, although not in the same way as role-play. Practice questions encourage the learner to actively process the content of the course and offer the

learner the opportunity to test the acquired knowledge (Garrud et al. 1993). Asking questions during learning keeps the learner actively engaged, it fosters remembering, and offers the opportunity to monitor the learner's understanding (Steinberg 1991). Learners who are required to respond actively to practice questions achieve higher posttest scores than learners who receive the same lesson without practice questions (Cennamo et al. 1991).

In CAI, different types of practice questions can be found with respect to the way the question is presented and the response of the learner is evaluated. Basically a distinction can be made between fixed-format and free-format questions. In fixed-format questions, the possible answer alternatives are included in the question. The learner selects an answer by recognizing it in a listing (Price 1991). Evaluation of responses to fixed-format types of questions is fairly straightforward. The computer simply has to judge if the response was legal or illegal, and if legal, whether it was correct or incorrect, and react accordingly (Hannafin et al. 1988).

Free-format questions offer no pre-definitions of possible responses. Hannafin et al. (1988) refer to the latter kind as *constructed-response questions*; the learner constructs his response, often by typing one or more words or sentences. Free-format questions can be either of the short-answer, or of the essay type (Price 1991). Free-format questions are valuable because they provide access to higher level learning outcomes involving the organization, integration, or relation of ideas. Their greatest strength is that they offer learners the maximum opportunity to respond. They require the learner to determine the answer based on free recall, which indicates a higher level of knowledge than recognition (Price 1991).

Responses on free-format questions are more complex to evaluate (Hannafin et al. 1988, Price 1991). Here, the problem arises of anticipated and unanticipated input. The evaluation of free-format responses has to deal with matters like: what are elements of a correct response; what is the minimum number of elements required; are all elements equally weighted or are some parts more important than others; should elements be given in a prescribed order or in any order; how should spelling errors be dealt with; should the use of equivalent responses or synonyms be permitted. The longer and more complex the responses, the more difficult their computerized evaluation becomes. Therefore, efforts to admit free-format questions to CAI have thus far been limited (Price 1991).

A specific type of practice question, which resembles most conventional role-play, concerns simulations. With the help of video, CAI can present quite realistic situations to the learner which can be practised by interacting with these simulated realities (Binsted 1987, Seabury et al. 1993). In interactive video-examples, learning can result from the display of a video sequence of a physician-patient interaction, and the learner has to choose what the physician should do next. This is followed by a video sequence showing the consequence of the response of the learner (Binsted 1987). This simulated reality allows the learner to operationalize

concepts in a "live" case example by trying different interventions, repeating various sequences, or obtaining feedback about the various choices as the practice situation unfolds (Seabury et al. 1993). Practising situations by means of cases on a video screen is much more engaging, providing the learner with more information. It is also more instructive than a written case narrative. Moreover, when compared with role-play, CAI can provide simulations with a constant quality level, independent of the abilities of the interlocutor to identify with the character enacted in the interaction.

Nevertheless, practising a situation in a CAI course is less realistic than in a conventional role-play situation. Compared to interacting with a real person in a role-play, a CAI exercise is like making a dry run. The interaction with video-examples, remains several steps removed from true interactivity, due to the fact that the complexity and subtleties of a live interview cannot be captured fully by a computer program (Hansen 1989, Melnick 1990, Seabury et al. 1993). Interactive video is tied to its prerecorded sequences that do not allow more than an illusion of personalized interchange (Hansen 1989). Furthermore, the number of parallel video sequences of behavioural alternatives, available in a video-example, is often limited. The development of a video-example with many different behavioural alternatives, each representing a possible reaction of different learners, is a very complex and expensive matter.

On the other hand, CAI exercises have some advantages over conventional role-play. A CAI course offers a learner a relatively safe learning environment, compared with role-play in conventional courses. It allows students to try responses or interventions that they would hardly dare use in a live field interview, because of their insecurity as to how to respond to the unexpected. Learners experience the computer as neutral, with feedback and hints as helpful resources that may or may not be used. They experience CAI as relatively less intrusive than a live supervisory authority looking over their shoulders while they are practising new skills (Hannafin et al. 1988, Lambert et al. 1990, Gentry 1992, Seabury et al. 1993, Napholz et al. 1994). Furthermore, it is again the flexibility of CAI, which may help the learner to repeat the exercises as often as he likes, to become more acquainted with the difficult situations. This is often impossible in conventional types of training.

In general, information is mastered best if it is presented in small segments, followed by questions, evaluation and feedback (Price 1991). However, it is hard to tell what is the best frequency or number of questions to include in a CAI program. The effect of the use of questions on learning was tested in a study where a CAI lesson without questions was compared to a CAI lesson with questions (Price 1991). The results indicated that the use of questions was clearly superior in terms of student mastery of the subject material. However, in this study

no conclusions could be drawn on the best frequency for questions. Price (1991) recommends including questions frequently, shortly after the information is presented.

4.2.5 Feedback

The evaluation of the response leads to a decision about the correctness of the response. The outcome of this decision is communicated to the learner by means of feedback. Feedback provides the learner with information about the adequacy of his ideas and responses (Whyte et al. 1995). Reigeluth et al. (1989) discriminate between two types of feedback: natural and artificial. Natural feedback is related to demonstration and is generally found in simulations. It provides the learner with a realistic (simulated) display of the consequences of the learner's response. This type of feedback is appropriate in simple stimulus-response like tasks, where the learner himself can infer the implications of the displayed consequences of his response. Artificial feedback is more appropriate in the context of complex tasks, such as when a chain of responses is required before the intended consequences occur. In these tasks natural feedback may be rather inefficient, because it does not provide enough information. Artificial feedback generally has an instructional character. It provides the learner with an explicit description of the consequences of his responses and relations between responses and outcomes.

Hannafin et al. (1988) recommend that feedback should immediately follow the response of the learner. Feedback should state *whether* and *why* the response was correct or incorrect and it may present remediation or supplementary information (Schimmel 1988). Feedback has both motivational and cognitive effects (Steinberg 1991). A respectful formulation of feedback that provides encouragement facilitates overali learner performance (Schimmel 1988, Price 1991). Feedback on correct responses is of relatively less importance compared with feedback on incorrect responses. It might be superfluous to explain to the learner what he already knows. Instructive feedback on an incorrect response is of more importance, because it can modify the ideas of the learner, and thus enhance the effectiveness of the course. Hannafin et al. (1988) further recommend that feedback for an incorrect answer should not be more attractive than for a correct answer. If learners deliberately provided incorrect answers to see more entertaining feedback, the purpose for which the course was developed might be defeated.

CAI programs can offer the learners feedback, hints and background information just as live supervision does. However, some differences between CAI and conventional courses can be observed. Feedback on the practice questions in CAI

has a different character from feedback provided after role-play in conventional courses. CAI programs generally provide standardized feedback which is not learner specific. Moreover, a CAI program generally does not offer the learner the opportunity to explain why, for what reason he gave a certain response. Also CAI offers the learner no opportunities to dispute the program's feedback on the learner's response (Poulin et al. 1990). A CAI program can detect and remedy common learner mistakes, but is often not equipped to handle their uniquely idiosyncratic ideas. In other words, a CAI program can only process expected responses, and ignores unexpected ones. Consequently, CAI feedback may be relatively less relevant and effective to the learner. Human teachers are more flexible in this respect. A human teacher in a conventional course can analyse and understand the line of reasoning of the learner, and detect misunderstandings and illogical inferences, and provide feedback that is more individually tuned to the performance of the learner.

4.3 Effectiveness of CAI

In the literature, several authors have reviewed evaluation studies on the effectiveness of CAI programs (Kulik et al. 1986a, 1986b, Melnick 1990, McNeil et al. 1991, Cohen et al. 1992). Generally, in these reviews it is concluded that CAI provides an effective teaching method. Their conclusions will be summarized briefly.

Kulik et al. (1986a) performed a meta-analyses of 101 evaluation-studies of the effectiveness of CAI in colleges. The studies reviewed date from 1967 to 1983, with only 12 studies dating from the eighties. The average effect size was .26, which means that students who participated in a CAI course performed better than control students. The average instruction time in CAI courses was two-thirds of the time spent in conventional courses. The human and social sciences were more frequently (55%) represented in the sample, and also had a larger effect size (.35) than the courses on the natural sciences (.15). In 21 studies, course completion rates between CAI and conventional courses were compared. In 62% of these studies, higher completion rates were found in the conventional courses.

Kulik et al. (1986b) found comparable results in their analysis of 24 effect-studies on CAI courses in adult education. These courses, dating from 1964 until 1982, concerned both basic education (arithmetic, reading, writing) as well as technical training (e.g. use of durable articles). They found an average effect size of .42. In 83% of the studies, CAI courses resulted in higher outcome scores than conventional courses. In half of these, the difference was statistically significant. As regards training time, CAI courses appeared to take less than conventional courses. The course completion rate was reported in only two studies; in one

study, the drop-out rate was lower in the CAI; in the other study, drop-out rates were the same in both CAI and conventional courses.
In both reviews, studies are included from a pre-micro-computer era. This means that the computer technology used in the studies reviewed is quite different from current technologies. Since computers could only present text information in the early stages of CAI, early programs cannot be compared with later, more advanced versions which include various types of media such as video instruction (Lambert et al. 1990).
CAI programs which included the use of video instruction were reviewed by McNeil et al. (1991). They evaluated 63 studies dating from 1978 to 1988, on the effectiveness of interactive video instruction programs compared with conventional non-interactive course programs. They found that, on average, interactive video programs resulted in higher outcome levels than in the control group. The average overall effect size was .50. Significant positive effects were found on 50% of the reported outcome measures, whereas only 5% of the outcomes were significantly negative. The analysis also showed that interactive video as supplementing instruction is related to significantly higher achievement effects than when interactive video is used to replace conventional instruction. In this study, no information is provided about the topics of the effect-studies reviewed. Since the average overall effect size of these interactive video studies is slightly higher than effect sizes reported in reviews of non-video CAI programs, the authors suggest that interactive video CAI programs are more powerful than non-video CAI programs.
Cohen et al. (1992) analysed 47 studies on health professions education, in which CAI methods were compared with conventional teaching methods. The studies dated from 1973 until 1990. They calculated an average effect size of .41 in 37 studies which supplied sufficient information. In 68% of the studies, CAI methods resulted in higher outcomes, in 28% this difference was significant. In only one study did CAI result in lower test scores. When learning time was reported (9 studies), it was generally shorter in the CAI group (5 studies). Information about how the participants evaluated the CAI instructional method was reported in only 4 studies; in 3 studies the CAI method was favoured; in one the conventional method was favoured.

These reviews show that CAI is an effective learning method in a wide range of content areas. It appears that CAI provides an efficient way of learning, since it requires less time, and results in higher outcome levels, compared with conventional methods. However, the reviews provide no clear cut information about the effectiveness of CAI programs in the area of social sciences, specifically with regard to learning social skills. CAI programs on social skills are generally scarce (Garrud et al. 1993). Only a few studies have been located which will be

described briefly.

Droste-Bielak (1986) compared a text-based computer-simulation to role-playing for teaching interviewing techniques to students in nursing. The experimental and control group both attended a lecture and group-discussion on interviewing techniques. The experimental group practised the skills in a computer-simulation, the students in the control group practised in role-plays with each other, guided by an instructor who provided feedback. Next, both groups performed interviews with real patients which were recorded on audiotape. These recordings were evaluated afterwards by a rating system of both content and technique of interviewing. No differences in interviewing behaviour were found between both groups. It was concluded that computer-simulation was as effective as role-playing in teaching interviewing techniques. In a non-structured evaluation, the computer-simulation was generally positively evaluated on several aspects like pleasantness, helpfulness, clear structure, and lowered performance. However, points of criticism concerned inappropriate response, limited realism, and lack of personal interaction.

Poulin et al. (1990) evaluated an interactive video program among 16 social work students; ten juniors and six seniors. This CAI program was supplemented by reading material, in-class role-plays and group discussions. The intervention was directed to provide the learner with a repertoire of responsive interviewing behaviours which help interviewees to feel comfortable, valued, and free enough to express their real concerns and feelings. The intervention was evaluated by means of a self-rating scale of the students' subjective perceptions of their interviewing skills. The juniors rated 7 of their 12 skills as significantly improved; whereas in seniors, only 3 skills were significantly improved. However, the seniors' base-line level was above the juniors' base-line level. When the participants were asked to rate the effectiveness of the individual components of the intervention, the interactive video was rated as relatively least effective; whereas the class discussions and lectures were rated as relatively most effective.

Garrud et al. (1993) evaluated a CAI course on nonverbal communication by comparing it to a conventional lecture on the same topic. The evaluation study was performed among 151 first-year medical students, equally divided in two conditions. The CAI group scored significantly better than the lecture-group on a knowledge-test on the covered material, whereas the median usage-time was shorter than the lecture. However, there was a positive relationship between the test score and the CAI usage-time. Although one of the objectives was the ability to 'discriminate between good and bad practice in the use of nonverbal behaviour and choose effective nonverbal behaviour in an interview', this was not evaluated by observing and analysing the students' behaviour in real interactions.

Napholz et al. (1994) evaluated an interactive video program on 'therapeutic communication' in 65 first semester senior nursing students, with a questionnaire

on therapeutic communication. They found that the pre- to posttest improvement scores in the training group were significantly higher compared to the control group. This effect was maintained at follow-up.

These evaluation studies display a mixed picture of the effectiveness of CAI. In the only study where the effectiveness was evaluated by means of behavioural observations, no results were found (Droste-Bielak 1986). However, in this study the CAI program was text-based which may have limited the impact of the intervention. In the other studies, which did include video-examples, only cognitive evaluation methods were applied which all showed positive results. However, these methods have limited ecological validity regarding the generalizability of these results to actual communication behaviour in daily practice.

4.4 Conclusion

In this chapter the characteristics of CAI programs have been described and some comparisons have been made with conventional, non-CAI courses. It has appeared that both CAI and conventional courses provide comparable educational methods related to cognitive learning. The most salient difference between both types of courses concerns experiential learning. In this respect the potentials of CAI are relatively limited compared to role-play in conventional courses. CAI involves predominantly learning from visual events which enables the learning of communication skills from visually presented models (Hansen 1989). Actual performance in realistic interactions with real or simulation patients, is not available in CAI. Furthermore, in CAI the opportunities to receive personal feedback and for discussion of the course content are limited, due to restrictions in true interactivity compared to human interactions. Some authors consider that, given the current state of the art in technology and knowledge about educational processes, CAI programs which manage and control a complete learning process are as yet not achievable (Hansen 1989, Kamsteeg 1994). In their view, CAI has to be regarded as a learning tool, used to extend and complement the capabilities of teachers. To be effective, CAI should be supplemented with conventional group discussion, role-plays and instructors' lectures (Hansen 1989, Poulin et al. 1990).
On the other hand, CAI has some benefits which make it a suitable method for teaching communication skills. CAI's effectiveness is related to its greater capacity to make problem-based learning easier through risk-free (and thus less inhibiting) yet otherwise realistic clinical simulations. In the absence of critical instructors and co-learners, CAI offers the learner a safe learning environment. Moreover, CAI provides more flexible, personalized instruction, both with regard to the scheduling of sessions, as well as during a session in selecting and reviewing different

sections of theory and examples of the course. These features make learning more enjoyable (Keane et al. 1991). CAI users attempt more, understand more, and more frequently attain their learning objectives than do their non-CAI peers. Furthermore, CAI courses can be available around the clock, without organisational problems, which facilitates the access to learning.

No definitive conclusions can be drawn, as regards the potentials of CAI as an effective method for teaching communication skills, since not much evaluation studies have been performed yet in this area. Overall, CAI appears to be an effective learning method, which is generally positively evaluated. It is found to be time-efficient; CAI learners require shorter learning time to attain at least the same results as in conventional courses. However, CAI is associated with the risk of lower course completion rates.
The few results obtained in the area of social skills revealed that CAI appeared to be more effective on knowledge tests and subjectively evaluated performance. In one study the interactive video in CAI was considered less effective than class discussions and lectures. More informative in evaluating the effectiveness of CAI in learning communication skills, may be the use of behavioural observations of the participants. Only one study could be located in which a CAI program was evaluated in this way (Droste-Bielak 1986). The results of this study suggest that the CAI study is at least as effective as a conventional role-play course.

CAI courses are often compared with traditional courses. In this comparison the lack of interaction with a human instructor is often regarded as a limitation of CAI. However, the advantages of a human teacher should not be overstated. It is well known that not all teachers are equally skilful and effective in presenting lessons and keeping the learner motivated. Although human teachers may be able to respond more flexible to needs of learners, their flexibility depends to a large degree on their repertoire of knowledge and experience.
Furthermore, the comparison between CAI and conventional courses is difficult. Comparison-studies often suffer various confounding effects, which compromise the results reported in the literature (Jonassen 1988, Keane et al. 1991). The most important confounding variable, when a CAI course is compared to a conventional course, is that not only differences in method are compared, but often also differences in content. This means that in fact messages are compared rather than media.

As regards the establishment of the effectiveness of a CAI course on communication skills, it should be noted that generally mastery of adequate communication skills is a complex process which is gradually acquired over time. This is mainly due to the fact that it entails the teaching of principles, the

application of which has to be reinvented in each new social interaction. According to Hansen (1989), social interactions can be regarded as 'unstructured' areas of decision-making. In social interactions, goals are never specified in detail, neither are relevant information, possible effects and final solutions. Every situation a learner has to act upon in daily practice, is at least slightly different from any other situation the learner has ever encountered or will encounter. Contextual factors are more complex and more transitory than those faced in technical manipulations and environments (Hansen 1989). Because of this variability, any advanced level of skill performance has to be acquired through active discovery, and not through direct instruction. Simply applying someone else's modelling is not sufficient to conduct socially adequate, just because the model cannot cover all situations.

The learner has to develop his own version of adequate behaviour by exploring different situations and experimenting with different approaches until he is satisfied with the results (learning by doing). This applies equally to the CAI method and conventional methods of training. Generally the course content is restricted to the basic principles of communication. Eventually, the learner has to refine the acquired skills in daily practice. The learner has to remain open to the possibility that acquired strategies will not work, and thus must be ready to break with them later to make new sense out of what has resulted from the interaction with the situation. Hence, reflection is at the heart of skill development (Binsted 1987). Reflection is an internal process which involves fitting new ideas in existing cognitive maps, valuing of new ways of doing things, or having insights. It turns practice into meaningful experience which allows the learner to develop an increasing reservoir of successfully and unsuccessfully encountered challenges. This permits intuitive skill performance in the future. Furthermore, active discovery not only means applying and strengthening 'wanted' behaviour, but also unlearning unwanted behaviour. This may be the most difficult and 'painful' task (Hansen 1989).

5

Interact-Cancer

Interact-Cancer is a computer-assisted instruction (CAI) program, designed for teaching communication skills to medical specialists in oncology (Hulsman et al. 1992, Janssen et al. 1993). In this chapter both the instructional design as well as the content of Interact-Cancer will be described.

In Chapter 2 good quality doctor-patient communication, was characterized as patient-centred. In Interact-Cancer, a number of communication skills are presented which are related to a patient-centred style of communication. The way this style is presented in the course is closely related to the systematic approach used by Ivey (1993) in his microcounselling program. Ivey (1993) defines micro-skills as communication skill units of the interview that facilitate more intentional interaction with a patient. Mastering various micro-skills provides the physician with specific alternatives to use with different types of patients (Ivey 1993). In using the basic skills effectively, the physician will learn to enter the world of the patient. The aim of the course is to teach the physician to understand the world from the patient's perspective, by using these skills (Ivey 1993). Acquiring a number of micro-skills is expected to result in a more patient-centred style of communication behaviour.

The microcounselling approach consists of several important principles: 1) focus on teaching specific micro-skills, 2) use of modelling (observational learning), 3) practice exercises that enhance self-awareness, 4) feedback which facilitates

learning (Baker et al. 1989). These principles are widely recognized in conventional courses, as well as in CAI courses as is described in Chapters 3 and 4.
In the first part of this chapter it is explained how these basic principles and educational methods of CAI, as described in the previous chapter, have been implemented in the design of Interact-Cancer.
The second part of the chapter describes the content of the course and the selection of communication skills. These skills are presented in the context of four situations derived from medical practice: history taking (basic skills), disclosure of bad-news (diagnosis), providing information, and dealing with emotions of patients. These topics are presented in four course modules.

5.1 Program design of Interact-Cancer

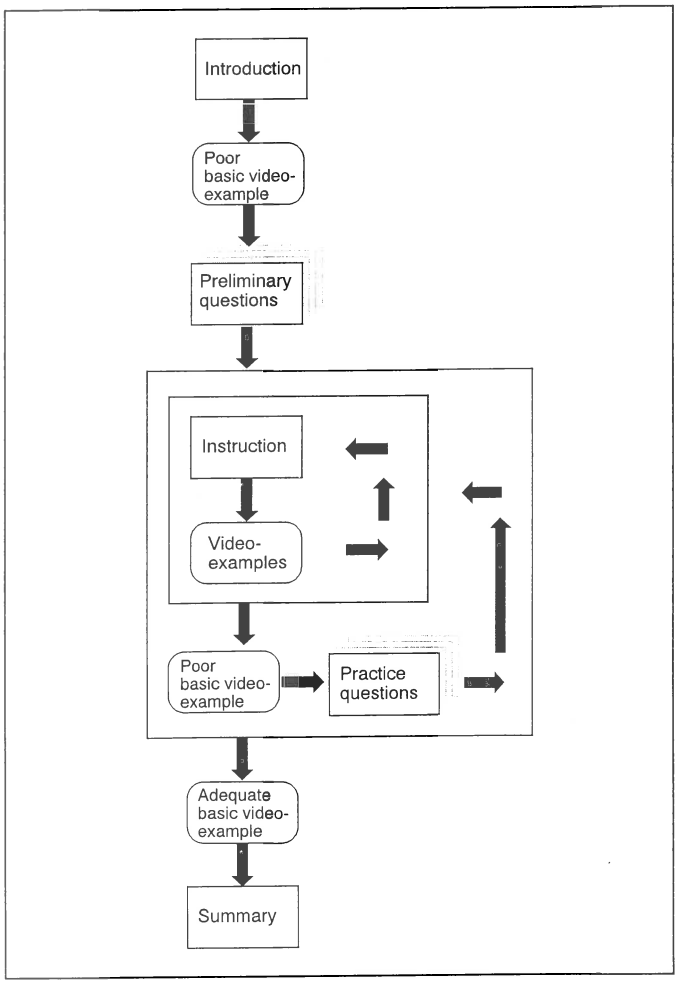
This section will describe the technical aspects of Interact-Cancer. These concern the instructional design, and the educational methods of the course. The section will end with a brief description of the equipment on which the course is presented.

5.1.1 Didactical structure

Interact-Cancer consists of four modules, each dedicated to a different topic in doctor-patient communication. When starting Interact-Cancer, a topic selection menu is presented, allowing selection among the four modules or termination of the program. The topic selection menu allows the learner to branch to any of the four modules in any order according to personal preferences. However, in the introduction of the course the participants are recommended to select the modules in the order as they are presented in the menu, to ensure a balanced presentation of the course content. This course-introduction is presented automatically when the learner starts-up the program for the first time. Each module can be interrupted at any point after which the learner automatically returns to the topic selection menu.

Three modules are divided into 7 sections. A schematic representation of these sections and their interconnections is displayed in Figure 5.1.
1) Introduction. Here, information is presented about the aim and content of the module.
2) Basic video-example (poor version). A video-example is presented of a consultation in which the physician does not display a patient-centred style of communication with the patient. Several micro-skills are inadequately performed and others are totally lacking. In each module this is the main consultation around which all topics are centred. The poorly performed and lacking communication behaviours will be discussed as the module continues.

Figure 5.1: Didactical structure



3) Preliminary questions. These questions are meant to focus the attention of the learner on the communicative aspects of the interaction which has been displayed in the basic video-example.

4) Presentation of theory and video-examples. Systematic information is presented about relevant communication skills on the topic of the specific module. Some theoretical notions and comments are given and alternative behaviour is suggested. Most of the communicative behaviour patterns suggested are illustrated with short additional video-examples. Both poor and adequate examples of the specific micro-skills are shown.

5) Practice questions. After a specific amount of theory, practice questions are presented in which the micro-skills described are related to the basic video-example. A relevant part of this basic video-example is repeated before the questions are presented. The questions concern the ways in which the example can be transformed into a patient-centred style.
6) Basic video-example (adequate version). After all theory and practice questions have been presented, again a complete video-example is displayed of the same consultation as the one presented at the beginning of the module. However, this time the example demonstrates adequate performance of the communication skills described in the module. The physician has adopted a patient-centred style in the communication with the patient.
7) Summary. At the end of the module, a schematic summary of the communication skills described is presented.

The fourth module has a different structure. The content is not centred around one basic video-example. The module consists of six common situations which are each presented with a short video-example followed by instruction and practice questions.
The instructional design of each module has basically a linear character. Within a module, the order of topics is fixed. However, backward branching is allowed to enable the learners to review the instruction and video-examples, in case their attention has waned for a moment.
The specific characteristics of the individual sections in the didactical structure will be described in the following sections.

5.1.2 Instruction

All instructions are presented verbally by two narrators. One narrator acts as a teacher or course leader; he presents the structure of the course and introduces different parts and topics of the course. The other narrator has the role of the expert in communication skills; he presents all the theory relating to the individual communication skills. The use of two narrators helps the learner to obtain a clear picture of the structure of the course.
The decision to present the instructions verbally is based on the perception that it is a more lively and attractive way to present the course content. It is more pleasant for the learner to listen to the instructions rather than to read them from a computer screen. Furthermore, presenting the instructions verbally instead of by means of written texts prevents learners from skimming superficially through the course. A verbal presentation may attract and sustain the learner's attention better than a text-based presentation of the instructions.
Since verbally presented instruction has an inherent risk that information will be missed when the listener's attention wanders, measures have been taken to

enable the learners to review the instruction. For this reason, the narrated text is divided in different sections, each dealing with a single topic. The learner has the option of repeating the current or a previous section of the instruction. Furthermore, the core concepts and essential clauses of the instruction are presented by means of supportive texts on the computer screen. These texts visually assist in clarifying the structure of the course and in stressing the importance of specific concepts. Hence, they facilitate a clearer presentation and thus a better understanding of the theory. The function of these computer-texts can be compared to overhead sheets used in oral presentations with an audience.

5.1.3 Modelling: video-examples

The video-examples provide the learner with concrete illustrations of how to handle difficult situations and to develop a patient-centred style of communication. In the course as many communication techniques as possible are illustrated by video-examples. In these video-examples, two kinds of video-fragments are used: 'basic' and 'single-technique' examples. *Single-technique examples* focus on the performance of one specific skill, and its function in the interaction.

Basic video-examples, as the word suggests, play a central role in the course. They are presented at the beginning and at the end of a module and serve as a basis for the presentation of several communication techniques. In basic video-examples a more or less complete medical consultation is presented in which the physician makes several communicative mistakes. Every mistake is discussed separately, sometimes illustrated by another video-example of a relevant communication skill; a single-technique video-example. The use of video-examples which show almost 'complete' consultations, has the advantage of illustrating the interaction between different communication techniques, their appropriate place in a consultation and their effects over time. The *process* of communication is consequently more visible. The presentation of isolated techniques alone, as in the single-technique video-examples, gives a more artificial impression of their use and effects.

All basic and most single-technique video-examples are available in two versions: a poor and an adequate example. The poor examples function as a reference level which has to be improved. If this reference level is far below the behavioural level of the learner, it is likely that the learner may perceive the course as being irrelevant, since he may perceive his behaviour as relatively adequate. For this reason extremely poor examples are intentionally not presented to prevent learners from taking the course less seriously, because of the marked deviation between the course-members' own level of performance and the mistakes in communication presented. Special care has therefore been taken to prevent caricatures and to create lifelike and recognizable situations, closely related to the daily practice of the target group.

In all video-fragments a doctor and a patient are shown in a medical consultation. The doctor is always the same oncology surgeon, in basic and in single-technique video-examples; in poor as well as in adequate examples. The rationale behind this is that if different physicians are shown in poor and adequate situations, the learner might easily conclude that quality of communication is a personality characteristic. Showing only one physician in both situations is a way of tackling this attitude. It gives a strong suggestion that every (poorly performing) physician can learn to communicate adequately with patients.
Different patients appear in the various video-fragments. All basic video-examples present consultations with the same breast cancer patient. During the course, the course-members get to know her better; they learn about her medical and private situation. A favourable concomitant of these basic consultations may be that developing involvement during the course with the *case*, on the part of course-members, improves involvement in the *course*.
In the single-technique fragments several different cancer patients are shown, who illustrate only certain reactions to certain behaviours of the physician. Their personal background is not relevant for the modelling of skills. Using other patients here prevents disturbance of the thread of the story in the basic video-examples.

5.1.4 Practice questions and feedback

After several communication skills and accompanying video-examples have been presented, a number of multiple-choice questions are presented on the screen. In these questions, the theory discussed is related to the basic video-examples, of which a relevant part is repeated before the presentation of the questions. On average, a series of practice questions consists of four exercises, and each multiple-choice question generally offers four answer-alternatives.
The practice questions are not intended to test what the course-member has learned, but create the opportunity for more active learning on the part of the learner. Their function is to encourage the learner to process actively the content of the course and to direct his attention to important situations in the video-examples and important elements in the theory. Further, the practice questions verify the comprehension of the learner and check for misunderstandings.
When the practice questions are presented, the computer screen is divided vertically in two halves. In the upper halve the question is presented together with the answer-alternatives. After the learner has selected an answer, feedback appears in the lower half of the screen. The learner can only select one answer-alternative. Questions are not repeated after an incorrect response. The impossibility of selecting a second answer-alternative prevents the learner from using a trial-and-error strategy and trying all answer-alternatives uncommittedly. The restriction to one answer at a time, makes the learner think before he acts. Only if the learner branches backwards or repeats the module, it is possible for

him to select another answer.
The feedback is specific to each answer-alternative. It consists of a statement as to whether the answer is correct or not, followed by an explanation of why the answer is (in)correct and, if applicable, what the correct answer should have been.
Since the practice questions relate to a specific fragment of the basic video-example, the option to review the video-fragment is available; both before (when the question is presented) as well as after the selection of an answer (when the feedback is presented).

5.1.5 Equipment and operation

The equipment of Interact-Cancer consists of an IBM compatible personal computer with a keyboard and mouse, a video-disc player, a Compact Disc-player, and a video-monitor with loudspeakers. The program is written in the TAIGA computer language, which is an authoring system, specially developed for computer-assisted education (TAIGA 1987).
Participants do not need to have any experience with computers to be able to operate the program. The operation of Interact-Cancer is kept as simple and 'user-friendly' as possible, to ensure pleasant and trouble free progress of the course for the learners. All available options are continuously visible on the screen, at any point in the program. All options can be selected with the computer keyboard or mouse.
Two features make using the program rather flexible. It is possible to halt the program at any point. This enables the course-members to answer the phone or to deal with any other temporary interruption. It is also possible to complete the session at any point in the course. The program stores the breakpoint, which allows the learner to continue the course at the next session from the point where it was interrupted in the previous session. This feature enables the course-members to switch easily to other activities.

5.2 Content of Interact-Cancer

The content of Interact-Cancer has been developed by the researchers assisted by a multi-disciplinary team of experts in communication with patients (Hulsman et al. 1992, Janssen et al. 1993). The members came both from the social sciences and medicine. With their help, special care has been taken to ensure that the reality level of the course content and the video-examples in particular was adequate, both from a social science as well as a medical perspective.
The content of Interact-Cancer is based on the patient-centred approach to doctor-patient communication which contains three elements: taking into account the psychosocial perspective of the patient, sharing power and control, and being

supportive. These elements are reflected in a selection of communication skills which are presented in four modules, each dedicated to a different topic, relevant in cancer-care, as described in Chapter 2. The first module concerns basic skills in the patient-centred style of communication, which are illustrated in the general intake interview. The second module focuses on disclosure of emotionally disturbing information, which is illustrated in breaking bad-news, by giving the patient the diagnosis. The third module is about providing information, illustrated in a consultation before the onset of the treatment. The last module focuses on dealing with the patient's emotions. The basic video-examples in the first three modules show a female patient who visits the surgeon because of suspicion of breast cancer. In the course, her medical history is followed from the first contact until the start of the treatment. A different consultation is described in each module. In this way, the techniques are presented in a context which is related as closely as possible to the daily practice of the course-members. In the fourth module, the skills are illustrated in six consultations with different patients who are in different phases of the treatment. Different kinds of emotions are discussed which could not be illustrated in one and the same patient.
The content of each module will be described in the following paragraphs.

5.2.1 Module I: Basic skills

The first module covers basic communication skills considered important in optimizing the doctor-patient relationship and developing a patient-centred style of communication. These skills are presented in the context of history taking in the first encounter. The behaviours described facilitate the sharing of power and control of physician and patient, they help to bring the psychosocial perspective of the patient to the fore, and they help the physician to be more supportive of the patient. The module discusses fundamental behaviours that Ivey (1993) places at the base of his micro-skills hierarchy, including attending behaviours and some of the proposed basic listening skills (Table 5.1).
In the module, the importance of paying more attention to the lifeworld of the patients is explained and how this can be done. Several techniques are presented to the learner, which support the patient in being more expressive, speaking openly, feeling free to ask questions, and being less reluctant to talk about particular worries, anxieties, insecurities and problems. To establish this open solicitous attitude, the physician is taught two kinds of basic behaviours: receptive and expressive skills. Receptive skills involve being sensitive and perceptive to the verbal and nonverbal behaviours of the patient, which may give cues to the patient's concerns. The expressive skills of a physician involve the verbal (explicit) and nonverbal (implicit) invitation to the patient to express his concerns. These verbal and nonverbal aspects of patient and physician behaviour are described consecutively.

Table 5.1: Techniques of Module I: Basic skills

Receptive skills (active listening)	**Expressive skills**
• Verbal behaviour of the patient	• Verbal behaviour of the physician
- general remarks	- less closed questions
- implicit questions	- more open-ended questions
	- exploring / asking for clarification
• Nonverbal behaviour of the patient	• Nonverbal behaviour of the physician
- intonation	- posture
- facial expressions	- eye gaze behaviour
- body language	- no interruptions
	- stimulation of patient participation

Verbal behaviour of the patient. It is explained that patients can give information about their situation in a direct as well as an indirect way. Since patients are often reluctant to speak about their personal situation, they often talk about their concerns in an indirect way. Sometimes, simply the mentioning of a topic can be regarded as an implicit request for more information, although the patient does not explicitly ask for it. Different signals may alert the physician to the patient's insecurity about a topic, and the wish to discuss it with the physician. For instance the intonation gives information about the mood and feelings of the patient about the content of what he is saying.

Nonverbal behaviour of the patient. The same applies to nonverbal behaviours of the patient which can also provide the physician cues about the inner world of the patient. Facial expressions a well as his posture and movements can give information about how the patient feels and what is bothering him. By being more receptive to these signals, the physician can get more information about the patient and his lifeworld.

Verbal behaviour of the physician. The behavioural style of the physician in the interaction with the patient has a strong influence on the participation of the patient and what he will and won't tell in the consultation. It is the physician who determines, to a large degree, how much room a patient gets to express himself about his topics of interest. A patient will be more open about his concerns towards a physician who expresses interest and displays an inviting and open attitude. Examples of stimulating verbal behaviours are: verbal encouragements (humming, 'please continue'), paraphrasing, asking for clarification and reflections. The kind of questions the physician uses and the way the physician formulates these questions can also make a difference. The difference is explained between

using open-ended questions, which encourage the patient to give detailed answers in his own words, and closed questions, which often have a multiple-choice format and only need an affirmative or negative answer. A specific kind of question is the explorative question, or asking for clarification, which is particularly appropriate when the meaning of nonverbal and implicit verbal signals of the patient are unclear to the physician.

Nonverbal behaviour of the physician. Apart from the verbally inviting behaviours, also the nonverbal behaviours of the physician make a difference whether the patient feels invited to speak or not. These nonverbal behaviours specifically concern the physician's posture (seating, relaxed and directed at the patient), his eye gaze behaviour (frequent eye-contact with the patient) and nonverbal encouragements (nodding, smiling).
Another nonverbal aspect concerns the turn of speech. An open, inviting atmosphere is facilitated if the physician is not in too much of a hurry and does not interrupt the patient. Interrupting patients disturbs their information giving, and may even distort the information content. The same applies to changing between subjects. When the physician switches too quickly between topics, the previous subject may not be discussed fully and not finished adequately. Consequently relevant information may be lost. If the physician is too directive, the patient may become demotivated to tell more.

5.2.2 Module II: Breaking bad-news

In the second module of Interact-Cancer, an example is presented of how to disclose emotionally disturbing information, and how to respond to the primary emotional reactions of the patient. A common model of bad-news communication is presented, in which the disclosure is divided into three phases (Schouten 1988). In this module the patient-centred style implies that the patient perspective should be taken into account when going through these three stages. The patient should be informed adequately, and provided with sufficient support. It is pointed out that it is inefficient and ineffective to overload the patient with information he can hardly process in the given circumstances. In the module, a number of techniques are described which are relevant to the three phases (Table 5.2).

The first phase concerns the conveyance of the disturbing information. The message should be conveyed honestly, in clear and unequivocal phrases. If the message remains unclear to the patient, he is left behind with more worries and insecurities. The importance of conveying the message as soon as possible following the onset of the consultation is demonstrated. Otherwise it may become more difficult to change the subject to the bad-news and there will be less time available to support the patient in coping with the news.

Table 5.2: Techniques of Module II: Breaking bad-news

Phase 1: breaking bad-news
- Adequate timing; no unnecessary delays
- Clear but sensitive phrases, without softening or masking the truth

Phase 2: paying attention to emotional reactions
- Give the patient time to react
- Reflect of emotional reactions

Phase 3: informing the patient about action plans
- Take the limited receptivity of the patient into account
- Wait until the patient is able to listen
- Do not overload the patient with information
- Provide detailed information in the next consultation

The second phase of the disclosure refers to paying attention to the patient's emotional response. This is the moment to keep silent for a while, to give the patient time to process the message and handle his response. What will be said next depends on the patient's response (Maguire et al. 1988). Patients can respond in several ways: with denial, bitterness, rebellious anger, and confusion. Interact-Cancer describes these emotional reactions and gives examples of how a physician can respond to them. It is demonstrated that it makes no sense to try to convince the patient with a lengthy explanation of the background to the bad-news, without paying attention to the emotional reaction. Since the patient is not able to process all information it is useless to overload him with medical facts. It is more important to focus on the emotional response and not only on the medical facts. A pivotal technique in paying attention to the emotional reaction of the patient is reflection; the explicit labelling of the reaction. Reflection makes the emotions more explicit and ensures that they can be shared between patient and physician. Reflecting the emotional reaction is a way of showing concern and understanding, which is a confirmation for the patient that his response is justified. A next step in paying attention to the emotions, is discussing the feelings of the patient. This includes getting to know his thoughts and feelings better as well as giving some supportive information and explanation.

The third and final phase in the disclosure of bad-news concerns the conveyance of information and discussion of consequences. The emotional state of the patient should determine on when a start is made providing more information, and on the amount of information to be communicated. Owing to his emotional state, the patient is easily overloaded with facts and will not be able to process them. Providing too much information at this point is useless. The physician has to

assess the extent to which the patient is able to listen to and understand what he is told. In this phase, it is sufficient to give only a brief outline of what will happen next and to answer the patient's questions briefly. In the next consultation all this information can be repeated and discussed in more detail. Disclosing bad-news is an ongoing process. Not everything can be said and understood in one encounter. On later occasions, the patient will require different and additional information or even the repetition of information mentioned earlier (Woodard 1992).

5.2.3 Module III: Providing information

In the third module, Interact-Cancer presents several techniques, mainly deriving from Ley (1988), to improve the quality and effectiveness of the information exchange. A patient-centred style of providing information is established when power and control over the course of the consultation is shared, and the patient's perspective is taken into account. This implies that the way the information is provided, should be tuned to the informational needs and capabilities of the patient.

Improving the information exchange is not just a matter of increasing the amount of exchanged information, but is primarily a matter of increasing the quality of the information exchange. The goal of providing information is that it is presented in an effective manner, taking into account how the patient receives it. An adequate manner of providing information assures that the patient is able to understand and remember at least the most important aspects. This is established first by presenting the information in a clear and structured manner, and secondly by adapting the presentation to the patient's frame of reference (Table 5.3).

Table 5.3: Techniques of Module III: Providing information

- **Structured presentation of information**
  - Present an overview of topics to be discussed
  - Create a dialogue
  - Provide information in short episodes
  - Summarize essential information
  - Provide written information
  - Start with the most important information (primacy-effect)
- **Adapt to the frame of reference of the patient**
  - Check the patient's pre-existing knowledge
  - Check the patient's reactions and understanding
  - Take the patient's frame of reference into account
  - Provide relevant and meaningful information
  - Give explicit advices

Clear and well structured presentation of information

A central element in this module is the notion that the effectiveness of information delivery can be enhanced when a *dialogue* with the patient is created instead of a monologue. In a dialogue, the patient has the opportunity to respond to the information the physician provides. The patient's response gives the physician cues about the understanding of the patient, which may help the physician to adjust his story and the way he presents it. One basic technique in establishing a dialogue is to provide information in *small portions*, alternating with questions to check the patient's understanding or short breaks which give the patient the opportunity to respond. The verbal and nonverbal facilitative attitude of the physician, as described in the first module, will also influence the patient's participation and the extent to which a dialogue is established.

Another principle illustrated which facilitates a clear presentation of information, is giving the patient in advance *an overview* of the structure and the amount of information that will be presented. This prepares the patient and helps him to process the information better. Furthermore, since people generally tend to remember best the information they have received first (primacy-effect), it is important to *start with the most important information*. The recollection of this information after the consultation can be enhanced by repeating it later in the consultation by means of a *summary*. Finally, it is recommended in the module to provide some information in *written* form, so the patient can easily look it up if he wants to know more, or discovers that he cannot remember some details.

Adapt to the patient's frame of reference

Patients often have some *pre-existing knowledge* about the topics under discussion. Information can be provided more effectively if this pre-existing knowledge is taken into account. If this knowledge is correct it can amplify the understanding of the newly provided information. However if the patient's pre-existing knowledge is incorrect, it may interfere with the new information, thereby disturbing the effectiveness of the latter. By taking the pre-existing knowledge into account, the problem of interference from prior patient knowledge can be resolved.

Taking into account the *frame of reference* of the patient is in line with this. The use of terminology, in particular, should be tuned to the patient's level of understanding. Difficult terminology and jargon should be avoided; if this is impossible the meaning should be explained.

Furthermore, information should be restricted to topics that are *relevant and meaningful* to the patient. Biomedical knowledge about pathophysiology or modern treatment technologies are important, but not always relevant for the patient. Some physicians may like to explain these in detail, but since most patients do not have a degree in medicine, they are often not able to understand this information well. As the duration of a consultation is limited, spending too much time on

irrelevant kinds of information interferes with the discussion of information that is relevant to the patient.

Advice is more effective when it is *explicitly specified*. Patients will remember better and adhere to advice when it is meaningful to them and fits into their lifeworld. When advice is phrased in more general terms, patients may have more trouble to translate it in concrete actions. Explicit advice is clear and understandable to the patient and allows him to react if he foresees some trouble in complying with the advice.

5.2.4 Module IV: Dealing with emotions

In this module, the focus is on the long term emotional adaptation of the patients to their disease. It is explained that emotional response of the patient requires the attention of the physician since they are an inseparable part of suffering from cancer. A number of skills are important for a physician to deal adequately with the emotions of the patient. First of all, the basic skills described in the first module, are important in detecting the patient's concerns. The next prerequisite, following the recognition of the emotional concerns of the patient, is the readiness to pay attention to these emotions and to find a way to discuss them with the patient. Hence the emotional concerns of the patient are legitimized which may encourage patients to express their emotions. In this module several fears and anxieties are described, related to four different stages of the illness: the diagnostic phase, the treatment phase, the control phase, and the palliative phase (Weisman 1979, Winnubst et al. 1987).

Diagnostic phase. In the diagnostic phase, most patients alternate between feelings of fear and hope; fear that the symptoms mean they have cancer which may be incurable, hope that they do not have (serious) cancer and that their disease can be cured. In this phase the patient is hypersensitive to symptoms and to the signals of the physician that may imply a bad prognosis.

Treatment phase. In the treatment phase again fears and anxieties may dominate the emotional response of the patient. In this phase, it is important for the physician not to underrate the scope and duration of the consequences of the treatment for the patient. Patients feel more worried if symptoms or side-effects are more severe or last longer than predicted by the physician. Realistic predictions can prevent a lot of these unnecessary worries.

Control phase. In the control phase the treatment is over and, depending on his condition, the patient may start to resume his normal life. This module explains that monitoring this reintegration process by the physician can help the patient to make it be more successful. Patients may still suffer many fears and insecurities which may prevent them from resuming their normal lives. Patient worries may relate to risks of ineffectiveness of the treatment and reoccurrence of the disease.

Palliative phase. When the disease appears incurable, physicians often tend to feel useless, and not able to offer the patient any kind of help. Physicians are often inclined to avoid the patient. The module explains that, under these circumstances, the patient needs the support of concerned and attentive caregivers more than ever. Showing involvement and compassion to the patient, may help the patient to cope with his situation.

The module describes how dealing with the emotions of patients can be divided into several steps (Table 5.4). The first step is the adequate perception of the emotional state of the patient, by paying attention to the verbal and nonverbal expression of the patient's fears and insecurities. Next, the physician reflects and explores the thoughts and feelings of the patient, and consequentially makes these more explicit. This provides the patient the opportunity to ventilate his feelings and to express his irritation, which in itself may bring relief. This puts the patient more at ease and results in a short discussion about how the patient could cope better. Since the abilities and time of the physician to support the patient in coping emotionally is limited, the physician should be able to estimate the severity of the patient's emotional disturbance and the amount of support he needs. If he estimates the support needed to be beyond his power and ability, he may advise the patient to arrange a meeting with a specialized person to provide adequate treatment of the patient's concerns. Such a person may be a professional caregiver, such as a social worker, psychologist, a companion in misfortune, or informal caregivers like family or friends.

In the context of the four stages, six cases with emotional problems are presented, and a demonstration is given of how the physician can manage these adequately. Although the principles are almost identical in these situations, describing them separately is helpful to the learner in learning how to recognize and deal with different situations.
The *first example* is about dealing with an aggressive patient. It displays how a temporary negative emotional reaction of the patient may be an indication of a more generally negative mood as a result of difficulties in adaptation to the disease.
In the *second example*, the importance is demonstrated to be receptive to the hypersensitive and worried state of the patient. When confronted with the disease, patients cannot perceive adequately the consequences of the disease for their daily living. By exploring and discussing their concerns, the physician may prevent patients to become unnecessary fearful and worried.
The *third example* concerns avoiding inducing anxiety. Patients are sometimes harshly confronted with emotionally disturbing information, due to inadequate coordination between the different caregivers of informing the patient. Such

emotionally disturbing mistakes, it is explained, can be easily prevented by verifying tactfully the patient's prior-knowledge.

The *fourth example* relates to guiding and supporting the patient through several stages of the disease, and helping him to anticipate new situations. The example focuses on preparing the patient for his transition to the home situation after discharge from hospital.

The *fifth example* focuses on the resocialization of the patient after the illness period. Patients often experience difficulties in resocialization, due to a change in the social environment. The physician notices and discusses these worries which may help the patient to overcome them more easily.

The *sixth example* is concerned with a patient who is unable to believe that cure is impossible and there is no more treatment available. It shows how the physician can handle this situation, by taking time to discuss the frustrations of the patient.

Table 5.4: Techniques of Module IV: Dealing with emotions

Techniques
- Active listening
- Explorative questions
- Reflection of emotions
- Discussion of emotions
- Referral to specialized caregivers

Emotions
- General
  - trivial signs may give indication of more severe emotional suffering
  - depression
  - aggression
- Diagnostic phase
  - insecurities about diagnosis
  - careful disclosure: checking pre-existing knowledge
- Treatment phase
  - fears concerning aversive side effects
  - transition from hospital to home
- Control phase
  - fear of return or aggravation of the disease
  - check resocialisation
- Palliative phase
  - maintenance of contact with the patient
  - honest discussion of perspective

5.3 Summary

In this chapter, the technical design and the content of Interact-Cancer, a computer-assisted instruction program on communication skills for medical specialists, is described. The design consists of four elements: verbally presented instruction, video-examples, practice questions and feedback. The instruction presents the theory related to the communication skills. The video-examples present models of poor and adequate communication behaviours. In the practice questions, the learner has to connect the instruction to the video-examples. Feedback provides the learner information about the adequacy of his responses on the practice questions.

The content of Interact-Cancer consists of four modules, each focusing on a specific set of communication behaviours. The first module presents a number of basic skills which are fundamental in adopting a patient-centred style of communication. These are presented in the context of video-examples of history taking. The second module is concerned with breaking bad-news. Examples are presented of giving the cancer diagnosis. The third module focuses on providing information, illustrated by examples explaining details of the cancer treatment. The final module is about dealing with the patient's emotions. Six examples are presented of patients who have difficulties in adapting emotionally to their disease.

6

Design and instruments

In this chapter the research methods will be described, which were applied to answer the research questions. These questions are described in the first section, followed by a description of the design and research procedures. Next, the applied measurement instruments are presented. Finally, the chapter ends with a description of the hypotheses.

6.1 Research questions

The aim of this study is to evaluate the CAI course Interact-Cancer. Two main research questions were analysed. The first research question is:

1. What is the feasibility of Interact-Cancer, a computer-assisted instruction program on communication skills for oncologists?

The feasibility of the course is evaluated from two vantage points. One is the learning behaviour of the participating physicians. Aspects of the learning behaviour, such as number and length of learning sessions, are recorded by a built-in registration system in the course program. The second is the subjective

evaluation of the participants, which is measured by means of a questionnaire. These lead to two subquestions:

1a. How do the participating oncologists use Interact-Cancer?

1b. How do the participating oncologists evaluate Interact-Cancer?

The results regarding the feasibility of Interact-Cancer are described in Chapter 7.

The second research question is:

2. What effects does Interact-Cancer have on the interaction between participating oncologists and their patients?

The effect of Interact-Cancer on the communication skills of the physician is assessed from three points of view. One is an 'objective' perspective, which consists of observing and rating the communication behaviour of the physician by means of video recordings of consultations. The second and third viewpoints are the subjective evaluations of their interaction by the physician and the patient respectively. They both provide this information by means of a questionnaire. These three viewpoints result in three subquestions:

2a. What effects does Interact-Cancer have on communication behaviour of the physicians in their interaction with patients?

2b. What effects does Interact-Cancer have on the physicians' satisfaction with patient communication?

2c. What effects does Interact-Cancer have on the patients' satisfaction with their physician's communication behaviour?

The results on the effectiveness of Interact-Cancer are described in Chapter 8.

6.2 Design and research procedures

6.2.1 Design

The research design which is applied in the study is an interrupted time-series design with four measurement times (Cook et al. 1979). It is displayed in Table 6.1. Each measuring moment covers a period of two weeks. The intervals between the measurement times last four weeks. The total research period takes at least 20 weeks for each participant.

The first interval is regarded as a *control period*, in which base-line measurements are performed at T1 and T2. This period provides information about possible changes in communication behaviour in the absence of an intervention. No research activities had to be employed by the participants between the measurement times.

Table 6.1: Research design

Week:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Action:	[T1]	◦	◦	◦	◦	[T2]	[course]						[T3]	◦	◦	◦	◦	[T4]		

The second interval is the *intervention period*, which includes the second and the third measurement times. In this period, between T2 and T3, the course is presented to the participants. The participants were able to follow the course for a period of at least four weeks. In this period, they were able to plan sessions on an individual basis. If they had not completed the course within this period, it was sometimes extended by one or two weeks. The comparison between the measurements in the intervention period and those in the control period provides information about the immediate learning effects.
The final interval is regarded as a *follow-up period*. Again, no research activities had to be employed by the participants between the measurement times. This period provides information about the development of course effects over time. In comparing T4 to T3, this period allows for an analysis to determine whether immediate effects are preserved, and an analysis of the occurrence of delayed course effects.

This design was chosen for a variety of reasons. Generally, in an intervention evaluation study a randomized control group design would have been the most preferable (Kern et al. 1989, Smith et al. 1994). However, this type of design was not used since its implementation has a number of pragmatic disadvantages. A control group design would make it necessary to assign participants randomly to one of both groups. This assignment could be realized within or across locations. However, both systems of allocation have some disadvantages (Black 1996). In creating two groups within a location, there is no guarantee that both groups will be kept separate. There is a risk of contamination between both groups; participants may meet each other and talk things over. Participants in the control group may even, out of curiosity, take a look at the course.

One way in preventing this contamination is to keep all the participants of one location in the same condition. This means that locations are randomly assigned to one of both research groups. However, it was expected that possible culture differences between locations would affect the interactions with patients. Furthermore, since participants were recruited from various disciplines, the composition of both groups would differ greatly by location. Accordingly, randomization of locations requires a much larger study at far greater cost (Black 1996).

Based on these considerations, it was decided not to use a randomized control group but to apply a control period instead, by taking up an extra pre-course measurement in the design (Cook et al. 1979). An advantage of this type of design is that the participants are the same in the intervention and in the control period, which eliminates problems of comparability in both conditions.

6.2.2 Procedures and measurements

The opinion of the physicians about Interact-Cancer was evaluated by means of a questionnaire which they had to fill in after completion of the course, before the onset of the third measurement period.
The effectiveness of the course was evaluated by analysing the quality of the communication between physicians and their patients. As this concerns the quality of mutual communication, three sources of information were applied.

1. The first source of information concerns an *independent evaluation* of the communication behaviour of the participating specialists. This is obtained by rating real interactions with their outpatients. Therefore, each measurement period doctor-patient encounters were recorded on video. These were later observed and analysed by the researchers. A communication rating system was developed for this purpose.
For each measurement period, the participating physicians were asked to record 10 consultations with cancer outpatients. Sometimes the period of two weeks was extended if the participants had not succeeded in recording enough consultations. To reduce possible learning effects on the part of the patients, physicians were asked at each measurement period to record consultations with patients which were not recorded in a previous period.
To record the consultations on video, portable video cameras were placed in the consulting room. Since the focus is on the communication behaviour of the physician, the camera was primarily directed at the physician. Due to limitations of space and the resulting camera position, the patients were often seen from behind, and were sometimes not visible or only partly so on video.

Generally, in a measurement period of two weeks a camera had to be shared by two or three physicians. On the days when the camera was available to a physician, the cancer patients with appointments at that time were approached for consent. When the patients arrived in the medical department, they were given a one-page letter with information about the study by the medical assistant at the reception desk. In this letter the patients were asked to give consent for the video recording of the encounter, and asked if they were willing to fill in a questionnaire afterwards. If they agreed, they had to sign an informed consent form giving their names and addresses. When the patient entered the consulting room, the

physician asked if the patient had consented and switched on the video camera accordingly.

2. A second source of information is the *subjective evaluation of the physician* of the interaction with the patient. After each consultation the physician had to fill in a two-page questionnaire about technical aspects of the consultation and his subjective impressions of the interaction.
At the end of the measurement period, these questionnaires and the informed patient consent forms were collected by the researcher. On the basis of the addresses provided, the researcher sent the patients a questionnaire to their homes.

3. The final source of information concerns the *subjective evaluation of the patient* of the interaction with his physician. The questionnaire which the patients received at home contained an instrument for measuring their satisfaction about the communication behaviour of their physician.
After completing this questionnaire, the patients returned it directly to the researcher. The patients were not given the questionnaire directly after the consultation to prevent overloading. Patient distress following the consultation was taken into account. The patients were accordingly given the opportunity to deal with the initial emotions that may have arisen on account of the consultation, and were not harassed by research procedures at that time. Because of this, patients evaluated their interaction with the physician on average about ten days after the consultation. In a study by Henbest et al. (1990) it was found that evaluations of consultations after two weeks are positively related to evaluations immediately after the encounter. Savage et al. (1990) compared measurements of satisfaction from patients about the interaction with their general practitioner immediately after the consultation with measurements one week later. They found that after one week patients were less satisfied with their physician in terms of explanation, understanding and the feeling that they had been helped. This suggests that patients become more critical about the encounter as time elapses.

In addition to these evaluations of the physicians' communication behaviour, patients also had to provide information about a number of demographic characteristics, health status, and disease characteristics such as the type and severity of cancer and the duration of the disease. Since consultations were recorded of different patient populations in each measurement period, these measures are relevant in controlling statistically for possible differences between the populations on these characteristics.

The instruments applied are described in the following sections.

6.3 Variables and instruments relating to the feasibility

The feasibility of Interact-Cancer was evaluated by analysing the learning behaviour of the participating physicians, and by collecting their subjective opinion on the course program. The related variables and the instruments applied will be described here.

6.3.1 Measurement of learning behaviour

The participating physicians attended to the course on an individual basis. To collect information about the physicians' learning behaviour, the course program contained a *built-in registration system*. This registration system recorded for each participant the dates at which he took the course, the length of each session, which module was done at that time, and whether it was completed or interrupted. On the basis of these records, information can be retrieved about the following aspects of the learning behaviour of each participant:

- whether or not the course had been completed,
- how many sessions/days were used to complete the course,
- how many sessions were spent on one module,
- how many modules were covered per session,
- whether modules were repeated and how often,
- the sequence in which the modules were passed through,
- how long each session took,
- how long it took to complete each module.

6.3.2 Evaluation of the CAI program

The *Course Evaluation Questionnaire* (CEQ) was developed to acquire information about how the participating physicians evaluated Interact-Cancer (Appendix 1). The CEQ consists of 66 items which were rated on a five-point scale; four items on overall judgements were rated on a ten-point scale. The questions on the CEQ relate to a number of aspects of the technical and content characteristics of the course.

In the CEQ, two parts can be distinguished. The first part, the CEQ-General, contains 26 questions on the course as a whole. This part focuses relatively more on the technical characteristics of the course. Questions are included as to whether the participants considered the *instruction method* appropriate and attractive for learning communication skills. Questions about the *time investment* inquired how the participants viewed the total length of the course, and whether they experienced any interference with their regular daily activities. Other questions concerned the *structure of the course*, and the *clarity of its objectives*. Questions about the *theory, video-examples* and *practice questions* related mainly

to the clarity, comprehensibility and instructive quality of the information presented, and whether these educational methods were well connected. Furthermore, the participants were asked about the *meaningfulness* of the course content in general and its relevance for daily practice. And finally, questions were included about the perceived *effects on behaviour* such as becoming aware of own inadequate communicative behaviours, and actual efforts to improve these inadequacies.

The *content* of each module was evaluated more specifically in the second part of the questionnaire, the CEQ-Modules. This second part consists of four ten-item sections, each specifically dedicated to one of the four modules. The questions are concerned with the *relevance* for daily practice of the content of the module in general, and of the specific themes of the module. Questions were also put about the quality of information provided by the *theory* and the *video-examples*, and their mutual integration. Further, participants were asked about the relevance of the *practice questions* and the instructive quality of the feedback. Questions were asked about the required *time investment* of the module, and the level of *advanced knowledge* required. Participants were asked to assign for each module an overall grade on a ten-point scale, comparable with a Dutch school grade.

6.4 Effectiveness source 1: Rating of communication-skills

To establish an independent evaluation of the effectiveness of Interact-Cancer, the observed communication skills of the physicians were rated by means of an 'interaction analysis system' or 'observation system'. The general purpose of an interaction analysis system is to measure the quality of the doctor-patient interaction during a consultation. Doctor-patient communication is systematically analysed by means of the rating system through the classification and quantification of various aspects of the doctor-patient communication (Bruggemans 1991).
A wide variety of instruments have been developed in the past for the assessment of communication skills. Roter et al. (1988) found in their literature review 28 different coding systems. Of these, the wider known systems are Bales Process Analysis System (Bales 1950), Roter's Interaction Analysis System (Roter 1977), and Stiles' Verbal Response Modes (Stiles 1978). Differences between rating systems exist regarding the scoring method, as well as the behaviours (observation categories) they focus on. Most rating systems are descriptive, i.e. they focus on 'event sampling': counting the frequency of occurrence of each separate observation category. Furthermore, instruments can be *comprehensive*; i.e. they aim at classifying all speech acts that occur in an interaction, or *selective*; i.e. the instrument focuses at some target skills which are considered relevant for the purpose of the study (Bensing et al. 1991).

When selecting an observation instrument, it is important that it fits neatly to the research questions in the study involved (Bensing 1991). The appropriateness of an instrument concerns both the *content*, i.e. the behavioural categories to be observed, as well as the *rating method* of the instrument.
In the selection of an observation instrument, three criteria were applied, related to the content, the rating method and the time-efficiency of the instrument.
The first selection criterion is that the observation categories of the instrument should correspond closely to the content of the course. To detect course effects, the rating system should include items which are contained in the course. On the other hand, it is not efficient to observe behaviours to which no attention was paid in the course.
With regard to the rating method, simply focusing on the frequency of behaviours was considered insufficient to evaluate the effectiveness of the course. Describing the communication by means of frequencies of communication behaviours has its limitations in getting a full picture of the interaction (Wasserman et al. 1983). A principal problem in rating is that communication has hierarchic levels of meaning, which modulate the perception of a message. These levels may result in problems of assigning a speech act to one single observation category (Wasserman et al. 1983). This method does not provide information about the adequacy of the performance of the behaviours in the context of the conversation. The frequencies of the behaviours may also be related to the content of the conversation, and to the communication style of the patient, and not so much to the quality of the interaction. For example the interaction with a timid patient who does not talk so much, may have a different communication pattern from that with a very talkative patient, whereas the quality of the interaction may be the same. So, information about the adequacy cannot be simply derived from the frequency of the occurrence of specific communication behaviours alone. Wasserman et al. (1983) plead for inclusion of sequential information of communication behaviours into the coding schemes of systematic analysis in order to collect information about the relations between preceding and subsequent statements. In our instrument, an effort is made to go beyond frequency counts by making judgements about the adequacy of each communication behaviour, based on the context of the interaction and taking meanings from underlying communication levels into account.
Finally, since a large number of consultations had to be observed, the instrument should be *time-efficient*. This criterion affects decisions about the inclusion of an optimal number of observation categories to be rated, as well as of the selection of an optimal unity of observation and decisions as to whether to rate physician behaviour only, or patient behaviour also. The RIAS system, for example, is very time-consuming. Bensing (1991) spent about 3 hours rating per consultation of on average 9.5 minutes.

Based on these criteria, selection of a standard instrument was considered inappropriate and a study specific instrument was developed. The aim of our instrument was to measure patient-centred behaviour in the physician. A patient-centred style does not only mean the use of specific skills, but also affects the way specific skills are performed. An observation instrument was therefore developed which included both descriptive as well as evaluative ratings for each behaviour. This dual rating method was found in the Utrecht Consultation Assessment Method (UCAM). The UCAM is developed for the assessment and evaluation of training in consultation skills for registrars in general practice (Pieters 1991). Its purpose is to give feedback to individual students during education, and to assess changes in behavioural level as a result of the training. Its validity and reliability was evaluated for 110 trainees in 9 general practice training groups. The intra- and inter-rater reliabilities were found to be good. The construct validity of the UCAM was investigated in three ways. An analysis was made to see whether the instrument: 1) could differentiate between trainees and training groups, 2) could assess a progress in skills during 6 months of training, 3) had adequate internal consistency. In two measurement periods, at 3 months and 9 months in the training year, the interactions of the trainees were measured with one simulation patient and three real patients. It was concluded that the UCAM is able to differentiate between trainees and training groups. The trainees' skill progression in the period of 6 months could not be established. It was finally concluded that the internal consistency, as judged by the relations found between various items, is high.

In our communication rating system (CRS) both the content (observation categories) and the rating method of the UCAM were adapted to our needs. The adaptations will be described below. The rating form of the instrument is displayed in Appendix 2.

6.4.1 Content of the Communication Rating System (CRS)

The original UCAM consists of two parts of 12 items each; the first focuses on the medical skills, the second on the communication behaviour of the physician. The CRS focuses only on communication behaviour. A selection of observation categories was made, based on the content of Interact-Cancer. A total number of 23 observation categories were selected, divided into seven behavioural clusters: questions, information behaviours, enhancing information effectiveness, receptive behaviours, attending to feelings, negative behaviours and nonverbal behaviours (Table 6.2). These will be briefly described.

Table 6.2: Observed physician behaviours

Questions
- Open-ended questions
- Closed questions
- Asking for clarification

Information behaviours
- Providing information and advice
- Answering explicit questions
- Answering implicit questions

Enhancing information effectiveness
- Checking pre-existing knowledge
- Checking understanding
- Repeating information
- Summarizing

Nonverbal behaviour
- Posture
- Eye gaze

Receptive behaviours
- Using silence
- Stimulating patient participation
- Attending to life-world
- Paraphrasing

Attending to feelings
- Labelling feelings (reflecting)
- Discussing feelings

Negative behaviours
- Softening
- Delay of bad-news
- Using jargon
- Interrupting
- Incoherent continuations

Questions

Three types of questioning behaviours are rated: open-ended, closed questions and asking for clarification. The distinction between open-ended and closed questions is expanded by making a sub-division in directive and non-directive questions. Whereas a non-directive phrasing of a question is regarded as more patient-centred, this aspect is used in the quality ratings. The third type of question, 'asking for clarification' is typically used after a patient exposition. These behaviours relate to the basic skills, presented in the first module of the course.

Information behaviours

Information can be provided in two ways: at the initiative of the physician, or by answering questions of the patient. A distinction is made between explicit and implicit questions (Roter 1984). Patients do not always present questions explicitly to their physician. Sometimes they simply start talking about a subject that bothers them, thereby verifying their ideas with those of the physician. However, when listening carefully, implicit questions can often be detected in these patient expositions, for example when the patient shows signs of insecurity. Principles of active listening are presented in the first module of the course. Principles of presenting clear and meaningful information are presented in the third module of Interact-Cancer.

Enhancing information effectiveness

This cluster consists of four types of behaviour, which are all highly relevant in a patient-centred style of providing information. Two behaviours are related to checking the knowledge and understanding of the patient, the others are related to repeating information. Hence, they facilitate the patient's understanding and recall of the information. These observation categories are also derived from the third module of the course.

Receptive behaviours

This cluster of behaviours does also belong to the basic skills presented in the first module of the course. Receptive behaviours are especially related to sharing power and control in the interaction, and leaving more space for patient initiative. The behaviours are related to asking whether the patient has any questions or wants to say anything, listening attentively to or discussing non-medical matters. Paraphrasing, the repetition in other words of what the patient just has said, is also included in this category. By means of paraphrasing, the patient is invited to verify or correct the physician's understanding, and to add more information where necessary.

Attending to feelings

A specific kind of receptive behaviour is paying attention to feelings and emotions of patients. Labelling feelings is a way of making feelings explicit and inviting the patient to say more. It may be the first step in *discussing* feelings; a more elaborate way of paying attention to feelings. The basis of these behaviours is presented in the fourth module on dealing with emotions, as well as in the second module of the course, on breaking bad-news.

Negative behaviours

This cluster concerns behaviours which are counter-productive in enhancing the patient participation in the interaction, like using jargon, or being dishonest about the severity of the problems discussed, introducing unexpected changes in the interaction like interruptions or sudden changes of subject. The observed behaviours are not related to one specific module of the course, but are presented in different modules.

Nonverbal behaviours

The nonverbal behaviours observed are among the basic skills presented in the first module of the course. They specifically concern the sitting-position and eye-gaze behaviour of the physician. The eye-gaze behaviour is rated both during the speech and listening of the physician. This distinction is made since looking at a patient while listening has a different function than looking while talking, from a patient-centred point of view. Looking while listening communicates interest to the patient and stimulates him to tell his story. Looking while talking provides the physician signals of understanding and other reactions of the patient. The number of positive and negative behaviours per turn-of-speech are counted. Positive

nonverbal behaviour is defined as attentive, patient-directed behaviour. As opposed to verbal behaviour, nonverbal behaviour is continuously expressed and so may change during one turn-of-speech. Ratings were based on the type of behaviour, positive or negative, displayed for at least 50 percent of a turn-of speech.

6.4.2 Rating method of the CRS

In the observation instrument a distinction was made between the *observation* of the occurrence of each of the 23 behavioural categories, and a *judgement* of the quantity and quality of each skill. This rating method offers the opportunity not only to observe changes in how frequently a behaviour is performed, but also in how well it is performed. The evaluation of doctor-patient interaction therefore is divided into two phases (Table 6.3). The first phase is the *description phase* which is dedicated to the *observation* of the consultation and the registration of every occurrence of each observation category. Only the physicians' behaviour is rated, since the aim is to measure the effects of the course on their behaviour. Nonverbal behaviour is rated both when the physician talks and when he listens to the patient. The unit of observation is each turn-of-speech. This implies that the scope of an utterance to which an observation category can refer, can range from a single word to several sentences. This unit is sufficiently detailed for the purpose of the study, since our instrument focuses primarily on the judgement ratings.

Table 6.3: Rating method of the observation instrument

	Description		Judgement	
	Observations	Occurrence y n ?	Quantity > + < ?	Quality ++ + - ?
1. Open question	+ ☐☐☐☐☐☐☐☐☐☐ - ☐☐☐☐☐☐☐☐☐☐	☐☐☐	☐☐☐☐	☐☐☐☐
	Occurrence: y = yes n = no ? = not applicable	Quantity: > = too much + = good < = too little		Quality: ++ = good + = sufficient - = poor

The second phase in the observation of a consultation is dedicated to the *evaluation* of each behavioural category. In this phase, *judgement ratings* are assigned concerning 1) an evaluation of the frequency of use of the communication behaviours, and 2) an evaluation of the quality of the performance of each type of behaviour. These judgements in particular provide an opportunity to rate physician behaviours from the perspective of the patient.

In the quality ratings, the context of the skill employed is taken into account. The context consists of aspects such as: the topic under discussion, the timing of the usage of a technique, the extent to which patient and physician know each other,

patient characteristics, etc. For example, when a physician provides only brief information, the quality may be rated as 'sufficient' or even 'poor'. However, when it concerns information that has been discussed in a previous consultation, it does not need to be discussed again in full detail. In that case the quality may be rated as 'good'. To take another example; checking the understanding of a patient is more important with patients who show difficulty in this respect, than with other patients. Again, the quality rating on the performance of this behaviour will depend on the context.

The judgement part of our instrument was slightly modified, when compared with the original UCAM method. In the UCAM, the judgement phase is hierarchically structured on three levels. At the first level, the *appearance* level, is registered whether the communication skill has at least once been observed. At the second level, the *quantity* level, a judgement is made as to whether the skill had occurred often enough (appropriate frequency). At the final level, the *quality* level, a judgement is made about the overall quality of the technique, which includes the judgements on the first and second level.
In the CRS, the hierarchical scoring structure is replaced by a parallel scoring structure. This mainly affected the definition and rating criteria at the third level. At this level, we have tried to keep the quality judgement separate from the quantity judgement. In the original UCAM the third level represents an opaque mixture of different (quantitative and qualitative) aspects of the technique. The judgement of an inadequate quality can therefore represent a variety of characteristics such as: 1) an inappropriate total absence of a technique, 2) an insufficient incidence (quantity) of the technique, or 3) insufficient quality in the technique.
As the first and second aspects are registered separately, there is no need to include these in the quality judgement. By eliminating the quantity aspects, we transformed the third level into a true quality judgement. By keeping the quantity and quality aspects separate, a clearer assessment of learning effects on both aspects of performance can be made.

The change in the scoring structure led to several modifications in the scoring categories for each of these four judgements.
As regards the *observations*, the option of registering the *absence* of a technique expected by the rater was added. Patients can express cues the physician has to act upon. If the physician fails to do so, this can be scored by checking the '–' box instead of the '+' box, corresponding to the relevant technique in the observations section on the form. Thus, in the CRS, the observation part of the form was expanded to register the 'missing of cues' (Gask et al. 1988). The original UCAM only allowed for the recording of the actual occurrence of observation categories, and not the non-occurrence of a technique.

As regards the *occurrence rating*, a 'no' was assigned only in case of the 'missing of cues' and in combination with the total absence of positive actions. The 'no' of the original UCAM is our 'non-applicable' category. Non-applicable ('?') means that the skill is not considered relevant in this consultation. The physician has not displayed the behaviour, nor did the rater expect him to do so.
Regarding the *quantity judgement*, the original 'insufficient' rating was split up in a 'too often' and a 'too little' category. The judgement that there were too few occurrences of a technique implies that the technique was missed on several occasions during the consultation which has to be reflected in assessments of 'missing of cues'.
In respect of the *quality judgements*, the sensitivity of the ratings to small changes in the quality of performance of a skill was improved by dividing the original UCAM 'adequate quality' category into two levels of adequacy. Hence, besides the 'inadequate' category a distinction is made between 'adequate' and 'good' quality categories.
In our modified rating system a little more nuance was added to the rating of the quantitative as well as the qualitative judgement, when compared with the original UCAM. In fact this pays attention to Pieters' observation that some raters in his study reported problems in restricting their judgements to yes/no dichotomies (Pieters 1991). For this reason he added the '?' category. In our system this category is solely used as a non-applicable category, which is relevant when an observation category is never observed in the consultation and not missed either. In that case it makes no sense to make further judgements about the quantity and quality of the technique.

In addition to rating the consultation on the quantitative and qualitative aspects of the 23 observation categories, the consultations were given a GENERAL RATING. The advantage of a global rating is that it gives a holistic image of the consultation (Bensing 1991). It may be that information is lost in the 'atomistic' process of unravelling the consultation in separate observations of isolated skills (Inui et al. 1985, Berenst et al. 1991). For instance the relative importance of each behavioural category cannot be retrieved from the individual ratings. It may be that when some skills are well performed, they can compensate for other less well-performed skills. For example, insufficiently attentive nonverbal behaviour may be compensated for to some extent by inviting and attentive verbal behaviours. The need to repeat or summarize information is also especially necessary when the information has not been presented in a clear and well structured way. The impression created by a patient-centred consultation is determined by various combinations of skills and characteristics. An impression of the total performance of skills is expressed in the GENERAL RATING.

6.4.3 Rating procedures

The consultations recorded were observed by two raters. They trained the use of the rating system before rating the consultations. Their training involved rounds of observing and discussing the observation categories in consultations which came from extra recordings of physicians not included in the data-set. A scoring-manual provided descriptions of the observation categories, illustrated by examples, and including criteria for the assignment of judgements (Hulsman et al. 1994). During the training period, this manual was updated and the definitions of the observation categories were improved as regards clarity and unambiguousness. Each round was ended with a test, which consisted of both observers independently rating 5 to 10 consultations and comparing these ratings afterwards. The training period continued until a satisfactory level of inter-rater agreement was achieved.

Both raters analysed about half of the total number of consultations. All consultations of different measurement periods were rated in a randomized order. Hence, the raters were unaware of the measurement period to which each consultation belonged. The only restriction applied in the assignment of consultations to raters was that raters analysed their own subset of physicians. In other words, all consultations for each physician were rated by one and the same observer. This method was applied to prevent measurement errors depending on between-rater factors which could interfere with measuring the effect of the course on physician behaviour.

During the scoring process, the rater drift and decay were monitored for each rater by re-rating a number of consultations after an interval, and by rating a number of the other rater's consultations. About once a week, the raters discussed these consultations together. Thus, during the rating period the raters could monitor and control their possible changes in rating behaviour, which helped to ensure a consistent and reliable rating process.

6.4.4 Rating reliabilities of the CRS

In Table 6.4 the inter-rater reliabilities are displayed for each of the 23 observation categories and the GENERAL RATING. Both observers have independently rated 24 consultations, which is about 5% of the total sample. Each consultation concerned a different physician. Based on these ratings a *percentage of agreement* has been calculated for each observation category both concerning the observations as well as the judgements. The judgement-agreements were only calculated for the consultations where the specific observation category was relevant. As a consequence, the number of consultations involved varied per observation category, as is displayed in the second column of Table 6.4.

Table 6.4: Inter-rater reliabilities in percentage agreement

		Occurrence %	N[1]	Quantity[2] %	Quality[2] %
Questions					
1.	Open-ended questions	96	19	100	95
2.	Closed questions	100	24	92	58
3.	Asking for clarification	79	17	100	77
Information behaviours					
15.	Providing information and advice	100	23	96	74
20.	Answering explicit questions	96	23	96	96
21.	Answering implicit questions	89	19	95	95
Enhancing information effectiveness					
10.	Checking pre-existing knowledge	92	1	–	–
11.	Checking understanding	92	2	–	–
12.	Repeating information	79	14	100	79
13.	Summarizing	92	0	–	–
Receptive behaviours					
6.	Using silence	100	2	–	–
17.	Stimulating patient participation	83	8	100	63
18.	Attending to life-world	79	12	100	92
19.	Paraphrasing	88	17	94	65
Attending to feelings					
4.	Labelling feelings	88	7	100	86
5.	Discussing feelings	96	0	–	–
Negative behaviours					
7.	Softening	92	0	–	–
8.	Delay of bad-news	100	0	–	–
14.	Using jargon	79	1	–	–
9.	Interrupting	75	1	–	–
16.	Incoherent continuation	100	1	–	–
Nonverbal behaviour					
22.	Posture	100	23	83	70
23.	Eye gaze	100	23	83	83

[1]N = number of consultations in which a behaviour occurred. The Quantity and Quality columns relate to this N.
[2]Reliability ratings were not computed for under-utilized behavioural categories (frequency < 5).

The computation of a *percentage of agreement* was preferred over the computation of Cohen's kappa coefficient, which does correct for chance agreement (Cohen 1960). Kappa is highly sensitive to the skewness of the frequency distribution of analysed variables. Highly skewed distributions result in low values of Kappa, regardless of a high percentage agreement (van Triet et al. 1990).

Ten of the 23 behavioural categories did occur with a very low frequency (in less than 5 encounters). These behavioural categories concern the five 'negative behaviours', three of the four 'information effectiveness enhancing behaviours', 'using silence' and 'discussing feelings'. For these behaviours no inter-rater reliabilities were computed, since these cannot be calculated confidently for under-utilized categories (Roter et al. 1991b).

The inter-rater reliabilities with regard to the occurrence and quantity judgements are quite good. With regard to the occurrence of behaviours, the average percentage agreement is 91% (range: 75% to 100%). The average percentage agreement of the quantity judgements is 95% (range: 83% to 100%) and of the quality judgements 79% (range: 58% to 96%). The lowest inter-rater reliabilities (below 70%) were found with regard to the quality judgements. These concerned 'closed questions', 'stimulating patient participation' and 'paraphrasing'. Inter-rater differences in rating were mainly related to assignment of the 'good' versus 'adequate' judgements, and not to one of these categories versus 'inadequate'.
With regard to the GENERAL RATING, the inter-rater reliability is expressed in a Pearson correlation coefficient: $r=.75$, ($p<.001$). This correlation is quite acceptable, taking into account that global rating scales generally result in relatively lower reliabilities (Hall et al. 1987, Gask et al. 1988, Bensing 1991). Furthermore, both raters rated on average the 24 consultations on the same level: 7.33 (SD 1.13) versus 7.38 (SD 0.97) which suggests that they applied equal reference points.

For the calculation of intra-rater reliabilities, each observer re-rated 12 consultations at specific intervals in the rating process, which is about 5% of the rater-specific subset of consultations. The results are displayed in Table 6.5. The intra-rater reliabilities are on the same level (rater 1) or slightly higher (rater 2) than the inter-rater reliabilities with regard to the individual behavioural categories. The intra-rater correlations of the general rating appear to be slightly higher than the inter-rater correlations.

Table 6.5: Intra-rater reliabilities: average percentage agreement

	Observation	Quantity Judgement	Quality Judgement	General rating
Rater 1	96% (75-100%)	96% (75-100%)	82% (50-100%)	r=.84 (p<.001)
Rater 2	97% (75-100%)	99% (80-100%)	93% (67-100%)	r=.91 (p<.001)

6.4.5 Validity of the CRS

To collect information about the construct validity of the CRS, a comparison was made with a second observation system; an adapted version of the Roter Interaction Analysis System (Roter 1977). The RIAS is a widely used descriptive observation system which aims at measuring instrumental or task-related and affective or socio-emotional behaviour. The adapted version of the RIAS (RIAS-A[1]) was developed to rate the interaction of medical specialists with their outpatients (van Dulmen et al. 1996,1997). The adaptation concerned reduction in the number of observation categories to make the rating system more time-efficient. The RIAS-A consists of 16 non-overlapping observation categories, including nine instrumental and seven socio-emotional behaviours. The frequencies of occurrence are registered, excluding the conversation during the physical examination. The unit of observation is each utterance or sentence. Four global affect ratings, three ratings of nonverbal behaviour, and two ratings of patient-centredness, based on the concepts of Byrne and Long (1976) are rated on Likert-type scales.

To be able to compare the CRS and the RIAS-A it is important to formulate common characteristics for both instruments. Both instruments have different observational categories, different units of analysis, and different rating methods; the RIAS-A focuses on frequencies, the CRS focuses on quality ratings. Owing to these differences it is regarded as unreasonable to compare specific CRS clusters of behaviour with RIAS-A ratings. Comparisons will therefore be made between two global ratings of the CRS and indices of the RIAS-A of adequate physician behaviour. The CRS GENERAL and TOTAL QUALITY ratings were correlated with RIAS-A ratings of: 1) patient-centredness, 2) global affect, 3) patient participation, 4) proportions of instrumental and socio-emotional behaviour, and 5) nonverbal behaviour.

[1]The abbreviation RIAS-A is not used by van Dulmen (1996, 1997), but is used here for reasons of readability.

Out of the 385 consultations, 16 were rated with the RIAS-A. These consultations were primarily selected to investigate the feasibility of the RIAS-A (van Dulmen et al. 1996). The aim of testing the CRS validity was a secondary purpose of the RIAS-A ratings. The consultations involved follow-up encounters of two internists and two surgeons; four encounters for each physician. The patients were 1 man and 15 women; their average age was 56.2 (SD 11.8) years. The 16 consultations were rated by two observers. Their inter-rater reliability of the physician behaviours (Pearson correlation) was .78 (van Dulmen et al. 1996).
The results of the CRS and RIAS-A comparisons are displayed in Table 6.6.

1. CRS ratings versus RIAS-A ratings of patient-centredness
The two RIAS-A ratings of patient-centredness concern the extent to which the physician actively encourages the contribution of the patient in the interaction. Since the CRS is designed to measure patient-centred behaviour, positive relationships between the CRS and these RIAS-A ratings were expected. The first rating concerns the diagnostic phase of the consultation; particularly the extent to which the physician is using the knowledge of the patient in understanding the problems and finding solutions. This rating correlates highly with the GENERAL RATING ($r=.65$, $p<.01$) and the TOTAL QUALITY rating ($r=.58$, $p<.05$). The second rating focuses on the extent to which the physician involves the patient in medical decision making in the prescription phase. This rating showed no relations with the CRS ratings.

2. CRS ratings versus RIAS-A global affect ratings
The physicians' affective expressions were rated by means of four global affect ratings: anger/irritation, anxiety/nervousness, interest/concern and warmth/ friendliness. The CRS ratings in particular were expected to be positively related to the ratings of interest and warmth. The CRS GENERAL RATING showed a positive relationship with the interest affect rating ($r=.64$, $p<.01$). The correlation with the warmth rating was nearly significant ($r=.48$, $p=.06$). The CRS TOTAL QUALITY rating correlated significantly with both the interest rating ($r=.65$, $p<.01$), and the warmth rating ($r=.59$, $p<.05$). Furthermore, this CRS rating showed an almost significant negative correlation with the anxiety/nervousness rating ($r=-.47$, $p=.07$). No correlations were found between the CRS ratings and the RIAS-A anger affect rating.

3. CRS ratings versus RIAS-A indexes of patient participation
The RIAS-A observations of all physician behaviours and all patient behaviours were totalled and the relative proportion of patient speech was computed (Roter 1997). Since one of the aims of a more patient-centred interaction is a more active role of the patient, it was expected that the CRS ratings would be related to a relative high proportion of patient speech, or low physician dominance. Indeed the

correlations pointed in the right direction, but appeared not to be significant.
Further, a communication control score was computed, relating patient control to physician control (Roter et al. 1997). Patient control concerns patients' questions and physicians' information giving (biomedical and psychosocial). Physicians control relates to physicians' questions and orientations and patients' biomedical information. High CRS ratings were expected to be related to a high patient communication control index. Again, the correlations were not significant but pointed in the right direction.

Table 6.6: Correlations of CRS and RIAS-A ratings

RIAS-A ratings:	CRS General rating	CRS Total quality
1. patient-centredness		
- diagnostic phase	.65 **	.58 *
- prescription phase	.07	-.08
2. global affect ratings of physician		
- anger/irritation	.19	.26
- anxiety/nervousness	-.32	-.47 +
- interest/concern	.64 **	.65 **
- warmth/friendliness	.48 +	.59 *
3. indexes of patient participation		
- verbal dominance physician	-.39	-.24
- communication control patient	.37	.32
4. instrumental and socio-emotional behaviour		
• instrumental behaviour	-.48 +	-.35
- medical	-.15	-.14
- psychosocial	.33	.17
- directions	-.78 **	-.73 **
- other	.22	.47 +
• socio-emotional behaviour	.48 +	.35
- verbal attention	.26	.04
- showing concern	.51 *	.63 **
- social behaviour	.20	.17
- disagreements	.40	.45 +
5. nonverbal behaviour		
- posture	.76 **	.87 **
- eye-gaze while talking	.75 **	.70 **
- eye-gaze while listening	.65 **	.78 **

+ p<.10; * p<.05; ** p<.01

4. CRS ratings versus RIAS-A instrumental and socio-emotional behaviour

Within the RIAS-A, totals were computed for clusters of instrumental and socio-emotional behaviour. Analogous to Bensing (1991) a distinction was made among four types of instrumental behaviour and four types of socio-emotional behaviour (Table 6.6). It was expected that high CRS ratings would be related to a high proportion of physician socio-emotional behaviour and a low proportion of instrumental behaviour.

The RIAS-A proportion of socio-emotional behaviour was positively related to the GENERAL RATING ($r=.48$, $p=.06$). Especially 'showing concern' correlated highly with the GENERAL RATING ($r=.51$, $p<.05$) and the TOTAL QUALITY rating ($r=.63$, $p<.01$). Within the instrumental cluster, high negative correlations were found between the proportion of 'directions' and both the CRS GENERAL RATING ($r=-.78$, $p<.01$) and the TOTAL QUALITY rating ($r=-.73$, $p<.01$). Directions may put the patient in a more passive role, which contradicts the aim of sharing control.

5. CRS ratings versus RIAS-A ratings of nonverbal behaviour

The three RIAS-A ratings of nonverbal behaviour focus on patient directed posture and eye-gaze behaviour. Since patient-centredness includes nonverbal attentiveness, positive correlations were expected. Indeed the CRS ratings correlated significantly with the RIAS-A nonverbal ratings. Coefficients ranged between .65 and .87.

Conclusion about the validity

The comparisons of the CRS with the RIAS-A indicate a confirmation of the construct validity of the CRS. Strong relations of the CRS ratings were found with the global ratings of patient-centredness in the diagnostic phase. Apparently the CRS is less sensitive to patient-centredness in the prescription phase of the consultation.

The CRS ratings are strongly related with the RIAS-A global affect ratings 'interest', and to a lesser degree with 'warmth'. These concepts fit in well with the concept of patient-centredness. Except for the (non-significant) 'anger' rating, the directions of all correlations are conform the expectations.

The RIAS-A indexes of patient participation and control were not significantly related with the CRS ratings, but the sign of these correlations is consistent with the expectations.

Comparisons of the CRS ratings with the proportions of instrumental and socio-emotional behaviour revealed consistent relationships, although not all reached statistical significance. Finally, the RIAS-A ratings of nonverbal behaviour were highly related to the CRS ratings.

The CRS and RIAS-A were compared in a limited number of consultations, which reduces the chance of relationships achieving significance. Under these

restrictions, and taking into account that both the significant and the non-significant correlations between the CRS and the RIAS-A ratings generally point in the expected direction, the comparisons between the systems reveal quite positive results concerning the construct validity of the CRS.

6.5 Effectiveness source 2: Patient satisfaction

The second source of information about the effectiveness of Interact-Cancer concerns the *subjective evaluation of the patient* of the interaction with his physician. Satisfaction measurements are widely used to evaluate the quality of the doctor-patient interaction (Ong et al. 1995). Patient satisfaction ratings provide valuable information about the physician's ability to establish an effective relationship with patients (Tamblyn et al. 1994).

Patient satisfaction was measured by means of the Medical Interview Satisfaction Scale (MISS), since this instrument covers best the aspects of doctor-patient interaction of our interest (Wolf et al. 1978). A Dutch translation of the MISS was made using the back and forth translation method (Appendix 3). The MISS has 26 items which are rated on five-point Likert-type scales with labels ranging from 'strongly agree' to 'strongly disagree'. Patient satisfaction with a number of aspects of the interaction at a cognitive, affective and behavioural level was measured. The cognitive scale (9 items) refers to the physician's explanations and information and the patient's understanding of the diagnosis, prognosis and effects of treatment. The affective scale (9 items) refers to the patient's perception of the interpersonal relationship, including feelings of trust and confidence in the physician, and of the physician's positive regard for the patient and willingness to listen to his concerns. The behavioural scale (8 items) measures the patient's evaluation of the physician's professional behaviour, physical examination, diagnostic procedures, treatments and dispensation of advice.

The MISS was developed in patient populations of an adult screening clinic of a university teaching hospital and of a student health outpatient service. In these populations the reliability of the MISS expressed by Cronbach's Alpha is .93 for the total scale; sub-scale reliabilities ranged between .86 and .87 (Wolf et al. 1978).

6.6 Effectiveness source 3: Physician satisfaction

The *subjective evaluation of the physician* of the interaction with his patients is the third source of information about the effectiveness of Interact-Cancer. Physicians

satisfaction with the same aspects of the interaction as were evaluated by the patients is measured. The physicians also recorded some facts about the consultation like the type of consultation (first time, follow-up), the number of participants, and the number and kind of interruptions.
In order to measure the physician's satisfaction about the interaction an instrument was developed based on the content of the patient-MISS, described above (Wolf et al. 1978). The physician version of the MISS is not an item-by-item mirrored translation of the patient-MISS. It was considered important to reduce the number of items of the physician-MISS in order to limit the time needed to fill in the form, since the physicians had to do this directly after each consultation. Accordingly, a selection of items was made, based on both the item content as well as on the three original subscales of the patient-MISS.
The physician version of the MISS consists of 13 items; half the number of items of the patient version. Included are: three cognitive, four affective and four behavioural items, plus two general impression items which were not based on the patient-MISS (Appendix 4). All items are rated on a five-point Likert-type scale with labels ranging from 'strongly agree' to 'strongly disagree'.

6.7 Disease characteristics and health status

Indicators of the disease characteristics of the patient were measured by three general scales: the severity of the disease according to the patient, the severity according to the physician, and the duration of the disease. The severity ratings were measured on four-point Likert-type scales with labels ranging from 'not severe' to 'very severe'. The duration of the disease was expressed in number of months between the date of diagnosis and the date of the recorded consultation.

Beside these global ratings also a more specific instrument was included to measure the health status of the patients in a broad range of functions. For this purpose the Sickness Impact Profile (SIP) was used (Bergner et al. 1981). The SIP registers behavioural or functional limitations resulting from health limitations. The instrument aims at measuring changes in performance of distinct daily tasks in the areas of physical functioning, as well as emotional and social aspects of functioning, as a result of changes in health status. The 68 item version was applied, as developed by De Bruin et al. (1994). This instrument consists of 6 scales: Somatic autonomy (17 items), Mobility control (12 items), Mobility range (10 items), Psychological autonomy and communication (11 items), Social behaviour (12 items), and Emotional stability (6 items). The Cronbach's Alpha reliabilities of these sub-scales range between .72 (Emotional stability) to .85 (Mobility Control) (de Bruin et al. 1994).

A slight revision of the scoring method of the respondents has been applied. Originally, respondents only had to put a mark when an item was relevant, and leave out the mark for irrelevant items. Hence the absence of a mark can both mean that it is irrelevant, as well as that the respondent failed to evaluate it. So, the original rating method does not provide reliable information about missing values. Therefore, in our version the respondents were instructed to put a mark, both when an item was relevant as well as when it was irrelevant to them, in the corresponding box for each item.

6.8 Hypotheses

6.8.1 Feasibility of Interact-Cancer

With regard to the first research question, concerning the learning behaviour of the course participants, no specific hypotheses are formulated. The CAI method is a flexible and individual learning method, which implies that the learning behaviour of the participating physicians is directed by their individual needs and working schedule. No specific expectations can be formulated about what this learning behaviour will look like, in terms of number and length of sessions, repetition of modules, etc. The only preconditions were that the participants were requested to complete the course within four weeks, and they were advised to do the modules in the order in which they are presented in the course.
Also no specific expectations can be formulated with regard to the evaluation of the course. Information about how the participants evaluate the course, provides a basis for expectancies about its effectiveness. A positive evaluation of the course is considered as a prerequisite for its effectiveness.

6.8.2 Effectiveness of Interact-Cancer

As regards the second research question, on the effectiveness of the course, several hypotheses were formulated, relating to the three sources of information.

Source 1: Behavioural observations

Generally, it is expected that after the course the participating physicians will display more patient-centred behaviour. This is mainly reflected by an improvement of the quality ratings and frequencies of behaviour in the *intervention period*. With regard to the nine clusters of observed behaviours, several changes in the frequencies of the behaviours are expected:
Questions: The physicians are expected to use more open-ended and less closed questions and ask for clarification more frequently. Further, after the course, questions will be phrased more frequently in a non-directive manner.

Information behaviours: The frequency of information providing behaviours may increase when patients ask more questions, physicians become more aware of implicit questions, and information is provided more in a dialogue manner.
Enhancing information effectiveness: The physicians have learned to pay more attention to the quality of information exchange and will therefore more frequently use checking and information-repeating behaviours.
Receptive behaviours: In the course, the physicians have learned to be more attentive to the patient's personal situation and his life-world. Hence, they are expected to use more frequently behaviours that facilitate the contribution of the patient in the interaction.
Attending to feelings: The physicians are expected to be more attentive to patient feelings and emotions and consequently will respond more often by labelling and discussing them.
Negative behaviours: After the course, the physicians are expected to display negative (doctor-centred) behaviours like jargon and interrupting less frequently.
Nonverbal behaviour: After the course the physicians will display a more attentive posture when listening to the patient, and they will look more frequently at the patient, both when talking and listening to the patient.

With regard to the **judgements** about the quantity and quality of the behaviours, improvements are expected in both respects after the course. At the post-course measurements, the percentage of inadequate quantities will be lower, and the average quality of the behaviours is expected to be higher. These improvements are expected to apply equally to the seven clusters of behaviour.
Also the **general rating** is expected to be on a higher level after the course. Furthermore, the general rating is expected to be related to the quality judgements of the individual behaviours. With regard to the relationship between the general rating and the frequencies of the behaviours, a high general rating is expected to be related with a more frequent use of patient-centred behaviours as described above.

As regards the **control period**, no differences are expected between the pre-course measurements T1 and T2. The research literature provides little information about what can be expected in control conditions. The review in Chapter 3 includes only one study which performed behavioural observations in a pretest-posttest control group (Putnam et al. 1988). In this study no significant differences were found between the pre- and posttest scores of the control group.
With regard to the **follow-up period**, no definitive hypothesis can be formulated. Basically no differences are expected between the posttest scores at T3 and T4. However, based on two different mechanisms, both a slight decline as well as an increase of the quality of behaviour is possible.

The expectation of a decline is based on the idea that the participants are experienced doctors, who have developed their personal routine behaviour in communication in the years before the intervention. A lower level at T4 compared to T3 may be the result of a regression towards their routine behaviour.
The expectation of an increase of the behavioural quality is based on findings in the literature of delayed learning effects. For example Boink (1996) found in his evaluation study of a communication skills training a long-term training effect in the absence of a short-term effect. Given this delayed training-effect, the physicians may behave more adequate at T4 compared with T3.

Source 2: Patient satisfaction

Satisfaction of patients is known to be related to the physician's communication style (Comstock et al. 1982, Buller et al. 1987, Bertakis et al. 1991, Smith et al. 1995). The patient-centred communication style is reported to be related with higher patient-satisfaction (Hall et al. 1988a).
Hence, in our study the patient satisfaction is expected to be positively related to the communication behaviour of the physician. Provided an increased post-course quality of the physician's behaviour, the patients are expected to be more satisfied after the course.
Patient characteristics like gender, age, educational level and disease characteristics may modulate the relationship between the communication style of the physician and the patient satisfaction.

Source 3: Physician satisfaction

Based on the literature, no specific expectations can be formulated about the physician satisfaction. Physician self-ratings about their communication behaviour are not frequently applied in evaluation studies as is demonstrated in Chapter 3. In our review only 2 studies include this type of evaluation. Sideris et al. (1986) included in their study a physician self-rating instrument which focused on the *content* of the communication. The same questions were presented to the patient and a concordance index was computed. They found a post-course increase of the physician-patient concordance with regard to the content of their communication.
Smith et al. (1991b) also reported a post-course increase of the physician's self-rating of their psychosocial skills, which had not persisted at follow-up. They used a four-item instrument of which the items refer to a general assessment of the physician's skills, and not to specific interactions with patients.
Rashid et al. (1989) measured the satisfaction of both patient and general practitioner about their interaction. They found that the physicians were significantly less satisfied than the patients on 7 of the 13 measured aspects. No data were provided about the level of agreement between both parties.

In our study, the physicians were requested to evaluate their own interview behaviour. No clear cut hypotheses can be formulated about the effects of the course on this evaluation. Two opposing effects of the course on the physician satisfaction are imaginable depending on the effect of the course on the communication behaviours. When the communication skills of the physicians improve, the interactions with their patients may become more effective. As a result the physicians may experience less difficulties and become more satisfied about the interactions.

A second possibility is that the course makes the physicians become more aware of the importance of adequate communication. As a result they may apply higher standards in the evaluation of their behaviour and become less satisfied about their actual behaviour after the course.

7

Feasibility of Interact-Cancer[1]

7.1 Introduction

Good communication between patient and physician is important for adequate patient care (Northouse et al. 1987, Bensing 1991, Davis et al. 1991, Roter et al. 1992). Communication is considered the major determinant of the quality of the relation between patient and physician (Chaitchik et al. 1992). The quality of the relation influences the patient's satisfaction, compliance, coping, quality of life and to some extent even state of health (Sanson-Fisher et al. 1980a, Davis et al. 1991, Chaitchik et al. 1992, Bird et al. 1993). Adequate interaction and communication are especially important in the case of cancer patients because of the severity of the disease. The literature shows that many physicians remain deficient in key communication skills (Chaitchik et al. 1992, Bird et al. 1993). Problems in communication can be referred back to a difference in perspective between physician and patient (Stewart et al. 1995). Physicians are used to doctor-centred interactions, which are bio-medically oriented (Smith et al. 1991a, Bensing 1991, Roter et al. 1992). The physician's agenda in the interaction is the

[1]Reprint from: Hulsman R.L., Ros W.J.G., Janssen M., Winnubst J.A.M. (1997) INTERACT-CANCER. The development and evaluation of a computer-assisted course on communication skills for medical specialists in oncology. *Patient Education and Counseling;* 30: 129-141.

gathering of sufficient information to test hypotheses in order to make a diagnosis and recommend a treatment, and the need to have the visit proceed quickly and efficiently (Roter et al. 1992). In such interactions it is primarily the physician who controls the content of the interview, both in his introduction of new topics and in what he pays attention to and what he ignores in the patient reports. This type of communication is less successful in addressing patient needs. Moreover, patients often feel reluctant to talk about their personal experiences and worries at their own initiative (McIntosh 1974, Roter et al. 1992). As a result patients often feel dissatisfied, as they have had no opportunity to discuss their problems and questions (Buller et al. 1987, Bertakis et al. 1991).

Effective communication is established when doctors tune their agendas more to their patients' needs and develop a patient-centred style of communication (Stewart et al. 1995). Patient-centred behaviour concentrates on the psychosocial aspects of the disease which includes patients' personal experience, thoughts and feelings concerned with suffering a disease (Stewart et al. 1995). Patient-centred physicians discover and deal with patient concerns and expectations, communicate warmth, interest and concern and volunteer information in language that patients are able to understand (Inui et al. 1985). The patient-centred style enhances patients' responsibility, involvement in care and autonomy (Smith et al. 1991a). Accordingly, the development of effective patient-oriented attitudes and communication behaviours are considered important educational objectives (Inui et al. 1985, Whitehouse 1991). Patient-centred orientation is found in many conventional courses on communication skills. Topics in these courses include: basic skills in establishing a good and effective relationship, skills in eliciting adequate and accurate information from patients, like listening skills and sensitivity to nonverbal cues, and emphatic and supportive sensitivity to psychosocial problems (Gask et al. 1987, Evans et al. 1989, Lovett et al. 1990, Moorhead et al. 1991, Davis et al. 1992).

Unfortunately, courses on communication skills are treated as a minor subject of little significance in medical school curricula (Whitehouse 1991, Frederikson et al. 1992). Whitehouse (1991) in his recent survey study on the teaching of communication skills found that less than 2% of curriculum time is spent on formal training of communication skills.
The relative lack of attention paid to undergraduates training in communication skills may be compensated later by attendance at postgraduate courses on the subject. In recent years, several attempts have been made to develop additional courses in communication skills for medical specialists (Bird et al. 1993, Putnam et al. 1988, Maguire et al. 1988, Roter et al. 1990, Levinson et al. 1993, Faulkner et al. 1995, Roter et al. 1995). Most of these attempts relate to residential group

courses in which the participating specialists are trained in communication skills in role-play sessions which last for one or more days. A problem which commonly occurs in this kind of training is that there are too few participating specialists. One of the reasons for this low response might be the attendance requirement and the specialists' consequent absence from practice for several working days. This makes these courses difficult to combine with a busy medical practice. Computer-assisted instruction (CAI) can be helpful because of its flexible character; allowing the participant to follow at his own pace, in his own department and at suitable times (Hannafin et al. 1988, Götz 1991, Garrud et al. 1993).

One of the unique features of a CAI course is its integration of information from different media such as text, graphics, pictures, animation, sound and video, using a structured and flexible methodology (Garrud et al. 1993, Hansen 1989, Seabury et al. 1993). In combining these media, CAI is able to provide opportunities for the acquisition of substantial information, for the viewing of illustrations, analysis and comment on simulations, problem solution, answering questions, practicing skills, and receiving feedback (Gentry 1992). Integrating these media offers the opportunity to present course content in a lively and attractive way. CAI is being used in several areas of education and has been proven to be an effective teaching method (Garrud et al. 1993, Gentry 1992, Kulik et al. 1980, McNeil et al. 1991).

CAI courses are being used in medical education. However, many of these are restricted to topics in the medical domain (Garrett et al. 1987). CAI courses on topics in the social domain are relatively rare, but they are considered feasible (Garrud et al. 1993). According to Seabury et al. (1993), a CAI program with interactive video can be created to simulate practice reality. This simulated reality allows the learner to operationalize concepts in a "live" case example by trying different interventions, repeating various sequences, or obtaining feedback about the range of choice as the practice situation unfolds (Seabury et al. 1993).

CAI programs with interactive video primarily involve learning from visual events which enable the learning of social skills from visually presented models. Further, CAI programs offer the learners feedback, hints and background information just as live supervision does. Learners experience the computer as neutral and feedback and hints as helpful resources that may or may not be used. They experience CAI as relatively less intrusive than a live supervisory authority looking over their shoulders while they are practising new skills (Gentry 1992, Seabury et al. 1993).
However, CAI has some limitations. One disadvantage of CAI is the chance that learners will not take a CAI course seriously because of the lack of human interaction (Gentry 1992, Price 1991). The computer is not able, like a human

teacher, to notice a lack of motivation or interest on the side of the learner and to handle it appropriately. CAI programs for social skills training will remain limited in their ability to diagnose learners' misunderstandings and to coach them in correcting their mistakes, as well as to learning from them (Hansen 1989).

The aims of the study concern:
(1) Development of Interact-Cancer: The CAI method differs clearly from conventional methods of teaching which include theoretical methods like lectures and seminars as well as practical methods of training, including working with real or simulated patients, the use of role-play with or without video-feedback and group discussions (Whitehouse 1991, Frederikson et al. 1992). Because of this different approach, and because of the assumed negative aspects mentioned above, the feasibility of a CAI course on communication skills among medical specialists has been studied, by developing a CAI-based program.
(2) Evaluation of Interact-Cancer: The prerequisite for a course to be effective, is its appeals to the target group. It is therefore important to assess the acceptability of this teaching method to potential users (Garrett et al. 1987). That is why the program developed will be evaluated by medical specialists.

7.2 Development of Interact-Cancer

7.2.1 Content

Interact-Cancer aims at teaching physicians patient-centred skills which help them to clarify patients' needs and to communicate in a way that caters to their own needs and those of the patients. In Interact-Cancer, this objective is worked out in four different modules, each representing relevant doctor-patient interactions in oncological practice. The first three modules show a female patient who sees her surgeon because of suspicion of breast cancer. In the course, her medical career is followed from the first contact until the start of the treatment. In this way, the presentation of the techniques is related as closely as possible to the daily practice of the course-members.
In the *first module* the use of general communicative skills is illustrated during the general intake consultation. Attention is given to verbal and nonverbal behaviour of patients (implicit statements, intonation, facial expressions) and physicians (open-ended and closed questions, eye contact, using silence, attentive behaviour).
The *second module* concerns the disclosure of bad-news in the diagnostic consultation. It is argued that the bad-news must not be postponed and has to be given in a clear and unequivocal way. Attention has to be given primarily to patient's emotions (by naming and reflecting), and only in a limited way to future expectations and treatment.

The *third module* is about informing the patient, illustrated in the consultation in which the physician tells the patient about treatment and future expectations. The difference in frame of reference between physician and patient is stressed. Furthermore attention is paid to communication techniques, such as starting with the most important information, repeating and summarizing new information, and checking the patient's understanding of information.
In the *fourth module* attention is given to the emotional reactions of the patient during all phases of the illness. There is discussion of how to recognize and respond to the psychological distress patients experience when suffering a life-threatening disease like cancer. Six cases are presented with different fears and uncertainties. Important techniques are displaying affirmative behaviour, exploring and reflecting feelings, and giving reassurance.

7.2.2 Structure

The first three modules have the same structure, consisting of three parts. The first part starts with the display of a basic video-example of a consultation of the breast cancer patient and her surgeon described earlier. For each module this is the main consultation around which all topics are centred. This basic consultation contains some common mistakes in communicative behaviour. It shows a physician who does not perform well on the specific communication skills that will be described in the module involved. Caution has been taken not to present the poor performance as a caricature. After the learner has seen the video, the program presents some general practice questions about the performance of the physician in the consultation already viewed.
In the second part, several inadequate communicative behaviour patterns are discussed. Details of the mistakes in the basic example are shown again. Some theoretical notions and comments are given and alternative behaviour is suggested. Most of the suggested communicative behaviour patterns are illustrated with short additional video-examples. After this, practice questions on these specific mistakes are presented.
In the third part, again a video of the main consultation is shown, as in the first part; in this version, however, adequate behaviour is substituted for the mistakes. Finally, the communication skills presented are summarized. Showing a complete version of the consultation offers the learner a better idea of the interrelationship between various communication skills. Displaying video-examples of single techniques gives a more artificial impression.
The fourth module, on dealing with patient's emotions, has a different structure. Here, the basic video-example of the breast cancer patient is replaced by the presentation of six different cases. The format of this module resembles the second part of the other three modules.
When following the course modules in sequence, each module takes about one

hour to complete, leading to a total time investment of about four hours. Learners are allowed to repeat parts of modules or complete modules, which may increase the total time investment.

7.2.3 Educational methods

The content of the course in each module is presented by means of a combination of three educational methods: theory, video-examples, and practice questions.

The theory of the course is presented verbally by two narrators. One fulfils the role of a teacher who guides the learner and announces the subsequent parts of the module. The other presenter has the expert role and gives information about communication behaviour. The text narrated is supported visually by written text. Keywords and important phrases are highlighted on the monitor.

For each module, relevant doctor-patient consultations have been recorded on video. Each consultation was recorded in a *poor* and in an *adequate* manner. The *poor* consultation presents a realistic picture of failed communication between doctor and patient, without being a caricature. The *adequate* consultation shows the same consultation with the application of the communication techniques taught.

Practice questions are presented after the theoretical information or a video-example. The function of these questions is to encourage the learner to think about what he just has seen or heard, not from a medical, but from the social interaction perspective. The questions have a multiple-choice format, offering the learner immediate feedback after he has selected an answer. To ensure learners take the questions seriously, they are not allowed to try all answer-alternatives.

7.2.4 Technical and operational features

The course equipment consists of a MS-DOS personal computer, video-disc player and a CD-ROM-player. Head-phones are available. The program is written in the TAIGA computer language, which is an authoring system, specially developed for computer-assisted education (TAIGA 1987).

The operation of the program is user-friendly and aimed for flexible use in a working environment. Operating instructions are presented in a menu on the monitor. For reviewing video-fragments or listening to a piece of theory again, the program has special repeat functions. The program can easily be interrupted and restarted whenever required. Each module can be resumed at the point of the last interruption. An operation manual is available.

7.3 Evaluation of Interact-Cancer

7.3.1 Research question

The main question posed in this study is whether the CAI educational method of Interact-Cancer appeals to the participating medical specialists. Therefore, both satisfaction with regard to several aspects of the course and the way in which the course is followed are analysed. Moreover, the reported cognitive and behavioural effects on communication with patients are explored.

7.3.2 Recruitment procedure

In most Dutch hospitals, the treatment policy for individual cancer patients is discussed periodically by a multi-disciplinary team of medical specialists and oncological experts during meetings of the oncology board. In order to recruit medical specialists for the project, the chairmen of these oncological boards were approached. Requests were directed to Dutch hospitals with at least 500 beds. The evaluation-study of Interact-Cancer was part of a larger research program on doctor-patient communication which also included the evaluation of the communication skills of the participants. The medical specialists were asked to participate in this research program. The chairmen were sent written information on the project. Two weeks later they were telephoned by the investigator and asked to participate. If the chairman showed interest the investigator asked for permission to approach the medical specialists. The only selection criterion for the specialists was that they had a substantial number of contacts with cancer patients in their daily medical practice. In each hospital the medical specialists were informed about the study by means of an oral presentation by the researcher. For reasons of efficiency it was decided that in each hospital at least three medical specialists should agree to participate, for inclusion in the study. If sufficient medical specialists agreed to participate, the Interact-Cancer equipment was placed in their departments for four weeks. The participants were expected to finish the course in that period. Afterwards, each participant had to fill in an evaluation questionnaire.

7.3.3 Instruments

The course was evaluated by means of two different measurements; a built-in registration system and a Course Evaluation Questionnaire. To collect information about the learning behaviour of the participants, a *built-in registration system* recorded for each participant the amount of time spent on the modules separately and on the course as a whole, the sequence in which the modules were passed through, how many sessions were required to complete the course and how often a part of the course was repeated.

The *Course Evaluation Questionnaire* (CEQ) was developed to acquire information on how the participants evaluated Interact-Cancer (Appendix 1). The CEQ consists of 66 items on a five-point scale; four items on overall judgements, were on a ten-point scale. In the CEQ, two parts can be distinguished. The first part, the CEQ-General, contains 26 questions on the course as a whole. These questions are concerned with the adequacy of the instruction method, amount of time spent, structure of the course, clarity of objectives, quality of educational methods (video, theory and practice questions), meaningfulness for daily practice and effectiveness for actually improving communicative behaviours.
The second part, the CEQ-Modules, consists of four sections with ten items, each specifically directed at one of the four modules. The questions are concerned with the relevance for daily practice, the content of the module, the educational methods, the time spent and an overall evaluation.

7.4 Results

7.4.1 Sample

The chairmen of the oncology boards of 37 hospitals were approached for participation. Twenty three (62%) of them were interested in the project and asked for additional information. In their hospitals the potential participants were informed in an oral presentation on the study and were asked for their permission to participate. Nine hospitals (24%) were directly willing to participate. In five of the fourteen remaining hospitals, participation appeared to be inefficient since the number of specialists put forward was fewer than three. In two hospitals problems regarding time investment were mentioned. In the remaining seven hospitals no explicit reasons for refusal were mentioned.
The nine participating hospitals were: seven peripheral hospitals, one university hospital and one radio-therapeutic centre. The total number of medical specialists who volunteered to participate in Interact-Cancer was 43, ranging from 3 to 6 per hospital. Of these, 34 actually entered the course, but since one of them did not fill in the CEQ, the ultimate research group consisted of 33 participants. Of the 9 drop-outs no clear-cut reasons were obtained for their failure to participate.
All but one of the participants were male. Mean age was 44 years (sd 8.13), with a minimum age of 32 years and a maximum of 60 years. Internists, surgeons and radiotherapists form the major part of the research group; other specialists represented were gynaecologists, lung specialists and urologists. The number of years of experience with the medical profession varied between 7 and 30 years, with a mean time of experience of 16.4 years (sd. 7.95). Twelve were working in specialized oncological departments; twenty-one worked in general departments. Characteristics concerning professional background are described in Table 7.1.

Table 7.1: Professional characteristics of the research group

	N (%)*
Department type	
General hospital department	21 (61%)
Specialized cancer department	12 (39%)
Discipline	
Internal doctor	13 (39%)
Surgeon	7 (21%)
Radiotherapist	6 (18%)
Lung specialist	3 (9%)
Gynaecologist	2 (6%)
Uro-genicologist	2 (6%)
Years of experience	
5 - 10 years	7 (27%)
11 - 15 years	8 (31%)
16 - 20 years	3 (12%)
21 - 25 years	3 (12%)
26 or more years	5 (19%)
Supplementary course on communication skills	
No	25 (89%)
Yes	3 (11%)

*total N varies as a result of missing values

7.4.2 Registration of learning behaviour

Table 7.2 shows the results of the built-in registration system. In this table the number of missing cases is relatively high which has two reasons. Because the registration system did not function optimally, sometimes invalid data was stored. This was discarded in the analyses. Further, data was only saved if the program was finished appropriately. Some participants, being unaware of this procedure, sometimes may have simply switched off the computer, thereby skipping the data saving procedure.

All participants completed at least three modules. Twenty seven passed through all four modules; five failed to follow the fourth module and one failed to follow the third module.

Mean time spent on the course as a whole was about three hours. Mean time spent on the separate modules varied from 40 minutes (Module II) to 56 minutes (Module III).

Table 7.2: Registration of learning behaviour results

Time spent (in minutes)	**N***	**mean**	**sd**	**min**	**max**
- Module I	17	41	8.5	32	62
- Module II	20	40	9.4	35	77
- Module III	16	56	6.6	38	70
- Module IV	18	42	5.8	38	58

Number of sessions	**N (%)***
- Module I (N=26)	
1 session	19 (73%)
2 sessions	6 (23%)
3 sessions	1 (4%)
- Module II (N=27)	
1 session	20 (74%)
2 sessions	7 (26%)
- Module III (N=28)	
1 session	23 (82%)
2 sessions	5 (18%)
- Module IV (N=23)	
1 session	19 (83%)
2 sessions	3 (13%)
3 sessions	1 (4%)
- Total course (N=30)	
1 session	4 (13%)
2 sessions	3 (10%)
3 sessions	6 (20%)
4 sessions	8 (27%)
5 sessions	2 (7%)
6 sessions	4 (13%)
8 sessions	1 (3%)
10 sessions	1 (3%)
11 sessions	1 (3%)

Number of days (N=30)	
1 day	5 (17%)
2 days	6 (20%)
3 days	9 (30%)
4 days	8 (27%)
6 days	1 (3%)
7 days	1 (3%)

Number of repetitions	
Module I	3 participants repeated the module
Module II	2 participants repeated the module
Module III and IV	no participants repeated the module

*total N varies as a result of missing values

Most participants passed through a module in one session, some used two sessions for one or more modules, and only two used three sessions for one module. Although the participants were free to repeat a module as often as they liked, this was done by only a few participants.
The total course was completed in one session by four participants; nine participants used two or three sessions. Eight participants used four sessions. Nine used more than four sessions, three of them as many as eight or more.
Nearly all participants completed the course within four days. This means that some completed more than one module during a day.

7.4.3 General evaluation of the course (CEQ-General)

Interact-Cancer has been evaluated on different aspects like opinions on educational method, theory, video-examples, practice questions, time investment, and self-reported effects. The results of the CEQ-General show that the participants evaluated the course positively (Table 7.3).
In general, the course was evaluated as meaningful, relevant to daily medical practice and to be recommended to fellow specialists. Particularly well received were the instruction method, the theory and the video-examples.
The *instruction method* was considered to be appropriate and attractive. The course was evaluated as well structured; only two participants mentioned bothersome overlaps.
Nearly all aspects with respect to the *theory* and the *video-examples* were evaluated positively by the vast majority of participants. A smaller majority of 73% considered the video-examples related well to daily practice; two participants considered them to be poorly related to daily practice.

Moderate evaluations were found as regards the practice questions and the required time investment. The *practice questions* encouraged thought about the course content. A majority of the participants rated the number of questions appropriate. The same applied to the difficulty of the questions, although one third found the questions rather easy. A small majority evaluated the feedback as instructive (61%), whereas a relatively large minority had no explicit opinion on the instructive quality (27%). Four participants (12%) rated the feedback as not being instructive.
With respect to the *time investment*, half of the participants felt that they had been well informed beforehand. Another 50% of the participants reported that the course took a lot of time (55%), at the expense of other activities (49%).

Table 7.3: Overall evaluation of Interact-Cancer (CEQ-General)

Opinion:	Positive	Moderate	Negative
	N (%)	N (%)	N (%)
Instruction method			
Appropriatedness of the method	27 (82%)	6 (18%)	– –
Attractiveness of the method	28 (85%)	5 (15%)	– –
Structure			
Structure of the course	31 (94%)	2 (6%)	– –
Amount of bothersome overlaps	23 (70%)	8 (24%)	2 (6%)
Theory			
Formulation	33 (100%)	– –	– –
Comprehensibility	29 (88%)	3 (9%)	1 (3%)
Distinction between main and side-issues	30 (91%)	3 (9%)	– –
Use of catchwords	31 (94%)	1 (3%)	1 (3%)
Video-examples			
Relationship to course content	31 (94%)	2 (6%)	– –
Relationship to daily practice	24 (73%)	7 (21%)	2 (6%)
Distinction between adequate and Inadequate behaviours	29 (88%)	2 (6%)	2 (6%)
Practice questions			
Number of practice questions	8 (24%)	21 (64%)	4 (12%)
Level of difficulty	3 (9%)	19 (58%)	11 (33%)
Stimulate thinking	30 (91%)	2 (6%)	1 (3%)
Instructiveness of feedback	20 (61%)	9 (27%)	4 (12%)
Time investment			
Information on time spent	16 (49%)	11 (33%)	6 (18%)
Amount of time spent	18 (55%)	11 (33%)	4 (12%)
Time spent at the expense of other activities	16 (49%)	7 (21%)	10 (30%)
Meaningfulness			
Meaningfulness of the course	31 (100%)	– –	– –
Relevance for daily practice	31 (94%)	1 (3%)	– –
Recommendability to colleagues	31 (94%)	2 (6%)	– –
Interest in doctor-patient communication	19 (58%)	12 (36%)	2 (6%)
Interest in other courses	9 (27%)	15 (46%)	9 (27%)
Effects on behaviour			
Attend on own inadequate behaviour	30 (91%)	3 (9%)	– –
Actual improvements	16 (49%)	13 (39%)	4 (12%)

Table 7.4: Evaluation of the four modules seperately (CEQ-Modules)

Module	**I** (n=33)	**II** (n=33)	**III** (n=32)	**IV** (n=28)
	N (%)	N (%)	N (%)	N (%)
Relevancy				
Relevant	24 (73%)	32 (97%)	25 (78%)	23 (82%)
Neutral	5 (15%)	– –	3 (9%)	2 (7%)
Not relevant	4 (12%)	1 (3%)	4 (13%)	2 (7%)
Advanced knowledge needed				
Much	7 (21%)	7 (21%)	11 (33%)	6 (21%)
Neutral	16 (49%)	18 (55%)	9 (30%)	13 (46%)
Little	10 (30%)	8 (24%)	10 (33%)	8 (29%)
Selected themes				
Relevant	27 (81%)	26 (79%)	25 (78%)	21 (74%)
Neutral	5 (15%)	6 (18%)	6 (19%)	5 (19%)
Not relevant	1 (3%)	1 (3%)	1 (3%)	2 (7%)
Theory				
Interesting	22 (67%)	27 (82%)	22 (69%)	20 (71%)
Neutral	8 (24%)	4 (12%)	7 (22%)	5 (18%)
Not interesting	2 (6%)	2 (6%)	3 (9%)	3 (11%)
Video				
Interesting	24 (75%)	25 (76%)	22 (69%)	20 (71%)
Neutral	7 (21%)	5 (15%)	8 (25%)	6 (21%)
Not interesting	1 (3%)	3 (9%)	2 (6%)	2 (7%)
Theory and videos				
Good fit	28 (85%)	30 (91%)	30 (94%)	23 (82%)
Neutral	5 (15%)	3 (9%)	2 (6%)	4 (14%)
Bad fit	– –	– –	– –	1 (4%)
Practice questions				
Relevant	28 (85%)	23 (70%)	24 (75%)	20 (71%)
Neutral	3 (9%)	7 (21%)	5 (16%)	7 (25%)
Not relevant	2 (6%)	3 (9%)	3 (9%)	1 (4%)
Feedback				
Instructive	13 (39%)	17 (52%)	14 (44%)	16 (57%)
Neutral	15 (46%)	11 (33%)	11 (34%)	6 (21%)
Not instructive	5 (15%)	5 (15%)	7 (22%)	6 (21%)
Time spent				
Much time spent	11 (33%)	12 (36%)	14 (44%)	7 (25%)
Neutral	21 (64%)	17 (52%)	16 (50%)	18 (64%)
Little time spent	1 (3%)	4 (12%)	1 (3%)	3 (11%)
Overall judgement (range: 1-10)				
5 (inadequate)	– –	– –	– –	1 (4%)
6 (adequate)	4 (12%)	1 (3%)	4 (13%)	3 (11%)
7 (rather good)	11 (33%)	12 (36%)	10 (31%)	10 (36%)
8 (good)	11 (33%)	13 (42%)	11 (34%)	8 (29%)
9 (very good)	5 (15%)	5 (15%)	4 (13%)	4 (14%)
Mean score (sd)	7.6 (.93)	7.7 (.78)	7.5 (.91)	7.4 (1.03)

With respect to the *reported effects* of attending the course, half of the participants had become more interested in the subject of doctor-patient communication and nine participants reported an increased interest in other courses on this subject. Further, the course drew the attention of the participants to inadequate behaviour, and half of them reported that they had actually changed their behaviour as a result of the course.

7.4.4 Evaluation of the four modules separately (CEQ-Modules)

Table 7.4 shows the results of the CEQ-Modules. All modules were evaluated as relevant, especially Module II on communicating bad-news (97%) and Module IV on dealing with patients' emotions (82%).

In general, the participants evaluated the selected topics of all modules as being relevant. Opinions on the *advance knowledge* required were equally divided as to the amount (a lot or a little) of required knowledge.
As regards the three items on the *theory* and *video-examples*, no differences between the modules were found. A relatively low percentage of about 70 percent of the participants stated that the theory and video-examples had increased their interest in the topics presented. However, a maximum of three participants reported no increase in interest. Most participants reported that the video-examples and theory were well related to each other.
With respect to the *practice questions* of Modules II, III and IV, about two thirds of the participants evaluated these as relevant, whereas about half of the participants valued the feedback as instructive. The judgements on the questions of Module I differ: 85% evaluated them as being relevant, but only 39% rated the feedback as instructive.
Regarding the *time investment*, a small majority considered the time spent adequately. However, the percentage of participants who evaluated a module as lasting long varied between 25% for Module IV and 44% for Module III.
The *overall judgements* of the four modules did not differ; the mean mark varied from 7.4 to 7.7 on a ten-point scale. This means that the participants rated the quality of the separate modules as fairly well.

7.5 Discussion and conclusion

The main issue in the study is whether the CAI educational method of Interact-Cancer appeals to the medical specialists participating. This question can be answered affirmatively. The participating specialists considered the instruction method of Interact-Cancer attractive and appropriate for learning communication skills. They evaluated the course as meaningful and relevant to daily medical

practice. Modules considered most relevant were those on the disclosure of bad-news and dealing with emotions. The situations and skills discussed in these modules may be relatively more relevant in cancer care and therefore more instructive to the participants, compared with the more general skills discussed in the other two modules.

The course as a whole as well as the four modules were generally positively evaluated on almost all aspects. A majority of eighty per cent or more of the participants were satisfied with most aspects. On some aspects however, smaller majorities varying from fifty to seventy per cent appeared to be satisfied. These concerned the time investment, feedback from the practice questions and the relevance of video-examples to daily practice. These aspects deserve further discussion.

With regard to the time investment, the actual time investment for completing the course was relatively short. Most participants completed the course in about three hours. The training time of Interact-Cancer is certainly limited when compared to conventional courses lasting two or three days. Nevertheless, half of the participants felt the course as a whole was rather time-consuming. This observation is important because one of the aims of the course is to improve the access to learning by limiting the amount of training time.
One possible explanation may be that the participants felt they were not well informed in advance on the amount of time investment required. Participants were asked about this in the CEQ-General, and indeed there appears to be a slight relation. Of those who considered they were well informed, only about 20% considered the course as a whole and the separate modules as time-consuming, as compared with 50% of those who felt they were poorly informed.
Another explanation may be sought in the way the participants completed the course. The CAI program offers the option of following the course in parts. Most of the participants completed the course in four or more sessions, which meant that they completed one module in one session, with a mean time investment of about 45 minutes. Some participants completed more modules in one session and spent more time on one session. Further analysis indicates that participants who completed the course in fewer, relatively long lasting sessions felt the course more time-consuming than those who took more, but relatively short, sessions (64% vs. 47%).
Also a cumulative effect may play a part. The observation that about half of the participants rated the course as a whole as time-consuming, whereas each separate module was rated as time-consuming by about one third of the participants, may be interpreted in such a way. Doing one module is easy; four modules within four weeks seems to be too demanding.

A fourth explanation for the unexpected conclusion that the course was considered time-consuming, may be the fact that it was taken in the workplace, where normal work goes on. The method of offering a course at the workplace has the advantage of a lower entrance threshold as compared with residential courses. However, taking a course in this way may interfere more with daily practice and compete with regular tasks.

A second less positively evaluated aspect of Interact-Cancer concerned the practice questions. Although a clear majority considered the practice questions as stimulating with regard to the topics, only a small majority evaluated them as instructive. This may be ascribed to the format of the questions. All practice questions were multiple-choice, which implies that the alternatives were already established. The same applies to the feedback on the selected answer-alternatives. In this respect a CAI training method is more restricted when compared with group courses. Ideas about behavioural strategies in communication are not clear cut. Decisions on poor and adequate behaviour are open to discussion and may lead to varied opinions. Multiple-choice questions do not meet these requirements, because they leave no room for discussion and for idiosyncratic and original opinions of the learner. The learner may find the feedback debatable, especially when a 'wrong' answer was selected. The program offers no opportunity to discuss the feedback, something which is possible in conventional courses with a human teacher and participating colleagues.
Most CAI designers are well aware of this limitation. Research in the area of CAI is directed at making practice questions more flexible, for instance by presenting open-ended questions on which the learner is free to type any response. The formulation of feedback on such responses however is a very complex matter. More advanced kinds of CAI, the Intelligent Tutoring Systems (ITS), are directed at developing more flexible systems, working with decision rules instead of preprogrammed decisions.
One other way to overcome the limitations of preprogrammed questions and feedback may be to recommend that the course be attended by pairs of two participants or supplemented by brief group sessions where the course content can be discussed. However, this implies decreased individual flexibility and increased time investment.

Although a great majority of the participating specialists evaluated the video-examples as well related to daily practice, nine participants were less positive, among whom were six of the thirteen internists. This probably can be explained by the video-examples themselves. The video-examples show the consultations of a surgeon with a patient with first stage breast cancer and the possibilities of curative treatment. Such examples may relate well to the daily practice of

surgeons, radiotherapists and organ specialists like ENT-doctors. Internists, however, are more often confronted with later stage cancer patients without the option of curative treatment.

A point of special concern relates to the number of hospitals that agreed to participate in the study. It was expected that offering a CAI course on communication skills would lead to fewer obstacles than offering a residential course. Initially, this expectation seemed to be reasonable because about two-thirds of the hospitals (23 out of 37) showed interest in the course. This is a relatively high percentage when compared with the interest in residential courses (Roter et al. 1995).
Ultimately, however, nine hospitals actually participated in the study. For the purpose of our study this number of participating hospitals was sufficient. We have not therefore extensively registered the reasons for not participating. Nevertheless, reactions from the non-participating hospitals show that the recruitment procedure limited the number of participating hospitals in at least two ways. Firstly, the threshold of a minimum of three participating specialists per hospital reduced the number of participating hospitals. Further, the hospitals were asked to participate in a larger research program which also included evaluation of the communication skills of the participants, of which Interact-Cancer was only a part. Some hospitals showed enthusiasm for Interact-Cancer, but refused participation in the larger research program.
It is therefore to be expected that recruiting participants for attending the course without these additional conditions, may result in a higher participation.

Finally, positive results were found with respect to the effectiveness. Reported effects of attending the course were an increased interest in the subject of doctor-patient communication as well as an increased attention to the participants' own inadequate behaviours. Half of the participants report that they had actually changed their behaviour as a result of the course. However, these results must be interpreted cautiously, because they concern the self-reported impressions of the participants. Actual changes in communicative behaviour can only be demonstrated by observing actual doctor-patient interactions. This will be done in the next part of our research program, as described in Chapter 8.
It may be concluded that a CAI course like Interact-Cancer is suitable for instructing medical specialists in communication skills.

8

Effectiveness of Interact-Cancer

In this chapter, the results of the second research question in the evaluation study will be reported upon. This question concerns the effects of Interact-Cancer on the behaviour of the participating oncologists in interaction with their patients. This question will be evaluated on the basis of three sources of information about physician behaviour, which will be analysed separately. The first source of information about the effectiveness of the course involves an analysis of the independent assessment of the physician's communication behaviour. The second source is the subjective rating of the patients of the interaction with their physician. The final evaluation focuses on an analysis of the third source of information; the subjective evaluation of patient interactions by the physicians.
The results of these analyses will be described in the following sections. First, characteristics of the physician and patient populations will be described.

8.1 Procedures and population characteristics

In this chapter data will be analysed on 21 physicians and 385 patients. The data was gathered in seven hospitals in the Netherlands over a period of two years: April 1993 through March 1995. Each hospital participated for about six months.

The rating of the video recordings of the consultations took place in two rounds. Recorded consultations from five hospitals were observed in the autumn of 1994. Consultations from the remaining two hospitals were rated in the spring of 1995.

8.1.1 Physician characteristics

The physicians were recruited for participation by approaching the chairmen of the oncology boards at 37 hospitals. They were sent information about the aim of the study, the study design and procedures, an estimation of the required time-investment, and a brief abstract of the course content. The following week they were contacted by phone. Twenty-three chairmen were interested in the project and wanted additional information. These chairmen were visited and details of the project were given in an oral presentation. The project was regularly presented to the oncology board to inform all individual physicians at the same time. After this round of detailed information, fourteen hospitals refrained from participation. In five of these, the minimum target of at least three participants per hospital could not be achieved. This criterion was requested for reasons of efficiency in time and resources. Each hospital had to be visited twice each measurement period to deliver and retrieve research materials. Furthermore, due to limited resources (video cameras and course equipment), only three hospitals could participate simultaneously.

Ultimately, nine hospitals participated: seven peripheral hospitals, one radio-therapy centre and one university hospital. Originally, 43 medical specialists agreed to participate in Interact-Cancer. Of these, 38 actually managed to make recordings of consultations with their patients in the first measurement period. Three physicians abandoned the study after T1, so eight physicians dropped-out in the pre-course period. Six physicians did not complete the post-course measurements, leaving 29 physicians to complete the study (Table 8.1).
In selecting consultations, data from another eight physicians appeared unsuitable for analysis. For one physician this was due to incomplete data as a result of a defective sound recording for all recorded patients in one measurement period. In the other seven physicians it was due to an insufficient number (less than two) of recordings of follow-up encounters in one or more measurement periods; these physicians had recorded both first-time and follow-up encounters. The reason for this second set of drop-outs is explained in the next section.
This left a research group of 21 participants, working in seven different hospitals and representing six different medical disciplines: 12 internists, 3 surgeons, 2 radiotherapists, 2 lung specialists, 1 gynaecologist and 1 urologist. All physicians are male, with an average age of 45.4 (SD 7.7). The youngest is 34 and the oldest 58. The number of years of experience is on average 18.3 (SD 8.3) ranging from 8 to 33.

Table 8.1: Inclusion of the physicians in the study

Location	Initial Number	Non-response		Technical drop-out*	Total response
		Pre-course	Post-course		
A	3	–	2	–	1
B	6	–	–	1 ‡	5
C	5	1	–	–	4
D	4	1	–	3 ‡	0
E	5	2	1	–	2
F	4	3	–	1 ‡	0
G	5	1	–	1 ‡	3
H	6	–	2	1 †	3
I	5	–	1	1 ‡	3
Total	43	8	6	8	21

* Reasons for drop-out: †tape failure; ‡lack of follow-up consultations

Selection of consultations

The physicians recorded 676 outpatient consultations in four measurement periods, which is an average of eight per physician per measurement period. The patients were recruited by the physicians during their surgery hours. No reliable information is available about the patient response, since no systematic registration was made of the number of patients approached. When analysing the number of days each physician has used in each measurement period to record consultations, it appeared that in 56 percent of the recording sessions, the physicians made all their recordings on a single day. 29 percent made recording on two days and 15 percent in three days or more. So, most physicians managed to record sufficient patients during one or two mornings or afternoons in a measurement period of two weeks.

The number of recordings analysed was limited to five per physician per measurement period in order to have about the same number of consultations per physician. A complete data set of five consultations each measurement period was available for eleven physicians. Sometimes the number of analysed consultations per measurement time was limited to four, three or two for the other physicians.

The total number of consultations included in the study is 385. Generally, these consultations were selected in the order in which they were recorded by each physician in each measurement period. However, three guidelines were applied in the selection of these consultations, on the technical quality of the recording, the type of encounter, and the availability of a patient questionnaire.

First of all, recordings with inadequate technical quality with regard to vision and sound, which interfered with the observation of the interaction, were not used for analyses.

Further, only follow-up encounters were selected, since the majority (91.7%) of the recordings concerned this type of encounter. First-time encounters were discarded for reasons of homogeneity. Originally, the physicians were instructed to record both first-time and follow-up encounters, so course effects could be analysed in both types of consultations. However, afterwards, the proportion of first-time encounters appeared to be quite low and unevenly distributed over physicians and measurement times, which hampered the separate analysis of first-time encounters.

A final selection criterion concerned the availability of a patient questionnaire. After the recording of the consultation, patients were sent a questionnaire which they had to return by mail when completed. Of the 676 recorded patients, 577 returned the questionnaire, a response rate of 85%. A consultation gained precedence in the selection procedure when the patient questionnaire was available and contained none or a limited number of missing values. This guideline only applied when a choice had to be made between two consultations which were equal on the other selection criteria. However, consultations were never discarded when the target of five had not yet been reached and the questionnaire data of the available consultations were incomplete.

Of the 385 selected consultations, 367 (95.3%) patient questionnaires and 382 (99.2%) physician questionnaires are available.

8.1.2 Patient characteristics

Each measurement period consultations with different patients were recorded. In this section an analysis is made to determine the existence of differences in characteristics between these patient groups with regard to gender, age, educational level and health status. Since these patient characteristics may influence the communication behaviour of the physician, differences between the populations on these variables may obscure the measurement of the course effect on physician behaviour. So, when significant differences between the samples are found, and the physicians' communication behaviour is related to any of these patient characteristics, analyses should be controlled for the characteristics it may concern. In this section the existence of differences between the patient populations is investigated. Later in the chapter it will be analysed whether the three sources of information about the physician's communication behaviour are related to the demographic and disease characteristics of the patient.

The demographic characteristics of the patients recorded in each measurement period are displayed in Table 8.2.

With regard to **gender**, about two thirds of the patients is female. The percentage of women is highest at T1 (67%) and lowest at T2 (54%). The distribution of men and women at each measurement time is not statistically different.

The average **age** of the patients is 58.3 (SD 13.0). A significant difference is found in the age of men and women ($t=2.06$, $df=278$, $p<.05$); the male patients (60.1, SD 14.2) are older than the female patients (57.2, SD 12.1). There is no significant difference in average age of the patients between the measurement times, either for men or for women.

With regard to **educational level**, the average is 2.7 (SD 1.7, range 0 'no education' to 7 'academic level'). In a two-factorial ANOVA, men appear to be significantly more highly educated than women ($F=5.65$, $p<.05$), whereas no differences are found between the measurement times. However, at the .10 level, the educational level tends to differ between the measurement times; the level is highest at T2 and lowest at T3. The educational level of the male and female patients is most equal at T2, while the discrepancy is greatest at T1. When comparing all post-course patients to the pre-course patients in a two factorial ANOVA analysis with time and patient gender, both factors appear to be significant. Pre-course patients are on average more highly educated than post-course patients ($F=6.0$, $p<.05$).

Table 8.2: Demographic characteristics of the patients

	T1	T2	T3	T4
Number				
- total	94	96	95	100
- men	31	44	37	37
- women	63 (67%)	52 (54%)	58 (61%)	63 (63%)
Average age				
- total	58.6 (11.9)	57.8 (14.6)	58.1 (13.1)	58.9 (12.5)
- men[a]	59.7 (13.3)	60.1 (14.3)	60.2 (14.3)	60.4 (15.1)
- women[a]	58.1 (11.3)	55.8 (14.6)	56.7 (12.2)	58.0 (10.8)
Educational level (range: 0-7)				
- total[b]	2.8	3.0	2.4	2.5
- men[a]	3.5	3.0	2.8	2.6
- women[a]	2.5	2.9	2.2	2.4

[a]men vs. women: $p<.05$

[b]pre-course vs. post-course: $p<.05$

The **disease characteristics** of the patients are displayed in Table 8.3. The distribution of the **types of cancer** of the patients differs somewhat between the measurement times. Among men, the most frequently observed type of cancer is lung-cancer, except at T2, where prostate cancer is found most frequently. Among women, the dominant disease is breast cancer. At T2, this type of cancer is even more frequently observed than at the other measurement times.
The average **duration of the disease**, since diagnosis, is 28.8 months (SD 39.7). No significant differences are found between the measurement times. The same applies when men and women are analysed separately. On average, the disease has been diagnosed significantly more recently among men (although they are older) than among women ($t=2.66$, $p<.01$). In an ANOVA with gender as factor and age as covariant, both variables appear to be significant (gender: $F=7.90$, $p<.005$; age: $F=6.24$, $p<.05$). So, when controlling for age, the difference between men and women still holds.
Ratings of the **severity of the disease** were derived from both the patient and the physician. Both provided a global rating of the severity on a 4-point scale. Patient ratings were also derived from their scores on the Sickness Impact Profile (SIP-68). This instrument provides more detailed information about their health status in six areas of physical, mental and social functioning.
With regard to the global ratings, it appears that patients considered their disease significantly more serious than their physicians; respectively 3.0 (SD 0.8) and 2.5 (SD 1.0) ($t=8.5$, $df=361$, $p<.000$). With regard to both the patient and the physician ratings, no significant differences exist between the measurement times. The global rating of the patients correlates moderately with the physicians' rating ($r=.24$, $p<.000$).
When comparing the average **SIP** scores between the measurement times, a significant difference was found ($F=2.94$, $p<.05$). It appeared that patients at T1 tend to experience the most severe sickness impact, whereas patients at T2 experience the least severe sickness impact. However, in a two-factorial ANOVA analysis, only an interaction effect was found between measurement time and patient gender ($F=2.87$, $p<.05$), whereas the main effects were not significant. The difference between T1 and T2 applies particularly to the female patients, and not to the male patients.
Next, the SIP scores were compared to the subjective ratings of patient and physician of the severity of the disease. Moderate correlations were found of the SIP totals with the physician's rating ($r=.24$, $p<.000$) and the patient's rating ($r=.17$, $p<.01$).

In conclusion, no significant differences are found between the patient samples of each measurement period, except for the SIP score. With regard to educational level a difference was found between the combined pre-course and combined

post-course samples. Later in this chapter an analysis will be made to see whether the physician's behaviour is related to any of these patient characteristics.

Table 8.3: Disease characteristics of the patients

	T1	T2	T3	T4
Type of cancer	%	%	%	%
• **Men**				
- lung	17.9	7.7	31.4	25.0
- colon/bladder	14.3	12.8	22.9	19.4
- prostate	10.7	23.1	14.3	11.1
- other	57.1	56.4	31.4	44.4
• **Women**				
- breast	42.1	52.9	47.3	41.9
- lung	3.5	5.9	3.6	6.5
- colon/bladder	8.8	7.8	9.1	3.2
- gynaecologic	10.5	7.8	10.9	14.5
- other	35.1	25.5	29.1	33.9
Duration of disease since diagnosis in months				
- total	32.7 (44.0)	25.2 (34.5)	28.6 (39.2)	28.8 (41.0)
- men[a]	26.5 (46.1)	23.9 (38.1)	24.2 (39.5)	12.4 (13.8)
- women[a]	35.6 (43.1)	26.2 (31.8)	31.5 (39.1)	37.3 (47.5)
Severity of disease according to patient (1=not severe , 4= very severe)				
- total[b]	3.0 (0.78)	3.0 (0.91)	2.9 (0.83)	3.0 (0.84)
- men	3.0 (0.76)	2.9 (0.97)	3.1 (1.28)	3.2 (1.32)
- women	2.9 (0.80)	3.2 (1.20)	2.9 (0.88)	3.0 (0.81)
Severity of disease according to physician (1=not severe , 4=very severe)				
- total[b]	2.5 (1.03)	2.5 (1.20)	2.5 (1.19)	2.6 (0.98)
- men	2.7 (0.97)	2.7 (1.02)	2.4 (0.84)	2.6 (0.91)
- women	2.3 (1.04)	2.4 (1.32)	2.5 (1.37)	2.6 (1.02)
SIP				
- total[c]	17.1 (12.2)	12.1 (9.0)	14.3 (10.3)	14.1 (10.8)
- men	15.9 (11.0)	15.2 (9.8)	12.6 (9.9)	16.0 (10.3)
- women	17.6 (12.7)	9.3 (7.2)	15.4 (10.5)	13.0 (10.9)

[a]men vs. women: $p<.01$
[b]patient vs. physician: $p<.000$
[c]measurement moment: $p<.05$

8.1.3 General characteristics of the consultations

General characteristics of the doctor-patient interactions are displayed in Table 8.4. More than 75% of the consultations have been recorded completely, i.e. from the start until the end of the encounter. These consultations last about 13 minutes. The average duration of the recorded conversation part of the consultations is about 10 minutes. No differences in both interview and consultation duration are found between the measurement times. On average, interviews with male patients last about one and a half minute longer than with female patients ($t=2.35$, $p<.05$). However, in consultation length there is no difference, which implies that the difference may be ascribed to differences in length of the physical examination.

Table 8.4: General characteristics of the consultations

	T1	T2	T3	T4
Completely recorded consultations				
- Number	72 (77%)	78 (81%)	72 (76%)	78 (78%)
- Duration (min)	13.7 (6.6)	12.5 (7.0)	13.1 (5.3)	15.0 (7.8)
- male patients	14.3 (8.1)	12.6 (6.8)	13.1 (5.4)	16.0 (8.2)
- female patients	13.4 (6.0)	12.3 (7.2)	13.1 (5.3)	14.5 (7.6)
Duration of the interview, excluding physical examination (min)				
- total	10.7 (6.2)	10.1 (6.6)	11.1 (6.9)	11.7 (7.3)
- male patients[a]	12.2 (7.6)	10.6 (5.9)	12.9 (9.1)	12.3 (7.4)
- female patients[a]	10.0 (5.3)	9.8 (7.1)	9.9 (4.7)	11.3 (7.2)
Presence of a third person	63.8%	64.6%	69.5%	68.0%
- relatives	63.4%	63.0%	68.5%	66.0%
- professional	0.0%	5.6%	12.1%	13.5%
Interruptions	43.2%	43.2%	40.4%	40.4%
- phone calls	31.8%	33.7%	26.6%	27.3%
- visitor	9.1%	6.3%	9.6%	15.2%

[a]men vs. women: $p<.05$

In about two-third of the consultations, a third person is present. These are generally relatives or friends of the patient. There is no difference in this respect between the measurement times.

Events which temporarily interrupt the doctor-patient interaction occur in about 40 to 45 percent of the consultations. Although this percentage decreased after the course, the difference is not significant. Most frequently these interruptions concern phone calls, which occur in about 30 percent of the consultations and

occupy about 70 percent of the disturbances. The second most frequent type of disturbance is the entrance of a visitor, which occurs in about 10 percent of the consultations. On other occasions the physician has to leave the room for a moment, or the type of disturbance is not specified.

8.2 Statistical analyses

In this study the aim is to draw conclusions about whether the 21 participating physicians have learned anything from the course; i.e. to what extent it has affected their communication behaviour. For that reason, the communication behaviour of each physician was repeatedly measured at four measuring moments. The data set of this study consists of observations of consultations; about five per physician per measurement. A specific characteristic of this data-set is that it can be regarded as consisting of two levels; the level of the patient or the consultation, and the level of the physician. The observations at the consultation level are expected to be explained by an intervention at the physician level. Furthermore, the observations cannot be regarded as independent. For example, the patients of a particular physician can be expected to be treated more similar when compared with patients of different physicians (Bensing et al. 1995). The dependent variables, which were measured at the consultation or patient level, can be regarded as being clustered around physicians and measurements.
One solution to deal with these characteristics would be to aggregate the data at the physician level, which implies that average scores of the encounters are computed per physician per measurement. A disadvantage of this method is that as a result of this aggregation, information is lost about variance at the patient level. The other solution would be to disregard the dependence within the observations. However, independence between observations is one of the fundamental assumptions of standard statistical tests. If this assumption is violated, the estimates of the standard errors of conventional statistical tests are much too small, resulting in a heightened chance of spuriously significant results (Hox 1994). Hence, standard statistical tests cannot be applied to this data set.
Both problems, difference in level of intervention and measurement and the problem of dependence in the data, is dealt with by applying a relatively new statistical method: multilevel analysis (Bryk et al. 1992, Hox 1994, Goldstein 1995). Multilevel analysis (MLA) creates the option of analysing data at the level of the physicians, without disregarding the variance on the patient level. MLA takes into account the clustering within the data, and adjusts the standard error of the estimated coefficients accordingly. Standard errors at the consultation level are neither based solely on consultation characteristics, which is the assumption when physician characteristics are linked to the consultation level, nor on physician

characteristics, which is the assumption when consultation characteristics are aggregated to the level of the physicians. Multilevel methods divide the variance of the dependent variable into a component that is related to differences between groups (physicians) and a component related to differences within groups (patients).

The main question in the analyses is whether differences in the dependent variables (ratings of the physician communication behaviour) exist between the measurement times. Two models were analysed. In the first model, for each variable, a mean score of both post-course performances at T3 and T4 is compared to a mean score of the pre-course performances at T1 and T2. This model disregards changes in performance within the control and follow-up periods. In the second model, each measurement time is entered separately, and comparisons are made with T1 as reference. This model provides more detailed information about changes between individual measurement times. Additional contrast analyses were performed to test for differences within the control and follow-up periods. The analyses were performed with the MLn software (Rasbash et al. 1995).

As described in Chapter 6, three sources of information are used to measure the effectiveness of Interact-Cancer: 1) independent ratings of the physician behaviour, 2) the patient perception of this behaviour, and 3) the physician's self-rating of his own behaviour. The analyses of these three sources will be described separately in the next sections.

8.3 Source 1: Behavioural observations

The communication behaviour of the physicians was rated on 23 observation categories, which have been divided into seven clusters. Each observed behaviour was assigned three ratings. The *descriptive* ratings represent the frequency of occurrence of each behaviour. The second and third rating relate to a judgement rating about the *quantity* and about the *quality* of the performance of each behaviour. Furthermore, a general rating was assigned to each consultation, representing an overall judgement of the physician's behaviour. The means of the descriptive ratings, the quantity ratings and the quality ratings of the 23 individual observation categories are displayed in Appendices 5, 6 and 7.
The analyses were performed on the cluster variables of the observation categories. Within the clusters average ratings were computed for the descriptive, quantity and quality ratings of the constituent behaviours. Furthermore a TOTAL QUANTITY rating and a TOTAL QUALITY rating were computed, based on the indivi-

dual quantity and quality ratings of all 23 observation categories respectively.
In total, 24 main variables are available for analysis: seven descriptive ratings, seven quantity ratings, seven quality ratings, and three global ratings: the GENERAL RATING, a TOTAL QUANTITY rating and a TOTAL QUALITY rating. In addition to these main variables, six additional variables were analysed relating to the relative frequencies of specific types of questions (open-ended, non-directive), information (answering questions) and nonverbal behaviour (posture, eye gaze).
A special note should be made about the computation of the cluster scores. The quality and quantity ratings only apply to those consultations in which the relevant behaviours occur. Hence, the number of consultations to which such ratings refer may differ between clusters of behaviour. The quality ratings of the NEGATIVE BEHAVIOURS, ATTENDING TO FEELINGS and ENHANCING INFORMATION EFFECTIVENESS are based on a relatively small number of consultations: 23%, 36% and 57% of the total sample respectively. The quality ratings of the four remaining clusters each refer to more than 90% of the consultations. Ratings that are based on all consultations are the descriptive ratings, the GENERAL RATING and the TOTAL QUANTITY and TOTAL QUALITY ratings.

An overview of the main dependent variables is shown in Table 8.5. This table also displays the intra-class correlation coefficients. These coefficients reflect the proportion of total variance of a dependent variable associated with the variance between physicians, while the remaining variance represents the pooled within-physician variance. A high intra-class correlation coefficient means that communication behaviour is more alike within physicians than between physicians.
Significant coefficients were found among the descriptive ratings, except on the 'percentage answering questions' and the NEGATIVE BEHAVIOURS. With regard to the quantity ratings, only two clusters show significant coefficients: NEGATIVE BEHAVIOURS and NONVERBAL BEHAVIOUR. On the quality ratings, significant intra-class correlation coefficients were found on four of the seven clusters: QUESTIONS, INFORMATION BEHAVIOURS, RECEPTIVE BEHAVIOURS, and NONVERBAL BEHAVIOUR. High intra-class correlations were particularly found on the ratings of NONVERBAL BEHAVIOUR, the GENERAL RATING and the TOTAL QUALITY rating. These data clearly confirm the assumption that consultations are more alike within physicians than between physicians.

The analyses of the course effects on the behavioural observations were performed in three steps. Firstly, all dependent variables were examined to obtain an overall picture of the course effects. Next, the role of patient characteristics was analysed in respect of their influence on the physician behaviour. Finally, a physician characteristic was entered in the analyses, relating to a self-rating as to whether the physicians implemented the behaviours taught in daily practice.

Table 8.5: Dependent variables and intra-class correlations

General rating	.30 [c]		
Total quantity rating	.18 [c]		
Total quality rating	.31 [c]		
	Descriptive ratings	**Quantity ratings**	**Quality ratings**
Questions	.13 [c]	.000	.12 [c]
- % open-ended	.10 [c]		
- % non-directive	.06 [b]		
- % clarifications	.09 [c]		
Information behaviours	.17 [c]	.002	.15 [c]
- % answering questions	.04		
Enhancing information effectiveness	.05 [a]	.000	.000
Receptive behaviours	.13 [c]	.000	.11 [c]
Attending to feelings	.12 [c]	.000	.01
Negative behaviours	.02	.28 [b]	.04
Nonverbal behaviour	.45 [c]	.27 [c]	.41 [c]
- Posture (% positive)	.41 [c]		
- Eye gaze (% positive)	.48 [c]		

[a] p<.050; [b] p<.010; [c] p<.001

8.3.1 Overall results

• Descriptive ratings

The average frequencies of the seven clusters of behaviour are displayed in Table 8.6. The frequencies are adjusted for consultation length and converted to frequencies per hour. Weighted means of the variables as computed by MLn are displayed in this table. In addition to the seven main variables, six additional variables were analysed concerning the proportions of open questions, non-directive questions, clarifications, providing information by answering questions, positive posture and eye gaze.

The table shows that the most frequently occurring behaviours are concerned with the two clusters of behaviour related to the exchange of information: QUESTIONS, and INFORMATION BEHAVIOURS. Together these behaviours are observed about 140 times per hour, and occupy about 75 to 80% of the total number of about 185 observed communication behaviours per hour in a consultation.

When looking at the type of QUESTIONS, it appears that 'closed questions' are used more frequently than 'open-ended questions'; the latter are used less than 30

percent of the questions. With regard to the directiveness of the phrasing of the questions: non-directively phrased questions occur more frequently than directively phrased questions; about 60 percent. 'Asking for clarification' occurs the least frequently, less than 17 percent of all questions, as could be expected since it is a specific type of question.

Table 8.6: Weighted mean frequencies (standard errors) of observation categories per hour

Frequencies per hour	T1	T2	T3	T4
Questions	**67.3 (6.41)**	**69.9 (6.36)**	**66.0 (6.39)**	**61.9 (6.28)**
- % open-ended	26.6 (2.30)	28.7 (2.30)	28.3 (2.30)	30.4 (2.24)
- % non-directive	60.4 (2.67)	57.8 (2.67)	59.7 (2.66)	63.2 (2.60)
- % clarifications	17.9 (1.75)	14.2 (1.75)	17.7 (1.75)	16.2 (1.71)
Information behaviours	**74.0 (4.00)**	**79.4 (3.98)**	**72.3 (3.99)**	**77.1 (3.93)**
- % answering questions	41.7 (2.17)	44.2 (2.14)	45.6 (2.16)	44.7 (2.10)
Enhancing info. effectiveness	**7.6 (0.96)**	**6.2 (0.95)**	**6.4 (0.96)**	**6.9 (0.94)**
Receptive behaviours	**29.1 (2.89)**	**27.9 (2.87)**	**31.5 (2.88)**	**30.1 (2.83)**
Attending to feelings	**4.3 (0.96)**	**2.8 (0.96)**	**4.3 (0.96)**	**5.5 (0.94)**
Negative behaviours	**2.7 (0.56)**	**2.2 (0.56)**	**1.6 (0.56)**	**2.3 (0.55)**
Nonverbal behaviour	**69.6 (3.70)**	**65.9 (3.69)**	**71.5 (3.70)**	**70.4 (3.69)**
- Posture (% positive)[a]	67.0 (4.01)	62.4 (4.00)	68.8 (4.01)	68.5 (3.99)
- Eye gaze (% positive)	72.3 (3.49)	69.5 (3.44)	74.4 (3.45)	72.4 (3.44)

[a]pre-course vs. post-course: $p<.05$

No significant differences are found in the frequency of occurrence of the QUESTIONS and percentages of specific types of questions before and after the course and between the measurement times.

Within the INFORMATION BEHAVIOURS cluster, the most frequently observed behaviour is 'providing information', which occurs more frequently than answering patient questions. 'Answering explicit questions' is more frequently observed than 'answering implicit questions'. The percentage providing information by answering questions is about 44 percent.

When comparing the observations before and after the course, no significant differences are found on the overall frequency of INFORMATION BEHAVIOURS and the percentage answering questions.

The second most frequently occurring type of behaviour concerns the RECEPTIVE BEHAVIOURS which takes about 16 percent of all verbal behaviours. This cluster is mainly dominated by 'paraphrasing', followed by 'attending to the lifeworld' of the patient. Again no significant differences are found in the frequencies of these behaviours before and after the course and between the measurement times.

Behaviours which relate to ENHANCING THE INFORMATION EFFECTIVENESS occur relatively infrequently; about 4 percent of all verbal behaviours. 'Repeating information' is the only behaviour which does occur with some regularity in this cluster. However, clear summaries are provided only occasionally. The same applies to 'checking pre-existing knowledge' and the 'understanding of the patient'. No differences are found in the occurrence of these behaviours before and after the course and between the measurement times.

ATTENDING TO FEELINGS of patients also occurs infrequently; in 2 percent of the verbal behaviours. 'Labelling feelings' is more frequently observed than 'discussing feelings'. No differences are found in the occurrence of these behaviours before and after the course.

NEGATIVE BEHAVIOURS occur (fortunately) least frequently of all kinds of behaviour, but still 1 percent of the verbal behaviours. The most frequently occurring behaviour is 'interrupting the patient'. 'Delay of bad news' was never observed. No differences are found in the occurrence of these behaviours before and after the course.

With regard to the NONVERBAL BEHAVIOURS, the overall percentage positive behaviour is displayed, as well as the individual percentages concerning positive (patient-directed) eye gaze and posture of the physicians. In the majority of the turns-of-speech, both behaviours are positive (about 69 percent), i.e. the physicians display an attentive posture when they listen, and frequently look at the patient when they talk and listen to the patient. Their eye-gaze behaviour is rated slightly higher than their posture towards the patient. Furthermore, the physicians do look significantly more frequently at the patient when they talk than when they listen ($t=9.6$, $p<.000$). No significant differences are found between the measurement times on the proportions of positive behaviour on the overall nonverbal and the eye-gaze measures. With regard to the proportion positive posture a significant increase is found in the comparison of the post-course measurements to the pre-course measurements ($t=2.01$, $df=379$, $p<.05$).

In multilevel contrast analyses of the control period and the follow-up period, no differences were found between T1 and T2 and between T3 and T4 in frequency of occurrence of any of the observed behaviours.

Since the accent of the CRS is on the judgement ratings rather than on the descriptive ratings, the descriptive ratings will not be analysed further in this chapter.

• **Evaluative quantity ratings**

Table 8.7 shows for each cluster of behaviours the weighted means of the judgement ratings for the quantity of its usage. Percentages of consultations are displayed in which behaviours are judged to occur with an inadequate frequency; i.e. the frequency was too high or too low. Inadequate frequencies are most often observed in the NEGATIVE BEHAVIOURS and NONVERBAL BEHAVIOUR clusters; overall percentages vary between 30 to even 65 percent. Also with regard to QUESTIONS and LABELLING OF FEELINGS, sometimes inadequate frequencies are observed. However, these percentages are low; below 6%. Inadequate frequencies are never observed with regard to ENHANCING THE INFORMATION EFFECTIVENESS cluster behaviours, and inadequate frequencies are only rarely observed with regard to INFORMATION BEHAVIOURS and RECEPTIVE BEHAVIOURS.

Table 8.7: Weighted mean quantity ratings of the physicians' behaviour

	T1	T2	T3	T4
Percentage inadequate quantity	**% (N)**	**% (N)**	**% (N)**	**% (N)**
Total quantity[a]	10.3 (94)	11.8 (96)	9.1 (95)	8.4 (100)
Questions	4.1 (94)	3.7 (94)	3.0 (94)	2.5 (100)
Information behaviours	1.1 (94)	0.5 (96)	0.0 (94)	1.5 (100)
Enhancing info. effectiveness	0.0 (53)	0.0 (50)	0.0 (54)	0.0 (62)
Receptive behaviours	0.9 (89)	0.0 (87)	0.0 (89)	1.3 (96)
Attending to feelings	3.0 (33)	3.7 (27)	2.5 (40)	1.2 (43)
Negative behaviours	51.8 (26)	65.1 (24)	52.0 (18)	57.4 (22)
Nonverbal behaviour	37.9 (94)	43.0 (95)	35.0 (94)	32.9 (97)

[a]pre-course vs. post-course: $p<.05$

No significant differences were found between the measurement times in any of the seven behavioural clusters. On the TOTAL QUANTITY rating, a significant decrease is found at the post-course ratings compared to the pre-course ratings ($t=2.10$, $df=384$, $p<.05$). This decrease of the overall inadequate quantity rating is in line with the expectations. This result is mainly due to the quantity ratings of the QUESTIONS, ATTENDING TO FEELINGS and NONVERBAL BEHAVIOUR.

No differences were found in multilevel contrast analyses between the two pre-course ratings, nor between the two post-course ratings on any of the quantity ratings.

Because of the low frequencies and the irregular patterns in the quantity ratings of the individual clusters, it seems most appropriate to concentrate on the total quantity rating as an overall measure in the rest of this chapter.

- **Evaluative quality ratings**

The weighted means of the quality ratings per measurement time are displayed for each cluster of communication behaviours in Table 8.8.

Table 8.8: Weighted mean quality ratings (standard errors) of the physicians' behaviour

	T1	T2	T3	T4
General rating[a,b]	7.39 (.16)	7.06 (.16)	7.58 (.16)	7.49 (.16)
Quality of behaviours (1=inadequate, 3=adequate)				
Total quality[c]	2.59 (.04)	2.55 (.04)	2.64 (.04)	2.62 (.04)
Questions	2.64 (.05)	2.59 (.05)	2.61 (.05)	2.63 (.05)
Information behaviours	2.83 (.04)	2.81 (.04)	2.85 (.04)	2.87 (.04)
Enhancing info. effectiveness	2.77 (.06)	2.78 (.06)	2.78 (.06)	2.69 (.05)
Receptive behaviours[d]	2.53 (.05)	2.57 (.05)	2.69 (.05)	2.62 (.05)
Attending to feelings	2.48 (.09)	2.46 (.10)	2.59 (.08)	2.51 (.08)
Negative behaviours	1.92 (.07)	1.75 (.08)	1.94 (.09)	1.93 (.08)
Nonverbal behaviour	2.32 (.12)	2.27 (.12)	2.36 (.12)	2.39 (.12)

[a]pre-course vs. post-course: $p<.001$
[b]T1 vs. T2: $p<.01$
[c]pre-course vs. post-course: $p<.05$
[d]pre-course vs. post-course: $p<.01$

Generally, the quality of the performance of the behaviours is rated quite high. Whereas the scores can range between 1 and 3, at each measurement the average totals of most cluster ratings are above 2.5. Exceptions are the quality ratings concerning the NEGATIVE and the NONVERBAL behaviours. The highest scores are found among the quality ratings of INFORMATION BEHAVIOURS and ENHANCING INFORMATION EFFECTIVENESS. The lowest quality ratings are found among the NEGATIVE BEHAVIOURS.

When comparing the combined post-course ratings of T3 and T4 to the combined pre-course ratings of T1 and T2 of the seven behavioural clusters, a significant increased quality is found only on the RECEPTIVE BEHAVIOURS ($t=2.57$, $df=360$, $p<.01$). In the second model of analysis in which the measurement times are entered separately, a significant enhancement of this quality rating is found particularly at T3 compared to T1 ($t=2.73$, $df=360$, $p<.005$).
Analysis of the TOTAL QUALITY rating also showed that the post-course rating is significantly higher than the pre-course rating ($t=2.20$, $df=384$, $p<.05$).

In multilevel contrast-analyses of the control period and of the follow-up period, no significant differences were found on any of the quality ratings.

• General rating

The weighted means of the GENERAL RATING of the physicians' communication behaviour for each measurement time are displayed in Table 8.8. The overall GENERAL RATING is 7.4, indicating that on average the behaviour is on a more than sufficient level, but according to the raters still has some room for improvement towards a good or excellent level.
When comparing the post-course level to the pre-course level, a significant improvement in the GENERAL RATING is found ($t=3.30$, $df=384$, $p<.001$). When focusing on the follow-up period, no significant differences are found between the post-course measurements T3 and T4. However, in the control period a significant difference is found between the two pre-course measurements ($t=2.57$, $df=384$, $p<.01$), implying that the GENERAL RATING is relatively high at T1, or relatively low at T2.

The GENERAL RATING was originally added to the observation system to get an integrated measure of the quality of the consultation. The breakdown of the interaction into 23 observation categories may be somewhat artificial since it does not provide information about the relative importance of the individual categories in the interaction. To find out about the relationship of the GENERAL RATING and the individual quality ratings, the GENERAL RATING was correlated with each quality rating of the seven clusters. The correlation coefficients are displayed in Table 8.9.

As expected, the GENERAL RATING correlates significantly with each quality rating. The coefficients range between .31 and .71 concerning the ENHANCING INFORMATION EFFECTIVENESS and the NONVERBAL behaviours respectively. The highest correlation of .81 is found with the TOTAL QUALITY rating, which is based on all 23 observation categories. These high correlations indicate that the GENERAL RATING is a valid measure of the quality of the physician's communication behaviour.

Table 8.9: Correlations of the general rating with the quality ratings

	r	p	N
Total quality rating	.81	.000	385
Questions	.40	.000	382
Information behaviours	.53	.000	384
Enhancing information effectiveness	.31	.000	219
Receptive behaviours	.41	.000	361
Attending to feelings	.38	.000	140
Negative behaviours	.46	.000	90
Nonverbal behaviour	.71	.000	380

8.3.2 The relation of the quality ratings to patient-characteristics

In this section results are presented of analyses determining whether the quality ratings of the physician behaviour are related to patient demographic and disease characteristics. These relations were analysed in several ways. Firstly, the quality ratings were bi-variately related to the patient characteristics. Secondly, regression analyses were performed with the quality ratings as dependent variables and the patient characteristics as independent variables.

With regard to the demographic characteristics, a number of significant differences in physician behaviour were found relating to **patient-gender**. The physician's behaviour is rated as being more adequate towards male patients. Weak but significant Spearman correlations of patient-gender were found with regard to the GENERAL RATING ($r=.10$, $p<.05$), the TOTAL QUALITY rating ($r=.12$, $p<.05$), and the quality rating with regard to QUESTIONS ($r=.12$, $p<.05$). Correlations with the quality ratings of INFORMATION, NEGATIVE and NONVERBAL behaviours were nearly significant ($p<.10$).

Both **age** and **educational level** are not significantly related to the GENERAL RATING and the eight quality ratings for both male and female patients.

With regard to the disease characteristics, a weak but significant correlation is found between the **duration of the disease** and the GENERAL RATING ($r=-.11$, $p<.05$), the TOTAL QUALITY rating ($r=-.13$, $p<.05$) and the quality rating of ATTENDING TO FEELINGS ($r=-.24$, $p<.01$). The quality of the communication is lower when patients are ill for a longer period. The correlation with the quality rating of the QUESTIONS is nearly significant ($r=-.10$, $p=.061$).
The physician and patient global judgements of the **severity of the disease** do not correlate significantly with the quality ratings. The correlations of these judgements with the GENERAL RATING are nearly significant ($p<.10$). The same applies to the correlation of the judgement of the physician with the TOTAL QUALITY rating. All these correlation coefficients are below .10. No correlations were found of the **SIP** total score with the quality ratings.

Next, these three demographic and four disease characteristics of the patients were put as independent variables into multilevel multiple regression analyses with the quality ratings of the physicians' behaviour as dependent variables. In these analyses, a significant regression equation was found only for the quality rating of the NONVERBAL BEHAVIOUR ($\chi^2=16.4$, $df=7$, $p<.05$). The only significant predictor in this equation is the physicians' global rating of the severity of the disease ($\chi^2=13.01$, $df=1$, $p<.000$).

It can be concluded that, with one exception, the demographic and disease characteristics of the patient are not relevant predictors of the ratings of the physicians' behaviour. This finding, in combination with the finding that, except for the SIP score, no differences exist between the measurement times in characteristics of the patient samples, leads to the conclusion that there is no need to control for patient characteristics in the analyses of the behavioural observations.

8.3.3 Behavioural observations in subgroups of physicians

One aspect which may be important in the establishment of a course effect, is whether the physicians are motivated to change their behaviour. Better motivated physicians presumably accomplish more changes in their behaviour. The physicians were not questioned about their motivation to change, but they were asked whether they achieved any actual changes in their behaviour. This question *('Have you already put parts of the course into practice?')* is part of the Course Evaluation Questionnaire, which the physician filled in after the course and before the start of T3. The response on this question can be regarded as a proxy measure of the physicians' motivation to change their behaviour. Eight physicians (38%) indicated that they were indeed putting some of the behaviours taught into practice. The other 13 physicians responded they were not doing so, or were uncertain about it. The behavioural observations of these two groups will be

analysed separately in this section. The two groups of physicians will be indicated from here on as 'implementers' and 'non-implementers' respectively.
The eight implementing physicians are: 5 internists, 1 surgeon, 1 radiotherapist and 1 lung specialist. The other group consists of 7 internists, 2 surgeons, 1 radiotherapist, 1 lung specialist, 1 gynaecologist and 1 urologist. Both groups do not differ with regard to their average age, which is 45.2 (SD 7.2) versus 45.4 (SD 8.2). The implementing physicians have 15.2 (SD 7.8) years of experience, whereas the other group has 19.9 (SD 8.4) years of experience. However, this difference is not significant.

Both groups of physicians were compared with regard to differences between their patients on the demographic characteristics: gender, age and educational level; and the disease characteristics: duration of disease, physician and patient ratings of the severity of the disease, and the SIP score. No differences were found between the physician groups with regard to the demographic characteristics, nor between the measurement times within each group. In two-factorial (measurement time, physician group) analyses of variance, one significant difference was found on the disease characteristics with regard to the physicians' global rating of the severity of de disease. The implementers considered their patient's disease more severe than the non-implementers ($F=6.13$, $p<.05$). This difference is not reflected in the patient rating and the SIP scores. The ratings are displayed in Table 8.10

Table 8.10: Differences between implementing and non-implementing physicians

	T1	T2	T3	T4
Severity of the disease according to physician (1=not severe, 4=very severe)				
- implementers[a]	2.7 (1.0)	2.5 (1.0)	2.6 (1.0)	2.9 (1.0)
- non-implementers[a]	2.4 (1.0)	2.4 (1.0)	2.3 (0.9)	2.5 (1.0)
Duration of the interview, excluding physical examination (min)				
- implementers[a]	12.5 (7.5)	10.3 (7.1)	12.4 (9.5)	12.2 (7.1)
- non-implementers[a]	9.7 (5.0)	10.0 (6.3)	10.4 (4.8)	11.4 (7.4)

[a]implementers vs. non-implementers: $p<.05$

With regard to the characteristics of the consultations, a difference is found between the physician groups in average duration of the interview (Table 8.10). The average duration of the interview is longer among the implementers than among the other physicians ($F=4.14$, $p<.05$).

The implementing and non-implementing physicians were compared with regard to the effects of the course on their behaviour. For all of the dependent variables -all quality ratings, the TOTAL QUANTITY rating and the GENERAL RATING- two models were analysed. In the first model, the combined post-course ratings were compared to the combined pre-course ratings, the effect of the physician group was evaluated, as well as the interaction between both factors. The second model, is comparable to the first model, except that the four measurement times were evaluated individually.

Course effects are expected among the implementing physicians in particular, whereas they are considered less likely to occur among the non-implementing physicians. Among the implementers, the quality ratings and the GENERAL RATING are expected post-course to be on a higher level than pre-course, whereas the TOTAL QUANTITY rating is expected to decrease. At pre-course, no differences are expected between the two physician groups. In both groups, no differences are expected between T1 and T2. Differences between T3 and T4 may result from a delayed learning effect (increase at T4), or an extinction-of-learning effect (increase at T3, decrease at T4).

Table 8.11 shows the data for both groups of physicians; implementers and non-implementers. In the first model, comparing the post- to the pre-course measurements by taking the distinction in physician groups into account, significant results were found on the GENERAL RATING, the TOTAL QUANTITY rating, the TOTAL QUALITY rating, and the quality ratings of INFORMATION BEHAVIOURS and NONVERBAL BEHAVIOUR. The remaining five quality ratings showed no results.
On the GENERAL RATING a measurement effect was found; the rating is significantly higher at the average post-course measurements ($t=2.06$, $df=384$, $p<.05$). No interaction effect between measurement and physician group was found on this variable. This implies that both groups have a better post-course performance on this rating.
Interactions between measurement and physician group were found on the TOTAL QUANTITY rating ($t=2.73$, $df=384$, $p<.005$), the TOTAL QUALITY rating ($t=2.11$, $df=384$, $p<.05$), and the quality rating of the NONVERBAL BEHAVIOUR ($t=3.13$, $df=379$, $p<.001$). On these variables the course effect is dependent on whether the physicians belong to the implementers or not; the implementers show improvements on these ratings whereas the non-implementers do not. A final result in this model is the finding of a significant difference in quality of QUESTIONS between the implementers and non-implementers ($t=2.25$, $df=381$, $p<.05$). The implementers have an overall better performance than the non-implementers, whereas no course effect is found on this variable within any physician group.

Table 8.11: Weighted mean ratings of behaviour (standard errors) of implementers and non-implementers

	T1	T2	T3	T4
General rating				
- implementers[a]	7.45 (.26)	7.29 (.25)	7.81 (.26)	7.75 (.25)
- non-implementers[a,f]	7.36 (.20)	6.92 (.20)	7.44 (.20)	7.33 (.20)
Total quantity rating (percentage inadequate)				
- implementers[b]	11.5 %	11.1 %	6.6 %	4.0 %
- non-implementers[b]	9.5 %	12.1 %	10.5 %	11.1 %
Quality ratings (1=inadequate, 3=adequate)				
• **Total**				
- implementers[c]	2.59 (.07)	2.62 (.07)	2.71 (.07)	2.75 (.07)
- non-implementers[c]	2.60 (.05)	2.51 (.05)	2.59 (.05)	2.55 (.05)
• **Questions**				
- implementers[e]	2.72 (.08)	2.72 (.07)	2.69 (.08)	2.75 (.07)
- non-implementers[e]	2.59 (.06)	2.51 (.06)	2.57 (.06)	2.56 (.06)
• **Information behaviours**				
- implementers	2.80 (.07)	2.89 (.07)	2.91 (.07)	2.95 (.07)
- non-implementers	2.85 (.05)	2.75 (.05)	2.82 (.05)	2.83 (.05)
• **Enhancing information effectiveness**				
- implementers	2.68 (.10)	2.87 (.09)	2.82 (.09)	2.71 (.08)
- non-implementers	2.82 (.07)	2.73 (.07)	2.76 (.07)	2.68 (.07)
• **Receptive behaviours**				
- implementers	2.59 (.08)	2.64 (.08)	2.78 (.08)	2.75 (.08)
- non-implementers	2.50 (.06)	2.53 (.06)	2.64 (.06)	2.54 (.06)
• **Attending to feelings**				
- implementers	2.36 (.13)	2.45 (.15)	2.47 (.13)	2.53 (.12)
- non-implementers	2.58 (.12)	2.47 (.13)	2.67 (.10)	2.50 (.10)
• **Negative behaviours**				
- implementers	1.96 (.10)	1.88 (.12)	2.00 (.10)	2.19 (.12)
- non-implementers	1.89 (.10)	1.69 (.09)	1.83 (.14)	1.79 (.09)
• **Nonverbal behaviour**				
- implementers[d]	2.25 (.19)	2.22 (.19)	2.47 (.19)	2.63 (.19)
- non-implementers[d]	2.36 (.15)	2.30 (.15)	2.30 (.15)	2.25 (.15)

[a]pre-course vs. post-course (both groups): $p < .05$
[b]interaction physician group and pre-course vs. post-course: $p < .005$
[c]interaction physician group and pre-course vs. post-course: $p < .05$
[d]interaction physician group and pre-course vs. post-course: $p < .001$
[e]implementers vs. non-implementers: $p < .05$
[f]T1 vs. T2: $p < .01$

In the second model, in which the four measurement times were included individually, it appears that the interaction effect between measurement time and implementation is especially present at T4. This applies to the TOTAL QUANTITY rating (t=2.91, df=384, p<.005), the TOTAL QUALITY rating (t=2.84, df=384, p<.005), and the quality rating of the NONVERBAL BEHAVIOUR (t=2.93, df=379, p<.005). This result indicates that especially at T4 both physician groups behave differently in comparison to T1. This interaction effect is visualized in the graphs in Figure 8.1. These graphs clearly show that the implementers relatively improved at T4, whereas the behaviours of the non-implementers became relatively worse.

The GENERAL RATING again reveals a slightly different picture. It shows that among the non-implementers, a significant decline occurred at T2 (t=2.57, df=384, p<.01). Again, no significant interaction effects emerge on this variable. Additional contrast analyses on this variable show that among the implementers no significant difference exists between the two pre-course measurements and between the two post-course measurements. A significant increase in the GENERAL RATING is found between T2 and T3 (χ^2=6.12, df=1, p<.05). Among the non-implementers, again a significant increase in the GENERAL RATING is found between T2 and T3 (χ^2=9.97, df=1, p<.005), as well as a significant decrease between T1 and T2 (χ^2=7.11, df=1, p<.01). This difference between the two pre-course measurements among the non-implementers is not in accordance with the expectations.

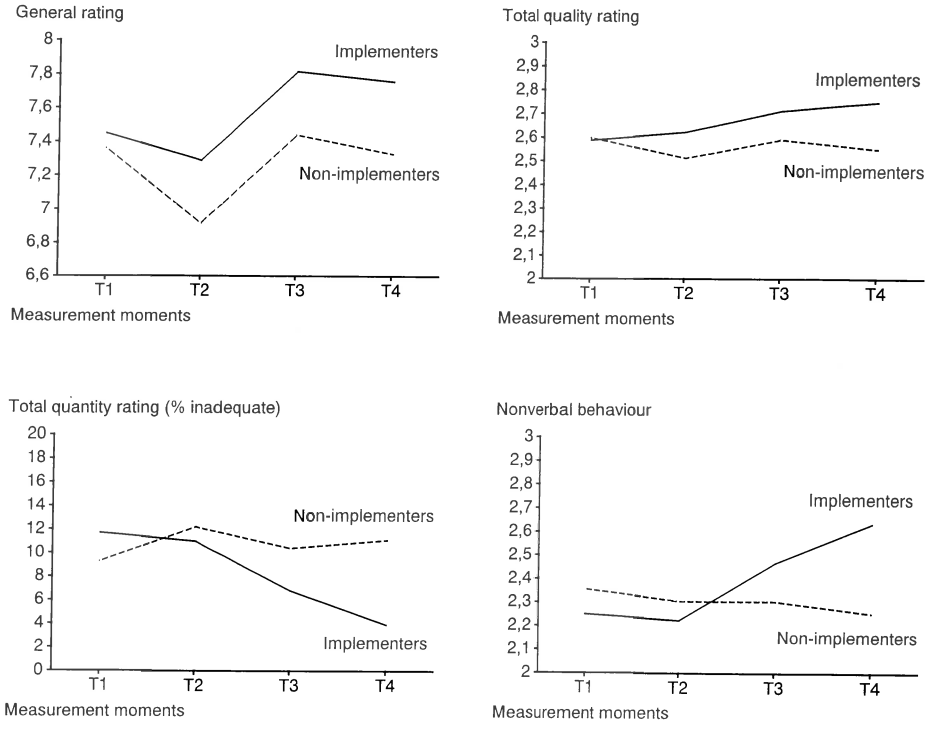
8.3.4 Conclusion

The independent evaluations of the physicians' communication behaviour revealed some evidence of the effectiveness of Interact-Cancer. However, the number of observed changes is limited.

In the overall analyses, significant results were found on only five of the 30 analysed measures. All these results were in accordance with the expectations. With regard to the frequencies of the observed behaviours a significant improvement was found only on the *posture* measure in the nonverbal cluster. Furthermore, on the quantity ratings, a significant improvement was found on the TOTAL QUANTITY rating. No differences between the measurement times were found on the individual quantity ratings. This may be due to the fact that inadequate quantities do hardly occur; most behaviours were performed with an adequate frequency.

With regard to the quality ratings, significant differences between the measurement times were found on only two measures: the RECEPTIVE BEHAVIOURS and the TOTAL QUALITY rating. Both show an increased post-course quality level.

Figure 8.1: Variables with differential course effects in implementing and non-implementing physicians



Finally, the GENERAL RATING revealed mixed results. In accordance with expectations, the combined post-course ratings are significantly higher than the combined pre-course ratings. On the other hand, contrary to the expectations, on this measure a significant difference is found in the control period. The physicians performance at T2 is on a lower level than their performance at T1. This observation raises questions about which of both pre-course measurements is most representative as a base-line level.

In the second round of analyses the relevance of patient characteristics was taken into account. In bivariate analyses, relations were found between the physicians' behaviour and the patient characteristics gender and duration of the disease. However, in multilevel regression analyses, these relations were not confirmed. Hence, no indications were found that characteristics of the patient samples may

have biased the analyses of the course effect on the physician communication behaviour.

In the third round of analyses two groups of physicians were distinguished: implementers and non-implementers. Implementers are physicians who asserted after the course and before the post-course measurements that they were putting the skills taught into practice. The eight implementers indeed showed improvements in behaviour at the post-course measurements on four of the ten ratings analysed. Improved performance was found on the GENERAL RATING, the TOTAL QUALITY and TOTAL QUANTITY ratings, and the quality rating of NONVERBAL BEHAVIOUR.

The remaining thirteen physicians (non-implementers) did not show improvements in their interview behaviour on any measure. This may indicate a difference in motivation between both groups of physicians. The implementers seem to be processing the course material more actively than the other group of physicians, who apparently have not found ways to change their behaviour.

It is unknown what may cause this difference in learning effect between both groups of physicians. One could expect that the implementing physicians may be more motivated to improve their communication behaviour, when their performance is at a relatively low level at the start of the study. However, the initial levels of performance do not differ between the physician groups, except for their performance of QUESTIONS. On this variable, it appears that the implementers behave on an even higher level than the other physicians. So, their motivation to change is not explained by an initial difference in performance between both groups.

A second factor may be that the course does not equally meet the learning needs of the physicians in both groups. An indication for this is found in Table 8.12 in which the average ratings of the modules are displayed for each group of physicians. The table shows that the implementing physicians rate the course modules higher than the non-implementers. In three of the four modules this difference in rating is significant.

Finally, course-effects are mainly found on global ratings, and not on specific clusters of behaviour. As a result, no information is obtained about differential course effects on specific areas of communication. Possibly, this may be due to a difference in relevance of the seven clusters of communication behaviour to different consultations. Furthermore, all results relate to the judgement measures and not to the descriptive measures. This implies that, whereas the frequencies of behaviours have not changed as a result of the course, the performance of the behaviours has increased.

Table 8.12: Average ratings of the course modules of Interact-Cancer per physician group

	Module I	Module II	Module III	Module IV
Implementers	8.0 (1.0)	8.1 (0.7)	8.1 (0.9)	8.4 (0.9)
Non-implementers	7.1 (0.9)	7.3 (0.8)	7.1 (0.7)	7.0 (0.8)
t-test	n.s	t=2.39 df=16 p<.05	t=2.60 df=15 p<.05	t=3.04 df=13 p<.01

8.4 Source 2: Patient satisfaction about the interaction

In this section data are analysed of the second source of information: the satisfaction of the patients about the interaction with their physician. This satisfaction is expressed in a total score of the MISS as well as in three sub-scales concerning cognitive, affective and behavioural satisfaction. Before these totals were computed, the data were inspected for the presence of missing values. Of the 385 patients, 251 (65%) appeared to have no missing values. It was decided to accept 1 missing value for each of the three subscales, and to replace it by the variable mean. Hence, data will be reported of 304 patients, which is 79% of the total group. This percentage varies between 76% and 82% when considering each measurement period separately.
Since the MISS was translated into Dutch, scale reliabilities were computed to see whether these are comparable with the original statistics of Wolf et al. (1978). Cronbach's alpha coefficients in our study are 0.95 for the total scale, and 0.91, 0.93 and 0.77 for the cognitive, affective and behavioural subscales. Hence, except for the behavioural scale, these figures are on a higher level than those of Wolf et al. (1978). The relatively low reliability of the behavioural scale is partly due to item 20. Item 20 is the first negatively phrased question in the list, which may introduce rating errors among respondents who have not noticed this. If item 20 is left out, the scale reliability increases to 0.83. However, for reasons of compatibility with the original MISS, all items were included in the analyses.

8.4.1 Analyses of course effects

The course effects on the satisfaction ratings of the patients relating to the interaction with their physician were analysed in two rounds. First, the average scores of the satisfaction scales were analysed. Since the patients were expected

to be on average very satisfied, it was also considered fruitful to focus more explicitly on responses of dissatisfaction. Accordingly, in the second round the average number of 'dissatisfied' items per satisfaction scale were analysed. By analogy with Hall et al. (1990) the item-scores were dichotomized into 'dissatisfied' versus 'not dissatisfied' ratings.

The intra-class correlations of both scores of each subscale are displayed in Table 8.13. These data do not really confirm the expectancy that the patients' evaluations of their physicians' communication behaviour is more similar for each individual physician than between different physicians. Only two ratings show significant intra-class correlations; the total satisfaction and the affective satisfaction ratings. With regard to the number of dissatisfied items, none of the scales have significant intra-class correlation coefficients. This implies that, except for the two scales mentioned, the variance in the satisfaction ratings is not clustered around physicians. This suggests that the patient satisfaction ratings are determined more by characteristics of the specific interaction than by general differences in behaviour between physicians.

Table 8.13: Intra-class correlations of the patient satisfaction ratings

	Sum-scores	Dissatisfied items
Total satisfaction	.05 *	.04
Cognitive satisfaction	.03	.04
Affective satisfaction	.05 *	.01
Behavioural satisfaction	.03	.01

* p<.050

The weighted average satisfaction ratings of the patients per measurement time are displayed in the upper half of Table 8.14. As expected, the patients were on average quite satisfied about the interaction with their physician. On all subscales the average ratings are above 4, whereas items are rated on five-point scales.

In multilevel analyses of the first model, where post-course ratings are compared with the pre-course ratings, no differences were found on any of the satisfaction scales of the MISS. In the second model, where each measurement time is entered separately, significant differences were found on two scales. On the total satisfaction scale, the satisfaction is significantly higher at T2 ($t=1.96$, $p<.05$) and T4 ($t=2.03$, $p<.05$) compared to T1. The same applies to the behavioural satisfaction scale (T2: $t=2.16$, $p<.05$); T4: $t=2.14$, $p<.05$).

Table 8.14: Weighted mean satisfaction ratings (standard errors) of the patients

	T1	T2	T3	T4
Average totals (1=low, 5=high satisfaction)				
Total[a,c]	**4.08 (.07)**	**4.26 (.07)**	**4.16 (.07)**	**4.26 (.07)**
- implementers	4.15 (.13)	4.22 (.12)	4.13 (.12)	4.37 (.11)
- non-implementers[a]	4.04 (.09)	4.28 (.09)	4.18 (.09)	4.19 (.09)
Cognitive	**4.00 (.09)**	**4.21 (.08)**	**4.10 (.08)**	**4.21 (.08)**
- implementers	4.13 (.14)	4.22 (.14)	4.09 (.14)	4.30 (.13)
- non-implementers	3.94 (.11)	4.20 (.11)	4.11 (.11)	4.16 (.10)
Affective	**4.24 (.08)**	**4.37 (.08)**	**4.24 (.08)**	**4.37 (.08)**
- implementers	4.27 (.14)	4.37 (.13)	4.20 (.14)	4.52 (.13)
- non-implementers	4.21 (.10)	4.38 (.10)	4.25 (.10)	4.29 (.10)
Behavioural[a,c]	**4.08 (.07)**	**4.27 (.06)**	**4.17 (.07)**	**4.26 (.06)**
- implementers	4.15 (.11)	4.24 (.10)	4.11 (.11)	4.27 (.10)
- non-implementers[a,c]	4.05 (.08)	4.29 (.08)	4.20 (.08)	4.26 (.08)
Average number of 'dissatisfied' items				
Total[a]	**2.46 (.42)**	**1.32 (.40)**	**2.11 (.41)**	**1.67 (.39)**
- implementers	1.29 (.71)	1.63 (.66)	2.97 (.69)	1.30 (.62)
- non-implementers[b,d]	3.06 (.51)	1.14 (.50)	1.66 (.50)	1.90 (.49)
Cognitive	**0.92 (.20)**	**0.46 (.19)**	**0.75 (.19)**	**0.73 (.19)**
- implementers	0.39 (.33)	0.63 (.31)	1.11 (.32)	0.62 (.30)
- non-implementers[b,d]	1.23 (.25)	0.36 (.24)	0.55 (.24)	0.80 (.23)
Affective	**0.58 (.16)**	**0.37 (.16)**	**0.54 (.16)**	**0.45 (.15)**
- implementers	0.29 (.28)	0.39 (.25)	0.65 (.27)	0.28 (.24)
- non-implementers	0.73 (.20)	0.35 (.20)	0.48 (.19)	0.55 (.19)
Behavioural[d,c]	**0.84 (.12)**	**0.42 (.11)**	**0.71 (.12)**	**0.51 (.11)**
- implementers	0.48 (.20)	0.45 (.18)	1.04 (.20)	0.47 (.17)
- non-implementers[d,e,f]	1.01 (.14)	0.39 (.14)	0.54 (.14)	0.54 (.14)

[a]T2 vs. T1: p<.05
[b]T3 vs. T1: p<.05
[c]T4 vs. T1: p<.05
[d]T2 vs. T1: p<.01
[e]T3 vs. T1: p<.01
[f]T4 vs. T1: p<.01

Additional contrast analyses showed that no significant differences exist between the ratings within the follow-up period T3 and T4 and within the intervention period T2 and T3.
When making a distinction in the analyses between implementing and non-implementing physicians, it appeared that the above mentioned results apply particularly to the non-implementers. Among these physicians the patient satisfaction ratings are significantly higher at T2 on the total satisfaction scale ($t=2.09$, $p<.05$) and the behavioural satisfaction scale ($t=2.23$, $p<.05$). On the latter scale also the rating at T4 differs from T1 ($t=2.01$, $p<.05$).

The second round of analyses focused on the dissatisfied responses of the patients at each measurement time. The 5-point item-scores were recoded into binary judgements of dissatisfied versus satisfied responses by taking the 'dissatisfied' and 'very dissatisfied' ratings together, as well as the 'very satisfied' to 'neutral' categories. Next, for each subscale the number of items patients have rated as 'dissatisfied' were counted.
In the lower half of Table 8.14 the average number of dissatisfied items per measurement time are displayed for each subscale. Again the patients appear to be quite satisfied, since the average number of dissatisfied items is quite low; generally less than one item per subscale. Correlations between both scoring methods of satisfaction were computed (not in table). Correlation coefficients for the total, cognitive and affective subscales all were -.74 ($p<.000$). The behavioural satisfaction scales correlated -.71 ($p<.000$).
Multilevel analyses of these data revealed almost the same results as described above. In the first model, no differences were found in the comparisons of the post-course ratings with the pre-course ratings. In the second model, where the measurement times are entered separately, significant differences were found. On the total satisfaction rating, patients were less dissatisfied at T2 compared to T1 ($t=2.08$, $p<.05$). On the behavioural satisfaction subscale patients appeared to be significantly less dissatisfied at T2 ($t=2.63$, $p<.01$) and T4 ($t=2.06$, $p<.05$), both compared to T1.
Contrast analyses again showed no significant differences between the ratings within the follow-up period T3 and T4 and within the intervention period T2 and T3.

When introducing the distinction between implementing and non-implementing physicians in the analyses, a rather complex pattern of significant differences between the physician groups and measurement times emerges. This complex pattern shows that among the implementers the highest dissatisfaction is found at T3, whereas among the non-implementers the highest dissatisfaction is found at T1. This pattern applies to the total, cognitive and the behavioural subscales. No

results were found with regard to the affective subscale.
The patterns of results concerning the total and cognitive satisfaction scales are exactly the same and will therefore be described together. Among the non-implementers the dissatisfaction rating at T1 is significantly higher than the ratings at T2 ($p<.01$) and T3 ($p<.05$). The dissatisfaction rating of the non-implementers is significantly higher than the rating of the implementers at T1 ($p<.05$). Furthermore, interaction effects between both groups of physicians occur between T1 and T2 ($p<.05$) and between T1 and T3 ($p<.01$). Between these measurement times dissatisfaction increased among the implementers, whereas it decreased among the non-implementers.
A slightly different pattern of results is found on the behavioural satisfaction scale. Among the non-implementers, in addition to the declines described at T2 and T3 ($p<.01$), also a decline in dissatisfaction is found between T1 and T4 ($p<.01$). Furthermore, at this scale the described interaction effect was only found at T3 (<.01) and not at T2.

8.4.2 Determinants of the patients' satisfaction

An underlying assumption in the search for differences in patient satisfaction ratings between the measurement times, is that these ratings reflect the quality of the interaction. Consequently, the patients' satisfaction ratings are expected to correlate with the CRS quality ratings of the communication behaviours of the physicians. The average satisfaction ratings were correlated with the general rating and the eight quality ratings of the physician behaviour. Contrary to our expectations none of these 36 correlation coefficients were statistically significant.
The same analyses were performed with the scale totals based on the number of dissatisfied items. Again, no significant relations were found between the independent ratings of the physician behaviour and the patient satisfaction scores.

Since the satisfaction ratings of the patient seem to be unrelated to the independent ratings of the communication behaviour of the physicians, the question arises as to whether patient satisfaction can be explained by other determinants like patient demographic and disease characteristics. Multilevel regression analyses were performed with the patient satisfaction scales as dependent variables. Nine independent variables were entered in the regression equations: patient gender, age, educational level, global ratings of physician and patient of the severity of the disease, duration of the disease, total SIP-score, and two independent ratings of the physician behaviour; the GENERAL RATING and the TOTAL QUALITY rating. The results are displayed in Table 8.15. Only the significant predictors are displayed in this table. Three of the four regression equations were statistically significant, based on a comparison of the values of the log-likelihood function between the models with and without the predictors. The scaled deviance

(D) indicates the test statistic (McCullagh et al. 1989). Only behavioural satisfaction could not be significantly predicted by the independent variables. The table shows that all predictors explain less than 11 percent of the variance of the satisfaction ratings. The variance of the behavioural satisfaction is explained even less than 5 percent.

Again, the independent quality ratings of the physician behaviour are not significant predictors of the patient satisfaction ratings. More important are the demographic characteristics, especially educational level (on the total, cognitive, and affective scales) and age (on the cognitive and affective scales). Educational level has a negative relationship with satisfaction; more highly educated patients are less satisfied. With regard to age, older patients are more satisfied than younger patients.

Table 8.15: Determinants of the patient satisfaction ratings (N=332)

	Satisfaction:			
	Total	**Cognitive**	**Affective**	**Behavioural**
	B (S.E.)	B (S.E.)	B (S.E.)	B (S.E.)
Age	.–	.01 (.003)[a]	.01 (.003)[a]	.–
Education	-.07 (.019)[c]	-.10 (.024)[c]	-.08 (.024)[c]	.–
SIP-total	-.01 (.003)[a]	-.01 (.004)[a]	.–	-.01 (.003)[b]
Explained variance R^2	7.4%	10.9%	8.8%	4.7%
Test statistic D*	27.1[b]	37.2[c]	28.4[c]	15.8

[a] p<.05; [b] p<.01; [c] p<.001

* D has approximately a χ^2 distribution with 1 degree of freedom

Of the health variables, only the SIP score is a relevant predictor in the total, cognitive and the behavioural satisfaction scales. Patients with higher SIP scores are less satisfied about the interaction with their physician.

As described in §8.1.2, a significant difference was found on the SIP score between the patient populations of T1 and T2. The SIP scores was relatively high at T1 and relatively low at T2. Since patient satisfaction is related to the SIP score, the satisfaction ratings consequently are expected to be relatively low at T1 and relatively high at T2. So, the difference in SIP score between the patient populations may bias the analyses of the course effect on the satisfaction ratings of the patient. These analyses were therefore repeated with correction for the patients' SIP score. The analyses did not lead to different results as described above. Again, no post-course improvement in patient satisfaction was found.

8.4.3 Conclusion

The measures of the patient's perception of their physician's communication behaviour do not show any results which may point to a course effect. Generally, the patients are highly satisfied about their physicians' behaviour and little differences were found in that opinion between the measurement times. Contrary to the expectations, no post-course increase in satisfaction was found. Instead, an alternating sequence of higher and lower satisfaction was found over the consecutive measurement times. Particularly, on the total and behavioural satisfaction scales, relatively high satisfaction ratings were found at T2 and T4. This pattern appeared to apply paticularly to the non-implementing physicians.

More specific analyses of responses of dissatisfaction revealed the same alternating pattern of more and less dissatisfaction, with relative low dissatisfaction ratings at T2 and T4. Furthermore, different patterns were found among implementers and non-implementers. Among implementers, the patient dissatisfaction ratings were highest at T3, whereas among non-implementers dissatisfaction was highest at T1.

When comparing both methods of analysis, it appears that the same patterns are visible in the upper and lower part of Table 8.14. This is not surprising since both methods correlate .70 or more. Since the data of the average total satisfaction ratings revealed less significant results, the analyses of dissatisfied responses can be regarded as a more sensitive method to detect differences between conditions.

Next, in analyses of determinants of the patients' subjective evaluations of the physicians' behaviour, it appeared that these evaluations are not at all related to the independent ratings of this behaviour. Whereas the physicians' behaviour seems to be not decisive in the patients' satisfaction ratings, certain demographic and disease characteristics seem to be of more importance: age, educational level and the SIP index of health status. Since the patient populations of T1 and T2 differ with regard to the SIP score, this may bias the analyses of the satisfaction ratings. However, correction of the analyses of the patient satisfaction ratings for differences in the SIP score between the patient samples did not lead to different results.

The lack of any relationship between the two sources of information about the quality of the doctor-patient interaction, is unexpected. Several explanations may apply to these findings. One explanation may be the fact that the satisfaction ratings are highly skewed, this may hinder the detection of relationships. A second explanation may be that the changes in the communication behaviour of the physicians are too small to be detected by the patients, whereas they can be detected by means of systematic analysis of the interaction.

A third explanation may be the existence of a conceptual difference between the satisfaction ratings of the patients and the independent quality ratings of the

physician behaviour. Both ratings may depend on different criteria. For example, the independent quality ratings focus on *how* the physician communicates; what types of communication behaviours are applied, and how well they are performed. It is imaginable that patients are primarily concerned about *what* is communicated; i.e. the *content* of the communication. It is mainly the content of the interaction that provides them with information about their health status and effects of the treatment.
A final explanation with regard to differences in criteria may be that patients do not base their evaluation of the interaction on one single encounter, but on more or all encounters with the same physician. In other words their ratings reflect more the physician's behaviour in general than his behaviour in the specific interaction. This suggestion is especially relevant since the analysed consultations all concern follow-up encounters.

In conclusion, four factors may explain the (lack of) results as regards the course effects on this source of information: 1) the patients have not detected (small) changes in the physician's behaviour as a result of doing a course on communication skills; 2) their possible awareness could not be measured due to psychometric limitations of the measurement instrument; 3) patients focus on different aspects of the communication, e.g. the content, which may not have changed as a result of the course; 4) the general behaviour of the physician is an important factor in the evaluation of a specific (follow-up) encounter by the patient.

8.5 Source 3: Physician satisfaction about the interaction

In this section data are analysed concerning the third source of information: the satisfaction of the physicians about the interactions with their patients. This satisfaction was measured by a new instrument which was constructed based on the patient MISS. Hence, at the start of the study, no information was available about the psychometric characteristics of the instrument. Scale reliabilities were computed and compared to the coefficients of the patient MISS. Cronbach's alpha is 0.86 of the total scale (13 items), 0.76 of the cognitive scale (3 items), 0.64 of the affective scale (4 items), and 0.79 of the behavioural scale (4 items). These reliabilities of the physician MISS are lower than those of the patient MISS. This may be the result of the fact that the physician MISS contains half the number of items of the patient MISS.
The responses of the physicians were inspected for missing values. No missing values were found in 71% of the questionnaires. By accepting one missing value on each subscale and replacing it by the scale mean, 360 (94%) physician ratings become available for analyses.

8.5.1 Analyses of course effects

The course effects on the satisfaction of the physicians about their interactions was analysed with multilevel methods. The physicians' evaluations of their own communication behaviour is expected to be more similar for each physician than between different physicians. Intra-class correlation coefficients of the satisfaction ratings of the physicians were computed to find out whether these ratings are clustered around physicians. All correlation coefficients, displayed in Table 8.16, are highly significant. Furthermore, the coefficients are quite high, indicating clearly that ratings are more alike within physicians than between physicians. As could be expected, these intra-class correlations are much higher than those of the patient satisfaction ratings.

Table 8.16: Intra-class correlations of the physician satisfaction ratings

	Sum-scores
Total satisfaction	.58 ***
Cognitive satisfaction	.36 ***
Affective satisfaction	.47 ***
Behavioural satisfaction	.57 ***

* p<.05; ** p<.01; *** p<.001

The weighted means of the physician satisfaction ratings at each measurement time are displayed in Table 8.17. The table shows that the physicians are on average quite satisfied. All ratings are close to 4, whereas the satisfaction is measured on 5-point scales.

In multilevel analyses of the first model, comparing the post-course physician ratings to the pre-course ratings, no significant differences were found on any of the satisfaction scales. The same lack of results was found in analyses of the second model, when the measurement times were put individually into the analyses. Additional contrast analyses again revealed no differences between the satisfaction ratings within the control and follow-up periods.

Next, the distinction between implementing and non-implementing physicians was entered into the analyses. Again no differences were found between the measurement times within both physician groups on all subscales. A significant difference between the implementing and non-implementing physicians appeared on their behavioural satisfaction ratings. On this subscale, the implementers were less satisfied than the non-implementers (t=2.01, p<.05).

Table 8.17: Weighted mean satisfaction ratings (standard errors) of the physicians

	T1	T2	T3	T4
(1=low, 5=high satisfaction)				
Total	**3.89 (.08)**	**3.93 (.08)**	**3.86 (.08)**	**3.88 (.08)**
- implementers	3.71 (.13)	3.79 (.12)	3.73 (.12)	3.81 (.12)
- non-implementers	3.99 (.10)	4.00 (.10)	3.94 (.10)	3.92 (.10)
Cognitive	**3.80 (.11)**	**3.82 (.10)**	**3.77 (.10)**	**3.71 (.10)**
- implementers	3.77 (.18)	3.70 (.17)	3.80 (.17)	3.74 (.17)
- non-implementers	3.82 (.13)	3.89 (.13)	3.76 (.13)	3.69 (.13)
Affective	**3.89 (.08)**	**3.88 (.08)**	**3.84 (.08)**	**3.87 (.08)**
- implementers	3.72 (.13)	3.84 (.13)	3.70 (.13)	3.85 (.13)
- non-implementers	3.98 (.10)	3.91 (.10)	3.92 (.10)	3.88 (.10)
Behavioural	**4.04 (.09)**	**4.08 (.09)**	**3.98 (.09)**	**4.04 (.09)**
- implementers[a]	3.81 (.13)	3.90 (.13)	3.77 (.13)	3.86 (.13)
- non-implementers[a]	4.17 (.10)	4.19 (.10)	4.11 (.10)	4.14 (.10)

[a]implementers vs. non-implementers: $p<.05$

8.5.2 Determinants of the physicians' satisfaction

Like the patient satisfaction ratings, a relationship is expected between the physician satisfaction ratings of their communication behaviour and the independent ratings of their behaviour. Accordingly correlation coefficients were computed of the satisfaction ratings of the physicians with the seven independent quality ratings of the physicians' behaviour. Only one of the 28 comparisons revealed a significant correlation: between the cognitive satisfaction of the physicians and the quality rating of their ENHANCING INFORMATION EFFECTIVENESS behaviour ($r=.19$, $p<.005$).

To explore further the determinants of the physicians' satisfaction ratings, they were related to the patients' demographic and disease characteristics. When bivariately comparing the physicians' satisfaction about communication with male and female patients, a difference is found on the cognitive subscale. The cognitive satisfaction of the physicians is higher when interacting with female patients than with male patients ($t=2.29$, $df=362$, $p<.05$). With regard to the educational level of the patient, a low but significant correlation was found with the cognitive satisfaction of the physician ($r=.13$, $p<.05$). The cognitive satisfaction of physicians is higher in their interaction with more highly educated patients. The other

satisfaction scales do not show any relations with patient characteristics.
Next, multilevel regression analyses were performed with the physician satisfaction scales as dependent variables, and the patient demographic and disease characteristics as independent variables. Also two independent ratings of the physician's behaviour were included; the GENERAL RATING and the TOTAL QUALITY rating. Only the regression equation of the cognitive satisfaction scale was statistically significant, based on the scaled deviance of the log-likelihoods ($D=20.1$, $p<.05$). None of the patient characteristics appeared to be relevant predictors of the physicians' cognitive satisfaction; only the GENERAL RATING appeared to be a significant predictor ($t=2.7$, $p<.01$). The remaining three satisfaction scales could not be predicted by means of the independent variables.

8.5.3 Comparison of physician and patient satisfaction ratings

A final question which will be described here is whether relationships exist between the patient and the physician satisfaction scales. The correlation coefficients are displayed in Table 8.18. Significant correlations were found between the total, affective and behavioural sub-scales of patient and physician. These correlation coefficients are only on a modest level; they range between .11 to .17. The cognitive sub-scales of patient and physician appear not to correlate at all with any of the other subscales.
When comparing the levels of patient and physician satisfaction ratings on equivalent subscales (Table 8.14 and Table 8.17), it appears that the patients are on average significantly more satisfied than the physicians on all scales (total $t=7.30$, $p<.000$; cognitive $t=6.29$, $p<.000$; affective $t=10.31$, $p<.000$; behavioural $t=4.55$, $p<.000$). Apparently, the physicians have a more reserved opinion about their own communication behaviour than their patients.

Table 8.18: Intercorrelations between physician and patient satisfaction ratings

	Physician satisfaction			
	Total	Cognitive	Affective	Behavioural
Patient satisfaction:				
- Total	.15**	.02	.15**	.12*
- Cognitive	.06	-.05	.07	.04
- Affective	.17**	.01	.17**	.15**
- Behavioural	.15**	.04	.15**	.14*

* p <.05; ** p<.01; *** p<.001
Due to missing values, N ranges between 287 and 335

8.5.4 Conclusion

The physician satisfaction ratings do not reveal any differences between the measurement times as a result of the course. The same conclusion applies when implementing and non-implementing physicians are analysed separately. The only finding is that implementing physicians have lower ratings of their behavioural satisfaction than the other physicians. Generally, the physicians are quite satisfied about their communication behaviour, although they are less satisfied than their patients.

In search for determinants of the physicians' satisfaction ratings, relations were found in bivariate analyses between the cognitive satisfaction ratings and the patients' gender and educational level. In multilevel regression analyses these relations were not confirmed.

Furthermore, contrary to expectations, only two relations were found between the physicians' satisfaction ratings and the independent quality ratings of their behaviour. Only the cognitive satisfaction ratings appear to be related with independent ratings of the communication behaviour; the quality rating of ENHANCING INFORMATION EFFECTIVENESS behaviours in bivariate analyses, and the GENERAL RATING in multilevel regression analyses.

Finally, except for cognitive satisfaction, weak correlations were found between the satisfaction ratings of physician and patient. This indicates that both parties do hardly agree in their evaluation of the interaction. This may be due to the positively skewness of the satisfaction ratings. Since the patient and physician evaluations do not correlate at all with the CRS ratings, but are weakly interrelated, suggests that patient and physician do have some common ground for their evaluations of their interactions. Apparently this common ground is not detected by the independent ratings of the physicians' behaviour.

In conclusion, the physicians' satisfaction ratings do not provide valuable information about course effects. The lack of substantial correlations between the three sources of information raise questions about the value of the physicians' self-ratings.

8.6 Conclusion about the effectiveness of Interact-Cancer

The effectiveness of attending to Interact-Cancer on the communication behaviour of physicians was analysed using three sources of information: independent ratings, patient evaluations and physician self-ratings of their communication behaviour. It was expected that the physicians would show improvements of their performance at the post-course measurements, which was expected to be reflected in all three sources of information.

The first source, concerning independent ratings of the physicians' communication behaviour in recorded consultations, revealed some positive results of the effectiveness of Interact-Cancer. On a number of global ratings the participating physicians proved to have an increased post-course performance. These improvements particularly apply to a subgroup of implementing physicians who stated themselves after the course and before the post-course measurements that they were putting parts of the course into practice. No changes in frequencies of behaviours were observed.

The second source, the patients' subjective evaluations of their physician's communication behaviour, revealed no course effects. This may indicate that the improvements in communication behaviour of the physicians were too small for the patients to be detected. Other explanations may be a ceiling effect in measurement of the satisfaction. The patients were very positive about the physician's behaviour at pre-course, so improvements could not be measured. This ceiling effect may also be responsible for the finding that the patients' satisfaction ratings were not at all related to the independent ratings of the physicians' communication behaviour.

The third source, the physicians' subjective evaluations of their own communication behaviour, again revealed no course effects. This may indicate that also the physicians themselves were not able to detect their own improvements in communication behaviour in the interactions with their patients.

The results suggest that the subjective evaluations of patient and physician are less sensitive to subtle changes in performance of communication behaviour than systematic independent judgements. This may be the result of the fact that the independent judgements are made according to well defined criteria based on communication science, whereas physicians as well as patients may use different and more personal criteria.

Furthermore, the absence of interrelations between, on the one hand, the independent ratings of the physicians' behaviour and, on the other, the evaluations of patients and physicians may indicate that both types of ratings do not have a common ground.

The main research question to be answered in this chapter can be answered cautiously affirmative. Systematic observations of the communication behaviour of medical specialists lead to the conclusion that a computer-assisted instruction program on communication skills indeed can induce some changes in their communication behaviour. This finding applies especially to those physicians who consciously put the skills taught into practice. This differentiated result between implementers and non-implementers implies that the motivation to change of the participants and possibly their subjective evaluation of the course program are important preconditions in being able to realize changes in their communication behaviour.

9

Summary and discussion

The aim of this study is to investigate the potentials of computer-assisted instruction (CAI) in teaching communication skills to medical specialists. Accordingly, Interact-Cancer was developed, a CAI program in which a number of communication skills are presented in the context of four themes: basic skills, breaking bad news, providing information and dealing with patient emotions. CAI is a new, unconventional educational method for teaching communication skills. Conventional courses on communication skills are group courses which often last several days. Medical specialists are reluctant to attend such courses due to lack of time, among other reasons. An attractive aspect of CAI methods is that it can enhance access to learning, since it offers the learner flexibility. Learners can follow the course individually, at their own workplace, at times that suits them personally, and at their own pace.
The success of this new approach in the postgraduate education of medical specialists depends on the feasibility and effectiveness of the course program. Both aspects were evaluated in this study among experienced medical specialists working in oncology.

In this chapter first a short overview will be presented of the research findings. Next, the discussion will focus on the applied research methodology in measuring

communication behaviour and satisfaction, and on educational considerations with respect to CAI. Finally, the chapter will end with recommendations for future research.

9.1 Summary of findings

9.1.1 The feasibility of Interact-Cancer

The first research question in this study is:

1. **What is the feasibility of Interact-Cancer, a computer-assisted instruction program on communication skills for oncologists?**

The results concerning this question were obtained from a group of 33 physicians (Chapter 7). Two sub-questions were investigated, which will be summarized briefly.

1a. How do the participating oncologists use Interact-Cancer?

This question focuses on the learning behaviour of the participating physicians, i.e. what they do to complete the course. For this purpose the number, duration and content of sessions of the participants was automatically registered by the course program. Interact-Cancer has options to do short sessions, which may facilitate course attendance in busy work schedules. The course program can be interrupted anytime, and continued from exactly the same point where the course was interrupted in the previous session. Analyses of the physicians' learning behaviour showed that each of the four modules was completed most frequently in one session. The number of sessions needed to complete the course was quite variable: eight participants completed it in four sessions, thirteen in less than four sessions, and nine participants needed five to eleven sessions. The number of days (non-consecutive) ranged from one to seven, indicating that often more than one session was done on one day. The amount of time spent per module ranged from about 35 to 65 minutes. Completion of the course took about three hours.

Although the course was available at their workplace for four weeks, not every participant managed to complete the course. The last module, in particular, on 'dealing with emotions of patients' was not completed by five of the participants. One participant did not do the third module on 'providing information'. Repetition of modules was rarely observed; only the first and second modules were repeated by three and two participants respectively.

These results of the recording of the learning behaviour show that the participants tend to prefer to complete the course in relatively short time; in a few sessions within a few days. Available options to complete a module in two or more short sessions were scarcely made use of.

1b. How do the participating oncologists evaluate Interact-Cancer?

A subjective evaluation of the general characteristics of the course, as well as of details of each module was obtained by means of the Course Evaluation Questionnaire (CEQ). The evaluation focused on the general appropriateness, attractiveness and meaningfulness of the course; on the presentation of the theory; on the appropriateness of the video-examples and the practice questions; on the required time investment and on perceived effects on behaviour. Aspects of the individual modules were evaluated in separate sections of the CEQ. Generally, most aspects of the course were evaluated positively by a large majority of the participants. The positive evaluations also concerned the individual educational methods. The CAI method was considered appropriate and attractive. The course was considered meaningful and relevant for daily practice, and considered worth recommending to colleagues.

The theory in the course program was clearly and comprehensively presented. The video-examples were considered relevant and well related to daily practice. The practice questions in particular encouraged reflection on the communication skills presented.

Finally, with regard to perceived effects of the course, most physicians reported that the course called attention to their own inadequate behaviours. As many as half of the participants indicated immediately after the course that they actually experienced improvements of their communication behaviour.

The evaluation revealed two main points of concern, one relates to the instructive quality of the feedback; the second involves the required time investment. Although the feedback on the learners' responses was considered instructive by the majority (60%), the participants were less positive about this aspect than other course characteristics. As regards the required time investment, a majority considered the course to be time-consuming, and half of the participants had to spend time on it at the expense of other activities. These results were particularly unexpected since CAI is considered to be a time-efficient learning method.

Overall, these results concerning the learning behaviour of the participants and their subjective opinion of Interact-Cancer revealed positive conclusions about the feasibility of a CAI method in teaching communication skills.

9.1.2 The effectiveness of Interact-Cancer

The second research question investigated in this study is:

2. What effects does Interact-Cancer have on the interaction between participating oncologists and their patients?

This question was investigated by analysing the interactions of 21 physicians in 385 follow-up encounters with outpatients who suffered from different types of cancer (Chapter 8). The encounters were recorded on video at four measurement

times; two before and two after the course. Three sources of information about the physicians' communication behaviour were analysed: independent observations, physician evaluations and patient evaluations. The second research question was accordingly divided into three subquestions, which will be summarized briefly.

2a. What effects does Interact-Cancer have on communication behaviour of the physicians in their interaction with patients?

Independent observations of the physicians' communication behaviour were performed; resulting in *descriptive* as well as *evaluative* ratings of 23 observed communication behaviours. The descriptive ratings related to the frequencies of the behaviours. The evaluative ratings concerned judgements about the frequencies, and judgements about the quality of performance. Seven clusters of behaviour were analysed: questions, information behaviours, information effectiveness enhancing behaviours, receptive behaviours, attending to feelings, negative behaviours, and nonverbal behaviour. In addition to these clusters, three global measures were also analysed: a TOTAL QUANTITY rating based on the 23 judgements of the frequencies of behaviour, a TOTAL QUALITY rating based on the 23 quality ratings, and finally a GENERAL RATING of the overall performance of the physician, which is comparable to a Dutch school grade.

The results provide some indication that the communication behaviour of the participating physician has become more patient-centred. No course effects were found on the actual *frequencies* of the observed behaviours, except for a post-course increase in the percentage positive (patient directed) posture. With regard to the quantity and quality ratings, results were mainly found on the global judgement ratings and not on the individual clusters of behaviour.
In respect of the quantity ratings, a post-course improvement was observed of the global judgement rating of the frequencies (TOTAL QUANTITY), which implies that the frequencies of all behaviours were less often rated as occurring 'too much' or 'too little'.
Furthermore, an increase was found on the overall quality of all behaviours (TOTAL QUALITY). This result was also observed in one of the seven clusters of behaviour, in particular the RECEPTIVE BEHAVIOURS. Finally, a post-course increase was found on the GENERAL RATING of the performance of the physicians.

In particular, effects were found among a subgroup of physicians who reported directly after the course and before the post-course measurements that they brought some of the skills taught into practice. These eight 'implementers' and thirteen 'non-implementers' were analysed separately on the evaluative judgement ratings. In both groups a post-course increase was found on the GENERAL RATING of their performance. Among the implementers an increase in both the overall

ratings of the quantity as well as the quality of all behaviours was found. The effect mentioned above on the RECEPTIVE BEHAVIOURS was not observed in either subgroup. Instead, among the implementers an improvement was found of the quality of the NONVERBAL BEHAVIOUR.

The findings of the second and third subquestions on the effectiveness will be summarized together. These questions are:

2b. What effects does Interact-Cancer have on the physicians' satisfaction with patient communication?

2c. What effects does Interact-Cancer have on the patients' satisfaction with their physician's communication behaviour?

The satisfaction ratings of patients and physicians concerned evaluations of cognitive, affective and behavioural aspects of their interaction. The subjective evaluations of both patients and physicians did not reveal a course effect on the physicians' behaviour. The patients and physicians were quite satisfied about their interaction; the patients even more than their physicians. The assumption that the subjective evaluations of both patients and physicians are related to the independent ratings of the physicians' behaviour was not confirmed. Interrelations between the evaluations of patients and physicians were also of only a weak magnitude.

Overall, the results of the three sources of information about the effectiveness of Interact-Cancer on the communication behaviour of the physicians reveal cautiously positive results. Although the subjective evaluations of both patients and physicians revealed no course effects, the independent behavioural observations did reveal that the communication behaviour of particularly a subgroup of deliberately implementing physicians has become more patient-centred.

9.1.3 Topics for discussion

The key element in the evaluation of the effectiveness of Interact-Cancer is the measurement of the communication behaviour of the participating physicians by means of a communication rating system. The results concerning the impact of Interact-Cancer on the physicians' communication behaviour lead to positive conclusions about the effectiveness of a CAI educational method. A remarkable finding in this study is that course effects are not observed in frequency ratings of communication behaviours, but only on global ratings of the physician's performance. This finding needs further discussion, which will focus on the applied methodology to measure the physicians' communication behaviour.

Furthermore, contrary to the expectations, the observed improvement in the physicians' behaviour is not reflected in the subjective evaluations of both patients and physicians. Several factors may have contributed to the unexpected absence

of findings on these measures. The discussion will focus more deeply on different aspects of the satisfaction measurements.
Finally, the success of the use of a CAI course, reflected by the learning behaviour of the participants, their evaluation of the course, and their implementation of the skills in practice, is dependent on specific characteristics of the course as well as preferences of the learner. Both aspects will be discussed more in depth in the paragraph on educational considerations.
Before discussing these topics in the following sections, first some remarks will be made about the constitution of the physician sample.

Sample bias

A particular point of concern is the representativeness of the sample of physicians who participated in this study. Physicians were not randomly included but participated on a voluntary basis. As a result, the participating physicians may not be representative of the total population of medical specialists working in oncology. This may introduce a selection bias which affects the study results.
Selection bias of physicians may have occurred in two stages: during the initial physician recruitment, and as a result of drop-out of participants who initially agreed to participate. Although CAI is a time-efficient learning method, which facilitates the access to learning, still some reluctancy was observed of physicians to participate in the study. Of the 37 hospitals which were initially contacted, only 9 participated. In addition, among the group of 43 participants who initially agreed to participate, eventually 14 physicians (33%) dropped-out. No structured information was obtained about the reasons for dropping-out. Some physicians mentioned difficulty in meeting the research requirements of recording sufficient cancer patients. Drop-out due to a lack of motivation was never acknowledged.

Nevertheless, the physicians who entered the study, and even more those who completed it, may represent a relatively interested and motivated sample. This might have confounded the study results of the feasibility and effectiveness of Interact-Cancer in a positive direction. Highly interested and motivated physicians may evaluate the course more positively, and may be more motivated to change their behaviour, compared to less interested and less motivated physicians who may have refrained from participation.
A second population characteristic which may have confounded the results of the effectiveness of Interact-Cancer, is related to the participants' initial level of performance. The pre-course level of the CRS judgement ratings were quite high. This suggests that the participants are skilful persons, who already perform on a high level. This high initial level may again be a consequence of the voluntary participation of the physicians. Those who are interested in communication skills may be more likely to participate in a course but may also be relatively more

skilled in the domain of communication. As a result the chance of finding course effects on their communication behaviour may be reduced in this sample.

9.2 Measurement of communication behaviour

In this study, a different observation methodology was applied from that in most other evaluation studies to establish the course effects on the physicians' communication behaviours. Generally, behavioural observations focus on the frequency of specific communication behaviours within a patient encounter. In this study it was assumed that a patient-centred style of communication might be reflected in the *performance* of skills in particular and not only in the *frequency* of skills.

Measures of frequencies and percentages of verbal utterances are limited in the ways they can distinguish between effective and ineffective interviews (Putnam et al. 1988). Frequency-based ratings of the performance of communication behaviours have two main disadvantages.

The first limitation of frequency-based ratings is that frequency counts do not take into account **how** the communication behaviours are performed. For example, ratings of how *frequently* information behaviours occurred in an encounter do not provide insight into *how* the information was presented. The point of interest is whether the information was presented in a clear way and intelligible to the patient. This element is not captured by frequency counts of behaviours.

Secondly, the frequencies of communication behaviours may not only be determined by the style of the physician, but also by characteristics of the patient or of the context of the interaction. Frequency-based ratings do not provide an adequate description of the quality of the interaction because they do not take the context of the communication behaviours into account (Wasserman et al. 1983, Pendleton 1983, Inui et al. 1985). Pendleton (1983) compared frequency-based observations to making a listing of ingredients in a cake without the analysis which shows how the ingredients should be combined. Wasserman et al. (1983) use the metaphor of a game of tennis, which cannot be understood by merely counting the number of serves, slams, lobs and volleys, to illustrate the shortcomings of frequency ratings. The same problem applies to describing doctor-patient interactions. For example, one of the elements of a patient-centred style is a supportive attitude. This implies, among other behaviours, paying attention to feelings and emotional reactions of the patient. However, if no physician behaviours which pay attention to feelings are observed in a consultation, it cannot be concluded that the physician is not patient-centred. Paying attention to feelings is not relevant to every encounter with all patients. The physicians' communication behaviour is responsive to the patients' requirements (Stiles 1989). Since different

patients have different requirements, the frequencies of behaviours the physicians display will differ accordingly. Therefore, the relation between frequency-based communication patterns and the quality of communication behaviour is not unequivocal. When evaluating the behavioural effects of a course, these encounter specific effects on the physicians' behaviour may interfere with establishing course effects.

Observations of changes in frequencies of communication behaviours may be more useful when these observations are performed in standardized situations. This can be accomplished by using simulation patients (Schnabl et al. 1991). In simulated encounters the influence of patient and context characteristics on the physician's behaviour is controlled, so changes in behaviour can be more confidently applied to the course effects. It has been demonstrated that physicians are not able to recognize simulation patients when they present themselves during daily practice as one of the regular patients (Rethans 1991). However, often simulation patients are openly presented to the physician, so the physician knows that the situation is artificial which may influence his behaviour. As a result, evaluations of the physicians' communication behaviour in simulated encounters have limited ecological validity. Pieters (1991) found that the general levels of skills is higher in simulated sessions than in real practice. He considers the simulation method to be more suitable to measure competence, and not suitable to measure actual performance.

In our study, the behaviour of the participating physicians was evaluated in real encounters. Special efforts were made to get around the two mentioned problems of frequency-based ratings. For each observation category in the Communication Rating System (CRS) two types of evaluative judgement ratings were added to the descriptive frequency ratings. One evaluative rating concerns a global judgement of the quantity of occurrence, the other rating concerns a global judgement of the quality of performance. Global ratings provide a more holistic image of the consultation (Bensing 1991). That global ratings provide different information about communication behaviour than frequency ratings is demonstrated in a study of Winefield et al. (1996). They compared the quantitative method of coding every utterance with a more holistic rating-based measurement of patient-centredness and found low to moderate correlations (less than .21) between the two types of measures.
On the other hand, the rating procedure for global ratings may be more problematic than frequency-based ratings. Global ratings are more dependent on subjective impressions of the raters, which introduces the threat of relatively low observation reliability (Bensing 1991).
Within this study, the CRS quality ratings are assigned by taking the context and

the patient perspective into account. It is indeed quite difficult to make an objective assessment of the context and the patient perspective. The observer is not familiar with the patient and his medical history, or with the content of previous encounters. Nevertheless, the inter-rater reliabilities of the CRS quality ratings appeared to be good. So the presumed reliability problem has not occurred. Furthermore, the intercorrelation of the CRS GENERAL RATING and the individual quality ratings of the seven clusters of behaviour clearly revealed a consistency between the ratings. So, provided the raters are well trained, the use of global ratings does not seem to be a problem.
Also, the validity of the CRS in measuring patient-centred communication behaviour appeared to be satisfactory. The validity of the CRS method was analysed by comparing two global CRS ratings with different ratings of a second observation instrument in a limited number of consultations.

These results reveal that the application of evaluative judgement ratings to communication behaviours is possible. It is, however, wrong to assume that global ratings can fully replace the systematic observation of communication behaviours. After all, the CRS global ratings were assigned after a detailed analysis of the occurrence of distinctive behaviours in the interaction had been performed. Still, evaluative judgement ratings provide additional information about the performance of communication behaviours. In this study, no course effects were observed on the frequency of communication behaviours; whereas effects were found on global judgement ratings. This result suggests that the applied global ratings may be more sensitive to systematic differences in performance than frequency-based ratings. This may possibly be due to the assumption that quality ratings are less influenced by encounter specific factors than are frequencies of behaviour.

9.3 Measurement of satisfaction

Satisfaction is the most recognized and widely used outcome measure in research of medical communication (Kaplan et al. 1989, Bensing 1991, Ong et al. 1995, Lipkin et al. 1995). In this study, satisfaction of both physicians and patients about their interaction were measured as additional sources of information about the effectiveness of Interact-Cancer. Contrary to the expectations, no post-course increase was found on the satisfaction of both physicians and patients about the physicians' communication behaviour. Furthermore, the satisfaction ratings of the patients as well as the physicians appeared not to correlate at all with the CRS quality ratings. These findings contradict the prevailing opinions in the literature and need further discussion. In Chapter 8, four factors were put forward which may explain the lack of findings on the satisfaction measurements. These factors,

which focus particularly on the patient satisfaction ratings, will be discussed more deeply here. The discussion will be followed by a few remarks on the physician satisfaction ratings.

First, the absence of course effects on the patients' satisfaction ratings suggest that the behavioural changes of the physician as a result of the course may be too small to be detected by the patients. The fact that no changes were observed on the frequencies of behaviours, nor on quality ratings of particular clusters of behaviour, but only on global quality ratings of performance, may have contributed to this result. Probably improvement in the global quality of performance is relatively more difficult to perceive for patients than changes in actual frequencies of behaviours. No additional information is available to support this assumption, since no previous experience has been gained in relating patient satisfaction ratings to the CRS quality ratings of behaviour. Moreover, ratings of the precursor of the CRS, Pieters' UCAM (Pieters 1991) were not compared to ratings of patient satisfaction.

Second, the patients' possible awareness of improvements in the physicians' behaviour could perhaps not be measured due to psychometric limitations of the measurement instrument. These limitations particularly concern the fact that satisfaction ratings are generally highly positively skewed. The resulting 'ceiling effect' limits the possibility of measuring enhancement of satisfaction levels.
In the literature it is also recognized that measurement of satisfaction is not without difficulties. For example Smith et al. (1991b), who also used the MISS[1] to measure course effects on patient satisfaction ratings, reported that the MISS produced such high baseline ratings of patients' levels of satisfaction that detection of changes was precluded. In fact, high levels of patient satisfaction are a common finding in many studies (Comstock et al. 1982, Buller et al. 1987, Henbest et al. 1990, Bertakis et al. 1991, Steptoe et al. 1991, Frederikson 1995, Cohen 1996, Winefield et al. 1996). High satisfaction ratings may be explained by a positive bias that patients may have when rating their care to reduce cognitive dissonance (Carr-Hill 1992). Since patients are dependent on the care of their physician and they cannot easily choose another caregiver, they will be more ready to have a positive opinion of the care they receive.

Third, low correlations between ratings of patient satisfaction and independent CRS ratings of the physician's behaviour may indicate that patients focus on different aspects of the communication than the CRS ratings do. Whereas the independent ratings focus primarily on the *performance* of behaviours, for the

[1]Medical Interview Satisfaction Scale (Wolf et al. 1978)

patients basically the *content* of the communication is of personal interest. Since, the content of the communication presumably has not changed as a result of the course, patient satisfaction has not either. In itself, this suggestion is contrary the prevailing ideas in the literature, where relations are generally found between communication profiles and patient satisfaction.
The suggestion that the content of communication affects the patients' satisfaction is supported by the observation that satisfaction is positively related to the patients' health status. In this study, this relationship was also confirmed. It can be expected that the content of the communication with relatively healthy patients with positive prospects will be more positive than communication with patients with a negative prognosis. Hence, it can be expected that the content of communication affects the patient's satisfaction with the physician interaction.

Finally, another explanation of low correlations between independent and patient ratings of the physician behaviour is that patient satisfaction ratings may not only reflect the physician's performance in the particular consultation, but may also be determined to some extent by the general opinion of the patient about the physician, based on experience in previous encounters (Savage et al. 1990, Bensing 1991, Carr-Hill 1992, Strasser et al. 1993). In fact the patient satisfaction ratings may be highly influenced by their general opinion of the physician (Bensing 1991). This phenomenon applies particularly to evaluating follow-up consultations, which implies that patient and physician have met before and are already familiar with one another. So, presumably the evaluations of the patients are not encounter specific, even when the questions relate to it. This more general orientation of the patients may reduce the relations of their ratings with other ratings of the physician's behaviour in the encounter.

With regard to the physicians' satisfaction about their own communication behaviour, the second and third factors may be particularly relevant in explaining the absence of results. The second factor, concerning the psychometric limitations of the instrument, is quite possible since the physicians were on average quite satisfied with their patient interactions. The third factor, suggesting that the independent ratings and the physicians' ratings are also based on different criteria, may also explain the lack of effects found on the physicians' satisfaction ratings about their behaviour. With regard to the first factor, it seems unlikely that the physicians were unable to detect their own behavioural changes. This applies particularly to the 'implementing' physicians, who themselves claimed that they put the skills taught into practice. The fourth factor that subjective evaluations are not encounter specific is also generally regarded less likely, particularly since physicians are able to make comparisons between interactions with different patients.

The absence of correlations between the satisfaction ratings and the independent ratings of the physicians' behaviour need further attention. When examining the literature closely, a differentiated picture emerges about the results relating to the relationship between physician behaviour and patient satisfaction. The method applied to measure the physician's behaviour in particular appears to be highly influential on the magnitude of the correlation coefficients. It seems that systematic independent observations of communication behaviours generally result in low correlations with patient satisfaction ratings (Bertakis et al. 1991, Bensing 1991, Street 1992). Bertakis et al. (1991) found significant correlations ranging between .09 to .19 of satisfaction with RIAS[2] observations. Bensing (1991) reported correlations of .19 between patient satisfaction and independent ratings of the quality of care. Correlations of about .24 were found of patient satisfaction with certain independent RIAS ratings of physician behaviours. She found no correlations between satisfaction and ratings of patient-centredness. Bensing (1991) provides an overview of five more studies, dating from the eighties, which also report low correlations between patient satisfaction and ratings of physician behaviour.

The effect of the way in which the physicians' behaviour is measured on relations with measures of patient satisfaction is clearly illustrated by a study of Winefield et al. (1996). They related patient satisfaction ratings with systematic (frequency-based) ratings and global ratings of patient-centredness. They found no correlations between patient satisfaction ratings and the frequency-based ratings of the physicians' patient-centredness (physician receptiveness, patient involvement). However, patient satisfaction did correlate .19 with the global rating of patient-centredness. Comstock et al. (1982) also compared patient satisfaction ratings to global ratings of the physicians' behaviour. They found modest correlations of about .25 (range .12 to .40) of patient global satisfaction ratings and the independent ratings of physician's behaviour. The behaviours were rated on four-point scales, comparable with quality ratings.

High correlations with patient satisfaction ratings are found when the physicians' behaviour is measured by means of *subjective evaluations* of the patient (Buller et al. 1987, Street 1992, Frederikson 1995). The study of Street (1992) clearly illustrates that patient perceptions of physicians' behaviour tend to be better predictors of their own satisfaction ($r \approx .60$) than observer-coded behavioural measures ($r \approx .20$). Buller et al. (1987) asked patients to rate their physician's style of communication. They found high correlations of patient satisfaction with health care and the patients' own ratings of their physician's affiliation style (r=.80) and his expression of control (r=-.36). In the study of Frederikson (1995), ratings

[2]Roter Interaction Analysis System (Roter 1989)

of the physician behaviour were obtained from patient ratings of various information tasks. Particularly high correlations were found between the patients' satisfaction and their ratings of the physicians' discussion of the patient's perspective. Correlation coefficients ranged between .72 and .87.
The fact that both the satisfaction ratings as well as ratings of the physician behaviour are obtained from the same source: the patient, may be responsible for finding relatively high correlations between the two judgements. The patient ratings of their physician's behaviour and their satisfaction ratings may conceptually be closely related, which may explain the high intercorrelations.

The results of this and other studies suggest that the methodology which is used to measure satisfaction needs improvement. The skewedness of the satisfaction ratings in particular limit the application of this type of rating as an outcome measure. In general, satisfaction is the result of a comparison between the patient's expectations and the perceived performance of the physician or outcome (Carr-Hill 1992, Strasser et al. 1993). Satisfaction measurement instruments generally focus on the perceptions, but not on the expectations; these remain implicit. A more explicit focus on expectations, for example by measuring these before the encounter, may provide more insight in to what extent the expectations were met in the encounter. By comparing the actual performance of the physician with the expectations of the patient, a more detailed picture emerges of the adequacy of the physician's performance, and how this is evaluated by the patient.

9.4 Potentials of CAI in teaching communication skills

After having reviewed the methodological considerations of the evaluation study, it is time to focus on the educational implications of the CAI method of teaching communication skills. The study is designed to gain insight into the potentials of CAI in facilitating access to learning and improving the communication skills of medical specialists. These potentials originate in the synergy between course characteristics on the one hand, and learner preferences on the other. Both sides will be considered here.

9.4.1 Course characteristics

CAI is a new and unconventional way of teaching communication skills. As described in Chapter 4, it has a number of advantages as well as limitations when compared with conventional courses. This section will reflect more deeply on these course characteristics in light of the findings of the evaluation study.

The *advantages* of CAI mainly relate to facilitating the access to learning. This is effectuated by elements like individualized learning, at the workplace, and flexibility in scheduling of sessions. CAI is a *time-efficient* learning method, which keeps the participants from taking days off, spending time on travelling, or adapting their working schedule to pre-planned sessions, as would be necessary when attending a conventional course.
From that viewpoint, it was quite surprising that a substantial number of participants considered the course to be time-consuming and to interfere with their daily activities. This finding may be the result of the busy working schedule of medical specialists. When the physicians were offered a conventional group course, the same problem may have occurred. However, when a physician attends a conventional course with prefixed sessions, he may arrange a replacement. However, since this may be quite difficult, he may have refrained from participation in the course all together.
This problem concerning the required time investment may particularly arise from the fact that a CAI course is attended at the workplace where normal daily activities go on and may interfere with course activities.
In that respect, it would be expected that the participants would have frequently used the options of the course to plan sessions in a flexible way. Although the course program allows for many short sessions, the participants generally preferred to do relatively longer sessions. Indeed, longer sessions are more time-efficient with regard to starting and stopping procedures of the program. Furthermore, longer sessions may also be more efficient for the learner to concentrate on the content of the course. When the course is followed in too many short sessions, it may be more difficult for the learner to develop a clear overview of the course and a good idea of how individual skills are interrelated.

Further, one of the benefits of CAI is that it provides a *standardized learning* environment. This is beneficial in establishing and maintaining a reasonable level of quality. In conventional courses, the quality management of a course is more difficult, since it is dependent on the experience and skills of the trainer and on the availability of facilities. Whereas trainers can have an off day, CAI courses cannot (except for technical problems obviously) and provide the same information in the same way over and over again. This means that each learner receives the same instruction, studies the same models of behaviour, and has to do the same exercises. In fact, standardized presentations of well chosen illustrative patient interviews may be more effective than live, spontaneous demonstrations (Carroll et al. 1979). In that respect, the effectiveness of a CAI course is not dependent on variations in presentation due to differences between instructors, live models and group composition of the participants, as may be the case in conventional courses. These differences can make the outcomes of conventional courses rather

unpredictable, since it is uncertain the extent to which the participants have all received the same intervention.
Moreover, CAI offers not only a stable, but also a highly structured presentation of the course content. Theory, video-examples and practice questions can be presented in a balanced way. As a result, well structured programs in which specific skills are identified, demonstrated, practised and evaluated are generally more effective than less structured programs (Carroll et al. 1979). In this study the structured presentation of the content of Interact-Cancer by means of the theory and video-examples was assessed quite positively by the participants.

The *limitations* of CAI relate in particular to the educational methods in experiential learning. When comparing the training methods of conventional and CAI courses, there appears to be a large degree of similarity with regard to the cognitively oriented methods like instruction and modelling. The main difference relates to experiential learning tasks involving exercises and receiving feedback.
Experiential learning is quite important in acquiring and refining communication skills. It is an important educational method for practising when and how to use specific skills. In conventional courses, it is the personal feedback of the instructor which provides the learner with information about the adequacy of his performance. CAI offers limited options for learners to participate in role-play, to practise skills in live examples and to receive personal feedback on their behaviour. In CAI, skills are acquired more on a *cognitive level*, and less on a *behavioural level*. Learners acquire knowledge about how to respond towards certain patients, in certain situations, without being offered real opportunities to actually perform these skills. Although skills can be practised in simulations where the learner interacts with a video-example, responses are provided not by actual performance of communication skills but by means of selection of multiple-choice options on the computer screen. Feedback is generally a standardized response of the program to the selected answer alternative, which is presented in a uni-directional way. The learner cannot respond to this feedback and provide additional information to explain his choice and motives. Moreover, opportunities to discuss the application and performance of skills and exchange information on practical experience with instructors and colleague participants is absent in CAI.
These limitations may be reflected in the relatively low appreciation of the feedback in Interact-Cancer. While according to 91% of the participants, the practice questions encouraged thought about the topics of the course, the feedback was considered instructive by only 61%. Although this is still a majority, it indicates that the feedback presented by Interact-Cancer is relatively limited. This may be partly considered as inherent in CAI where, as described above, feedback to responses of the learners is generally standardized, just as the learners' responses are.

On the other hand, an answer to this criticism would be to develop more advanced types of CAI programs, which provide a more flexible type of feedback. The branching technique which is used in conventional CAI programs generally results in quite static feedback to the learners' responses on multiple-choice questions. By means of more advanced types of interaction like for example free-format questions, more individual responses and feedback can be accomplished. This may require the application of a modern technology like artificial intelligence, where decisions are based on rules and not on logical decision trees in analysing the responses of the learner and providing adequate feedback (Jonassen 1988, Kamsteeg 1994, Min 1995). This technology is still being developed. It is far more complex than conventional CAI, since a system of decision rules has to be developed and built into the program. Although the development of an artificial intelligence-based CAI course would take more time at far greater cost, the result might lead to more realistic interactions.

After all, in both conventional and CAI courses, learners can acquire a lot of knowledge about principles of adequate communication and about when and how to perform required skills. Although more in-course experiential learning may facilitate the post-course implementation of learned behaviours, eventually all learners have to translate these principles individually to their daily practice, regardless of the type of course they followed. After both a conventional course and a CAI course, participants still have to spend efforts on internalizing the acquired skills further in order to improve their performance and integrate the skills into their daily routine behaviour, in order to be able to perform well in different situations with different kinds of patients.

9.4.2 Learner preferences and motivation to change

The success of a CAI course on communication skills is not dependent on course characteristics alone. In particular, the characteristics of CAI should match the preferences of the learners (Lee 1992). Basically, to be successful, the learners' acceptance and appreciation of the CAI method is essential. Three types of 'learner factors' are relevant in actually bringing about behavioural changes in the working style of experienced physicians. First of all, the physicians have to be motivated to attend a postgraduate course on communication skills. Next, when the physicians actually participate in a course, they should have a positive attitude to it in order to be motivated to complete it. Finally, after completion of the course, the physicians have to find ways of implementing the skills taught in daily practice. Each step will be described here.

Motivation to participate

Not much is known about the motives of medical specialists participating in post-graduate education. A major study among general practitioners was carried out by Kelly et al. (1996), who investigated the motives in a large sample of about 1500 physicians, mostly working in the West of Scotland area, in attending postgraduate education. In addition to financial incentives from the British 'postgraduate education allowance', important motivating factors of the respondents were: 'interest in the course topics' and 'knowledge improvement'. Furthermore, a considerable number of respondents indicated that they attended postgraduate courses out of social motives; to meet other people. This motive may be particularly relevant to general practitioners who generally work in solo or small group practices. The physicians also indicated that they preferred commercial courses to scheme courses. Courses organized by commercial organisations are generally offered in a luxury setting, with good meals and entertainment programs (Kelly et al. 1996).

CAI courses which are provided at the workplace certainly cannot meet the physicians' social and leisure requirements, but they can meet the learners' interest, which is the main motivating factor for participating in postgraduate education. Furthermore, CAI offers more qualities which may meet learner preferences and enhance their interest in communication skills.

In particular, CAI may be attractive for those physicians who feel insecure about the quality of their performance of communication skills. For them, participation in conventional group courses may be unattractive, since they have to display their skills towards an audience of colleagues, simulation patients and trainers. For some this may be an unpleasant experience which may negatively influence their willingness to participate. An important element of a CAI course is that, because of the individualized learning CAI offers, participants can learn about communication skills in a safe non-threatening learning environment (Faulkner et al. 1991, Seabury et al. 1993). CAI is experienced as a neutral, non-intrusive learning resource which provides the learner opportunities to explore the domain without exposure to criticism. For some physicians this may reduce their resistance to participation.

This element of CAI may be especially important, since physicians tend to be sceptical of the behavioural sciences and their motivation in respect of courses on communication skills is generally limited (Frederikson et al. 1992, Wagener 1995). In this context, the review in Chapter 3 clearly illustrated that (evaluated) courses on communication skills focus primarily on general practitioners and internal medicine, but are hardly available for medical specialists in many other disciplines. Physicians may refrain from participation when extra arrangements are needed,

such as for example setting aside (parts of) days to participate in a course. Since CAI is offered at the workplace, it is highly accessible. Even those who are less interested in a course on communication skills may be curious enough to take a look at the course, when it is available in the department. This may happen more often when the more interested physicians participate already and have a positive opinion of the program and recommend it to their colleagues.

Finally, physicians will become more motivated to participate in postgraduate courses on communication skills, when more *demands and incentives* are placed on this aspect of medical care, from the side of the government as well as from hospital management. Chapter 1 has shown that different initiatives have been employed already. Accreditation of the course and implementation of audits may motivate physicians to participate in postgraduate education.

Motivation to complete the course program

When actually attending to a course, it needs to meet the learners' preferences, to be effective. An important characteristic of learning by means of CAI is the high demand on self-motivation of the learner compared with conventional group-based education. In conventional courses sessions are pre-scheduled and mechanisms of social control encourage participants to attend to these sessions. The individual, self-motivated participation in CAI may have a negative effect on the learning behaviour, and especially on course completion. This phenomenon is noted by Kulik et al. (1986b) who performed a meta-analysis on the effectiveness of computer-based education. In 21 studies of their review the course completion rates between CAI and conventional courses were compared. In 13 studies (62%), higher completion rates were found in the conventional courses, whereas in the remaining 8 studies higher completion rates were found in the CAI studies. This finding indicates that CAI has an improved risk of reduced course completion.

So, the flexibility in planning and pace CAI offers, may have its reverse side. Attending a CAI course at the workplace may interfere more with daily practice, than when a course is attended on one or more reserved days, outside the workplace. As a result a CAI course can be ignored more easily once the circumstances for learning are unfavourable and time is lacking, whereas attending to conventional courses is connected with more obligations and mechanisms of social control.

The interference between the daily practice and attending the course is observed in our study in the complaints of the participants about the required time investment. Moreover, a few participants were not able to complete the course in the available period, although they may have been encouraged to complete the course by the post-course measurements. So, CAI course completion remains a point of some concern.

Motivation to change behaviour

Attending postgraduate education does not automatically imply that the participants are motivated to change their working style. In the study by Kelly et al. (1996) on the motives of general practitioners to attend to postgraduate education, fewer than 50% of the respondents indicated that they intended to use the information gained to change their behaviour.

In our study, only 8 of the 21 participants (38%) indicated after the course that they were putting some of the skills taught into practice, which could actually be confirmed in the analyses of the behavioural observations. This means that motivating physicians to change their behaviour is a matter of special concern. Simply attending a course is not enough in itself to induce actual changes in behaviour. This problem is also recognized by the 'Raad voor Gezondheids-onderzoek' (Health Research Council of The Netherlands) in their report on health research and management (RGO 1997). They stress the necessity of using additional strategies to effectuate the implementation of new ideas. The mere publication of consensus documents and guidelines is not effective itself. The council concludes that implementation strategies often have to be developed from scratch, since these are often not available.

Other factors may influence the readiness of physicians to change their working style. According to Bensing (1991), the general intellectual climate and prevailing scientific model in medicine is an important factor which may reinforce or inhibit the physicians motivation to pay more attention to interpersonal communication. Particularly among medical specialists, the way of thinking is still dominated by the biomedical model, in which disease is treated primarily as a purely somatic problem. Adoption of a biopsychosocial model in which more attention is paid to the psychological and social aspects of people's health problems may facilitate the interest in doctor-patient communication.

Furthermore, Bensing (1991) explains that, whereas implementing new developments in biomedicine is relatively easy, adopting a biopsychosocial model requires a more fundamental change in working style which affects more the physician as a person. When implementing new developments in biomedicine, the physician *himself* does not have to change, he only needs to *use* the new knowledge. Bringing about changes in their communication behaviour, while adopting a more patient-centred style of communication has more personal implications for the physicians, which may be more difficult to accomplish and may result in more limited success.

Another factor which reinforces the biomedical perspective in medicine is related to the financial system in health care. Physicians' wages are based on medical interventions, and not on communicative activities like listening, observing and explaining to patients. This observation has resulted in pleas to change this system and put physicians on hourly-based wages as is the case in many other

occupations, in order to restore the value of the medical interview as a diagnostic and therapeutic tool (Bensing 1991, Biesheuvel 1994).

9.5 Conclusions and future research

This study is one of the first in which the effects of a CAI course on the communication behaviour of medical specialists is evaluated. Three elements have made this study a unique enterprise. First of all, CAI courses on communication skills scarcely exist. Secondly, the behavioural effects of CAI courses are barely evaluated; generally evaluations remain restricted to subjective evaluations about the course program. Finally, although research on medical communication has been performed for several decades by now, research on the communication skills of medical specialists is rare. Until now, most research has focused on primary care physicians.

The study has shown that CAI is a feasible method to provide medical specialists postgraduate education on communication skills. Furthermore, the patient-centred behaviour of medical specialists can be improved by means of a CAI course. Although all participants have become more patient-centred, when considering a global rating of their performance, the results apply particularly to a subgroup of physicians who are actively implementing the skills taught. This finding emphasises the importance of finding ways to motivate the participants to change their behaviour. Initiatives by the government and individual hospitals to encourage the improvement of the quality of care may be a starting point. Adequate doctor-patient communication is an intrinsic part of good quality of care.

Recommendations for CAI education

CAI offers a new way of learning which does not intend to replace existing ways of learning. Different learners have different preferences and learning styles. Those who dislike time-consuming conventional ways of group teaching may be more interested in the flexible and accessible way of learning CAI can offer.

In future research, several options are available to improve the CAI teaching method. These improvements may focus on strengthening the experiential learning activities and providing more personally instructive feedback. Improvements may initially focus on developing more advanced types of CAI, probably based on principles of artificial intelligence, which may include more flexible decision rules to provide adequate feedback to the learner.

Furthermore, experiential learning can be expanded by integrating the CAI course in a slightly larger training program. The course can be extended with one or two role-play sessions where the learner is able to actually perform the newly acquired

skills, and where he can receive personal feedback from an instructor. An additional related activity would be to receive feedback on video recordings of particular real-life consultations.
Another option is to encourage the learners to attend to the CAI course in pairs. This may move them to discuss the topics of the course and to exchange information on personal experiences of doctor-patient communication. A consequence of this strategy would be that the quality of the learning process would become more dependent on the interrelationship among the learners within the pairs. Working in pairs places higher demands on the personal discipline to keep attention focused to the topics of the course.
All these initiatives, except for improving CAI itself, require a larger time investment from the learner. Still, these extensions of CAI education may still be more time-efficient than conventional types of training. Furthermore, the extensions add a social element to CAI which may be attractive for some learners.

In general, hospitals may employ several activities and supply required facilities, to facilitate postgraduate education by means of CAI. First of all, hospitals may provide facilities like study rooms and computer hardware to stimulate the 'indoor' learning activities of the medical specialists. Furthermore, they may organize annual activities to focus attention on the facilities and to promote the actual learning activities. Encouraging CAI education on communication skills within a certain structured context of other activities or objectives may reinforce the participants' course completion and actual post-course implementation of acquired skills.

Recommendations for evaluation research

The controversy between frequency-based and judgement rating based observation systems needs further research. Although limitations of frequency-based observation systems have been clearly recognized in the literature for quite a long time, this type of rating system is still widely applied in communication research. In this study, the application of global evaluative ratings of the observed communication behaviours in establishing the course effects on the physicians' behaviour has been quite promising. This type of rating of communication behaviour provides opportunities to escape the limitations of frequency-based descriptive observation systems.
Further research is needed on the validity of the evaluative judgement ratings, particularly since the validity was analysed in a small number of consultations. Since comparison of the quality ratings of the CRS to frequency-based observations of other observation systems is difficult, other methods may be applied like for example panel-based quality ratings.

In this study only the physicians' behaviour was analysed. A more complete picture of the doctor-patient interaction can be obtained when the patients' behaviour is also explicitly observed and analysed. This may provide more information as to whether the aims of the enhanced patient-centredness of the physicians are achieved. As a result, the patients are expected to participate more actively in the interaction, and may be more able to communicate their psychosocial concerns related to the disease.

When focusing on the outcomes of the improved communication skills in this research, no effect of these improvements could be established on the side of the patient. The results suggest that improvements are needed in the measurement instruments for patient satisfaction. As described, application of measurements of the patient expectations may provide a stronger basis for analysing the extent to which these expectations are actually met.

Conclusion

In conclusion, CAI provides a promising educational method to establish improvements in communication skills of experienced medical specialists. Presenting a CAI course on communication skills at the workplace facilitates the access of the physicians to learning more about these skills, and makes the physician to become more aware of the importance of adequate communication. Adequate performance is the result of a dynamic process of acquiring new knowledge and skills and integrating these in the existing expertise (Boshuizen et al. 1995). This cyclical process assumes repeated periodic learning efforts. CAI education may help to provide frequent opportunities of learning and to refresh knowledge and communication skills.

Samenvatting

Arts-patiënt communicatie speelt een belangrijke rol in de gezondheidszorg. Door communicatie wordt de medische behandeling en begeleiding besproken en afgestemd op de behoeften en verwachtingen van de patiënt. Vaak echter blijkt dat de communicatie tussen arts en patiënt tekort schiet. Gebrekkige communicatie kan er toe leiden dat zowel arts als patiënt slecht geïnformeerd zijn en maakt dat de patiënt zich onbegrepen voelt. Ook uit cijfers over klachten van patiënten blijkt dat een substantieel deel betrekking heeft op bejegening. Vandaar dat het belang van goede arts-patiënt communicatie ook in beleidsnota's voor de gezondheidszorg onderstreept wordt. Daar staat tegenover dat artsen weinig getraind zijn in de communicatieve aspecten van de medische zorg. De aandacht voor communicatie-vaardigheden in het medisch onderwijs is beperkt. Gemiddeld wordt minder dan 2 procent van de opleiding hieraan besteed. In specialisten opleidingen wordt vaak nog minder aandacht besteed aan gespreksvaardigheden.
Vandaar dat enige nascholing op dit vlak aandacht verdient. De interesse daarvoor is echter vaak beperkt bij artsen. Deels omdat hun interesse vooral uitgaat naar de exacte, biomedische kant van de geneeskunde en veel minder naar de 'zachte' psycho-sociale kant. Vaak ook omdat medisch specialisten weinig tijd hebben om zich een aantal dagdelen vrij te maken voor nascholing op het gebied van communicatie-vaardigheden. Met name conventionele cursussen op het gebied van communicatie-vaardigheden zijn vaak tijdrovend. Dit zijn groeps-cursussen die meestal meerdere dagdelen duren en de deelnemers binden aan een voorgeschreven rooster. Artsen moeten zich ervoor vrij maken uit hun drukke dagelijkse praktijk, hetgeen een ongunstige invloed heeft op hun motivatie om deel te nemen.

Computer-ondersteund onderwijs (COO) biedt een flexibele leermethode met een aantal voordelen die voor cursisten de drempel kan verlagen tot het volgen van een cursus. Deze betreffen met name het feit dat een COO cursus op de werkplek gevolgd kan worden, op momenten die de cursist persoonlijk goed uitkomen, volgens een geheel eigen werktempo. Aldus kan COO de toegankelijkheid van nascholing, en daarmee de aandacht van artsen voor communicatie-vaardigheden vergroten.
Voor dat doel is Interact-Kanker ontwikkeld. In dit COO programma worden een aantal communicatie-vaardigheden gepresenteerd in de context van vier thema's: 1) basis vaardigheden, 2) slecht nieuws brengen, 3) informatie geven, en 4) omgaan met emoties van patiënten.

Het doel van dit onderzoek is om inzicht te krijgen in de rol die COO kan vervullen bij het verzorgen van nascholing op het gebied van communicatie-vaardigheden voor medisch specialisten. Het succes van deze nieuwe benadering is afhankelijk van de haalbaarheid en effectiviteit van het cursus-programma. Beide aspecten zijn in dit onderzoek geëvalueerd bij ervaren medisch specialisten die werkzaam zijn in de oncologie.

Het vervolg van deze samenvatting bestaat uit drie delen. In het eerste deel wordt een kort overzicht gegeven van de eerste 5 hoofdstukken, betreffende achtergronden van het onderzoek en een beschrijving van de cursus. Het tweede deel heeft betrekking op hoofdstukken 6, 7 en 8 en gaat in op de opzet van het evaluatie onderzoek en de resultaten van de haalbaarheid en effectiviteit van Interact-Kanker. Het derde deel bevat een samenvatting van de discussie-onderwerpen zoals beschreven in Hoofdstuk 9.

1. Achtergronden bij de ontwikkeling van de cursus

1.1 Theoretisch kader

Als theoretisch kader, van waaruit de kwaliteit van de communicatie wordt beoordeeld, is de patiënt-georiënteerde (patient-centred) benadering genomen. De patiënt-georiënteerde benadering, beschreven in Hoofdstuk 2, stelt duidelijke criteria waaraan goede communicatie moet voldoen. Dit paradigma wordt gekenmerkt door drie elementen: 1) aandacht voor de *leef- en belevingswereld* van de patiënt, 2) streven naar *gelijkwaardigheid* in de arts-patiënt relatie, 3) *steun verlenen* aan de patiënt.

De *leef- en belevingswereld* van kankerpatiënten wordt beheerst door angsten en onzekerheden, waarvan de aard kan verschillen afhankelijk van de fase van het ziekteproces. Patiënt-georiënteerde communicatie betekent dat de arts aandacht besteedt aan de verschillende gevoelens die de patiënt doormaakt, en de patiënt ruimte geeft om zijn zorgen te uiten.

Het streven naar *gelijkwaardigheid* is erop gericht dat arts en patiënt een gelijke inbreng krijgen in de interactie. Meestal wordt de communicatie beheerst door de (biomedische) interessen van de arts en komen de (psycho-sociale) interessen van de patiënt minder aan bod. Door de bijdrage van de patiënt te stimuleren krijgt deze meer invloed op de onderwerpen die besproken worden.

Tenslotte speelt volgens het patiënt-georiënteerde paradigma de arts een belangrijke rol in het *verlenen van steun* aan de patiënt. Kankerpatiënten hebben grote behoefte aan steun van mensen uit hun omgeving om hun crisis te verwerken. Andere steunverleners zoals de partner, familie en vrienden zijn niet altijd goed in staat om de patiënt adekwaat op te vangen. Zij vinden het vaak

moeilijk om over de ziekte te praten en worstelen met hun eigen emoties. De arts is daarom een belangrijke persoon voor de patiënt om deze te steunen tijdens het ziekteproces. Hij is degene die goed op de hoogte is van de situatie van de patiënt en verantwoordelijk is voor de medische zorgverlening. Deze steun kan zowel probleem-gericht als emotie-gericht zijn. Communicatie speelt daarbij een belangrijke rol.

Deze drie algemene principes van een patiënt-georiënteerde benadering kunnen vertaald worden naar concrete gesprekssituaties. De medische communicatie met kankerpatiënten kent een aantal onderwerpen die bijzondere aandacht verdienen: het omgaan met emoties van patiënten, het informeren van patiënten, en het adekwaat verstrekken van emotioneel belastende informatie (slecht nieuws).

Omgaan met emoties van patiënten. Kankerpatiënten worstelen vaak met een breed scala aan *emoties.* Zij ervaren episodes met angsten, depressies, agressie en hulpeloosheid. Ook kunnen zij hun zelfvertrouwen en de grip op het bestaan verliezen, en worden zij onzeker. Het uiten van die gevoelens tegenover anderen geeft de patiënt verlichting, maakt dat deze zich begrepen voelt, en versterkt het zelfvertrouwen.

Hoewel voor patiënten emoties onlosmakelijk verbonden zijn met de ziekte, worden zij vaak door artsen genegeerd. Emoties worden meestal gezien als een secundair probleem dat vanzelf verdwijnt als het primaire medische probleem is opgelost. Door verschillende factoren wordt er weinig aandacht aan emoties besteed waaronder tijdgebrek, gebrek aan vaardigheden, en eigen emoties. Ook de vrees de emoties van de patiënt niet te kunnen hanteren en daarmee het eigen emotionele evenwicht in gevaar te brengen speelt vaak een rol.

Aandacht besteden aan emoties betekent vooral luisteren en begrip tonen. Vaak brengt alleen al de expressie van emoties de nodige verlichting. Bovendien helpt het patiënten om hun gedachten beter te ordenen en er meer grip op te krijgen.

Informeren van patiënten. Het is voor patiënten van belang dat zij voldoende geïnformeerd worden, en dat de informatie op een heldere wijze gepresenteerd wordt. Gebrek aan informatie maakt patiënten onzeker. Problemen in de informatie-uitwisseling ontstaan vaak doordat patiënten andere interessen hebben dan de arts. Terwijl patiënten met name informatie willen hebben over oorzaak, aard en prognose van de ziekte, gaat de arts vooral in op aspecten van de behandeling. Verder spelen ook een rol de vaak beperkte tijd, verschillen in begripsvermogen tussen patiënten, maar ook de behoefte van artsen om patiënten niet al te ongerust te maken. Daar staat tegenover dat patiënten als gevolg van hun geëmotioneerdheid niet altijd goed in staat zijn de informatie te verwerken en te begrijpen. Effectieve informatie overdracht wordt juist dan bereikt wanneer deze verloopt op geleide van de patiënt. Dat betekent dat met name lange monologen het best vermeden kunnen worden.

Slecht-nieuws gesprekken. Bij de behandeling van kanker moet dikwijls emotioneel belastende informatie worden overgebracht, bijvoorbeeld als de diagnose wordt gesteld of als blijkt dat een behandeling niet aanslaat. Eerlijkheid daarover is van essentieel belang voor een goede arts-patiënt relatie. Bovendien is een goed geïnformeerde patiënt mentaal beter opgewassen tegen de ziekte. Artsen vinden het echter vaak moeilijk om slecht nieuws mee te delen. Ze vrezen de emotionele reacties van de patiënt, maar ook voor henzelf is het emotioneel belastend. Het gevolg daarvan is dat vaak op allerlei manieren vermeden wordt dat de boodschap duidelijk wordt meegedeeld. Bovendien gaat veel aandacht uit naar acties (behandelingen) die ondernomen kunnen worden om het slechte nieuws ongedaan te maken, en weinig naar een bespreking van de reacties die de mededeling bij de patiënt oproept.

1.2 Evaluaties van communicatie-vaardigheden cursussen

Er zijn niet eerder evaluatiestudies verricht waarin het effect van een COO cursus voor communicatie-vaardigheden op het gedrag van artsen is geëvalueerd. Wel zijn er vanaf 1985 diverse conventionele cursussen geëvalueerd. In de engelstalige literatuur zijn 13 evaluatie-studies gevonden naar de effectiviteit van een communicatie-vaardigheden cursus voor praktizerende artsen. Deze worden beschreven in Hoofdstuk 3. Daarbij is onderscheid gemaakt tussen studies met arts-assistenten die de training kregen aangeboden tijdens hun specialisatie, en artsen die de training kregen na hun specialisatie. Evaluaties van cursussen voor geneeskunde studenten zijn buiten beschouwing gelaten vanwege hun gebrek aan klinische ervaring. De artsen in de onderzoeksgroepen waren meestal huisartsen of internisten. De evaluatiestudies zijn bekeken op drie aspecten: 1) de aard van de training, 2) de gehanteerde onderzoeksmethoden, en 3) de resultaten.

De **aard van de training** is bekeken op de onderwijsdoelen en op de toegepaste onderwijsmethoden. De *onderwijsdoelen* konden worden ingedeeld in drie categorieën met betrekking tot het bevorderen van communicatie: 1) receptief gedrag, 2) informatief gedrag, 3) interpersoonlijk en affectief gedrag. Ieder van deze categorieën is relevant in een patiënt-georiënteerde manier van communiceren.

Bij de *onderwijsmethoden* is onderscheid gemaakt tussen cognitief georiënteerde methoden (hoorcolleges, cursusboeken, en demonstraties van gedrag), ervaringsleren (rollenspelen, feedback op het eigen gedrag) en (groeps)discussies over persoonlijke ervaringen en opvattingen.

Het overzicht van de **onderzoeksmethoden** richt zich op de meetmethoden en het onderzoeksdesign. De in de studies gehanteerde *meetmethoden* betreffen: 1) gedragsobservaties, 2) subjectief oordeel van de arts over zijn eigen kennis of vaardigheden, 3) effecten op het gedrag van de patiënt, op zijn tevredenheid, of op zijn algemene gezondheidstoestand. Drie soorten *onderzoeksdesigns* werden

aangetroffen: het 'pretest-posttest design', het 'posttest controle groep design', en het 'pretest-posttest controle groep design'. Laatst genoemde design is wetenschappelijk het meest krachtig. Echter, slechts twee studies hebben gedragsobservaties geëvalueerd op basis van dit design.
Bij de rapportage van de **resultaten** van de gedragsobservaties blijkt dat niet altijd alle observaties gerapporteerd worden. Ook blijkt dat in studies met de meest krachtige onderzoeksdesigns de minste trainingseffecten gevonden worden. Over het algemeen worden per studie effecten gevonden op minder dan de helft van het geobserveerde aantal gedragscategorieën. Als zodanig lijken de effecten van conventionele cursussen op het gedrag van de arts tamelijk beperkt.
Een aantal factoren kan daarbij een rol spelen. Het aantal deelnemende artsen in de studies is vaak beperkt, waardoor relatief kleine effecten niet significant worden. Het is mogelijk dat het gedrag van ervaren artsen relatief moeilijk te veranderen is. Zij zijn misschien geneigd te blijven bij hun oude vertrouwde routines. Mogelijk ondervinden artsen problemen om het geleerde in praktijk te brengen. Wellicht hebben zij meer tijd nodig om nieuw gedrag te integreren in bestaande gewoontes. Ook het aanvangsnivo van de artsen kan relatief hoog zijn waardoor mogelijkheden om te verbeteren beperkt zijn. Over het aanvangsnivo wordt in geen van de studies melding gemaakt.

1.3 Computer-ondersteund onderwijs voor gespreksvaardigheden

In Hoofdstuk 4 is beschreven wat de kenmerken zijn van COO als leermiddel. Belangrijk kenmerk is de geïndividualiseerde benadering van het leerproces. Iedere cursist kan zelf bepalen wanneer, hoe vaak en hoe lang hij een sessie doet. Ook het leertraject kan met COO in grote mate door de cursist gestuurd worden. Dit hangt af van de mate waarin het didactisch ontwerp van het cursusprogramma dit toelaat. Het ontwerp bepaalt de mate waarin de cursist kan interacteren met het gepresenteerde cursusmateriaal. Interactie maakt dat de cursist een actieve rol vervult in het leerproces en dwingt de cursist na te denken over keuzen die gemaakt moeten worden tijdens de cursus. De meest flexibele programma ontwerpen geven de cursist maximale controle over het verloop van de cursus *(learner control)*. De cursist kan minder invloed uitoefenen wanneer het programma een lineair ontwerp heeft *(program control)*. Een grote mate van vrijheid is voor de cursist niet per definitie beter dan wanneer de cursist weinig invloed heeft op het verloop van de cursus. De cursist kan eerder het overzicht verliezen, en het wordt moeilijker om de cursus inhoud op een heldere en gebalanceerde wijze te presenteren.
Belangrijk bij het ontwerp van COO programma's is dat het voor de cursist aantrekkelijk is om een COO cursus te volgen. Het programma moet de cursist motiveren en gemotiveerd houden.
Voor het onderwijzen van communicatie-vaardigheden zijn binnen COO een aantal

onderwijsmethoden beschikbaar, met name: instructie, video-voorbeelden, oefenopdrachten en feedback. In dat opzicht zijn er zowel een aantal overeenkomsten als verschillen met conventionele cursusprogramma's. Overeenkomsten bestaan op het vlak van de cognitief georiënteerde onderwijsmethoden als het geven van instructie en het tonen van voorbeelden. Dit correspondeert met hoorcolleges, cursusboeken en patiëntdemonstraties. Verschillen bestaan op het vlak van het ervaringsleren. COO biedt daartoe relatief beperkte mogelijkheden. Het alternatief voor rollenspelen is het doen van oefenopdrachten. De cursist kan daarbij niet zelf het gedrag vertonen, maar reageert op vragen door een antwoord in te typen. Persoonlijke feedback van de docent op het gedrag van de cursist wordt vervangen door feedback van het COO programma, die noodzakelijkerwijze minder persoonlijk van aard is.
Om inzicht te krijgen in de effectiviteit van COO programma's wordt een viertal overzichtsstudies besproken. Deze overzichtsstudies laten zien dat COO een effectief leermiddel is in een breed gebied aan onderwerpen. Vaak worden betere leer-effecten gevonden na een kortere tijdsinvestering, vergeleken met conventionele cursussen. De besproken overzichtsstudies betreffen echter niet alleen COO programma's op het gebied van sociale vaardigheden. Daarom zijn tevens vier evaluatiestudies besproken op dit gebied. In drie daarvan werden effecten gemeten door zelf-rapportage met vragenlijsten. Daarmee werden positieve resultaten gevonden. Slechts één studie evalueert de effectiviteit door middel van gedragsobservaties. In deze studie wordt geen trainingseffect gevonden.
Geconcludeerd wordt dat op basis van deze gegevens geen eenduidige verwachtingen zijn te formuleren over de effectiviteit van een COO cursus op de communicatie-vaardigheden van artsen. Een beperking van COO is met name de beperkte mogelijkheid om gedrag daadwerkelijk te oefenen en om persoonlijke feedback te ontvangen op de sterke en zwakke punten van het eigen gedrag. Daar staat tegenover dat iedere cursist voor de taak staat om na een cursus (COO of conventioneel) het geleerde in praktijk te brengen. De een zal daarin beter slagen dan de ander. Het is verleidelijk om terug te vallen op de oude routine. Doorvoeren van veranderingen en het doorbreken van ingesleten gewoontes kost extra moeite. In dat opzicht bestaat er geen verschil tussen COO en conventionele cursussen. Een sterk punt van COO is dat het een tijds-efficiënte en toegankelijke leermethode is, hetgeen de drempel verlaagd is voor het volgen van een cursus.

1.4 Interact-Kanker

In Hoofdstuk 5 wordt het technisch ontwerp en de inhoud van het COO programma Interact-Kanker beschreven. De cursus beoogt medisch specialisten een patiënt-georiënteerde communicatie stijl te leren. In dat kader wordt een

aantal communicatie-vaardigheden gepresenteerd. De cursus bestaat uit vier modulen: 1) basis vaardigheden, 2) slecht-nieuws geven, 3) informatie geven en 4) omgaan met emoties van patiënten. In de eerste drie modulen wordt de medische geschiedenis van een borstkanker patiënte gevolgd vanaf het eerste consult tot de aanvang van de behandeling. Van deze patiënte worden aan het begin en einde van iedere module consulten getoond met een oncologisch chirurg. In het eerste fragment, aan het begin van de module, verloopt het gesprek niet optimaal. Vervolgens worden in de module verschillende communicatie-vaardigheden behandeld waarmee het consult beter zou kunnen verlopen. Iedere afzonderlijke gesprekstechniek wordt -zo mogelijk- geïllustreerd met video-fragmenten van slechte en goede voorbeelden. Aan het eind van de module wordt het consult herhaald, nu met toepassing van de in de module gepresenteerde vaardigheden.

In iedere module worden vier onderwijs methoden toegepast: instructie, video voorbeelden, oefenvragen en feedback. De *instructie* geeft uitleg over achtergrondinformatie en het gebruik van de communicatie-vaardigheden. Deze instructie wordt verbaal gepresenteerd door een vertel-stem, waarbij de belangrijkste begrippen en zinsneden op het scherm visueel ondersteund worden met steek-woorden. *Video-voorbeelden* zijn er in twee typen: basisfragmenten waarin een min of meer volledig gesprek wordt gepresenteerd, en één-techniek fragmenten waarin een gesprekstechniek apart geïllustreerd wordt. De *oefenvragen* zijn multiple-choice vragen die in verschillende blokken worden gepresenteerd. Direct na het basisvoorbeeld volgt een aantal 'kijkopdrachten' die bedoeld zijn om de cursist te laten nadenken over wat er in het basisfragment gebeurde in communicatief opzicht. Na de behandeling van een aantal gesprekstechnieken worden oefenvragen gepresenteerd waarin de besproken technieken in verband worden gebracht met het basis-fragment. Na de keuze van een antwoord alternatief volgt direct *feedback* waarin het juiste antwoord wordt aangegeven en toegelicht.

In de vier modulen wordt aandacht besteed aan de volgende onderwerpen.
1) Basis vaardigheden. Aan de orde komen verbale en non-verbale uitingen van arts en patiënt die van invloed zijn op een patiënt-georiënteerde communicatie, waarbij onderscheid wordt gemaakt tussen receptieve en expressieve vaardigheden. Receptieve vaardigheden betreffen actief luisteren en alert zijn op verbale en non-verbale signalen van de patiënt, die kunnen duiden op onderwerpen die de patiënt niet rechtstreeks aan de orde durft te brengen. Expressieve vaardigheden refereren aan het actief stimuleren van de inbreng van de patiënt door middel van uitnodigend verbaal en non-verbaal gedrag.
2) Slecht-nieuws geven. Gepleit wordt voor een drie-fasen benadering. De eerste

fase is meedelen van het slechte-nieuws op onomwonden wijze en meteen aan het begin van het consult. In de tweede fase krijgt de patiënt de gelegenheid om dit nieuws te verwerken. De arts stelt zich terughoudend op. Veel en gedetailleerde informatie geven heeft op dat moment geen zin, omdat de patiënt door zijn geëmotioneerdheid meestal niet in staat is het in zich op te nemen. Pas in de derde fase, als de patiënt enigszins aan het idee gewend is, kunnen summier een aantal details besproken worden. Vaak is het beter pas in een volgend consult meer uitgebreid de consequenties te bespreken. Verder worden veel voorkomende reacties van patiënten op slecht-nieuws behandeld zoals ontkenning, boosheid en verwarring.

3) Informatie geven. In de derde module komt een aantal principes van een effectieve informatie verstrekking aan bod. In essentie gaat het erom dat informatie gestructureerd en overzichtelijk wordt aangeboden, en dat daarbij rekening gehouden wordt met het referentiekader van de patiënt. Dit referentie-kader heeft betrekking op de kennis, interessen en het begripsvermogen van de patiënt.

4) Omgaan met emoties van patiënten. In de laatste module worden zes patiënten gepresenteerd die worstelen met verschillende angsten en onzekerheden in verschillende fasen van de ziekte. Getoond worden de reacties van de arts. Daarbij krijgen het onderkennen van de emotionele problemen van patiënten, en het actief exploreren en bespreken van de waargenomen emoties in het bijzonder de aandacht.

2. Opzet en resultaten van het evaluatie-onderzoek

2.1 Onderzoeksopzet

De onderzoeksopzet is beschreven in Hoofdstuk 6. Er zijn twee onderzoeksvragen uitgewerkt. De eerste betreft de haalbaarheid van de COO cursus Interact-Kanker, de tweede is gericht op de effectiviteit van de cursus.

De haalbaarheid van Interact-Kanker is geëvalueerd aan de hand van het oordeel van de deelnemende specialisten over de cursus en analyse van hun leergedrag, dat wil zeggen hoe ze de cursus hebben doorlopen. Het *oordeel* over Interact-Kanker is gemeten met een uitgebreide vragenlijst (Course Evaluation Questionnaire; CEQ) over zowel het ontwerp van de cursus als de inhoud van de verschillende modulen. Het *leergedrag* is gemeten aan de hand van een in de cursus ingebouwd registratie programma. Per cursist zijn verschillende aspecten van het leergedrag geregistreerd, zoals het aantal en de duur van de sessies en welke (delen van) modulen men gevolgd heeft.

De tweede onderzoeksvraag, over de effectiviteit van Interact-Kanker, is beantwoord door drie bronnen van informatie te analyseren. De eerste bron betreft

onafhankelijke observaties van de communicatie-vaardigheden van de deelnemende specialisten. Daartoe zijn video-opnamen van consulten van de specialisten met kankerpatiënten geanalyseerd met een observatiesysteem (Communication Rating System; CRS). De scoringsmethode van het CRS is gebaseerd op de Utrechtse Consult Evaluatie Methode (UCEM), ontwikkeld door Pieters. Enige aanpassing heeft plaatsgevonden in zowel de scoringsmethode als in de geobserveerde gedragscategorieën, die zijn afgestemd op de inhoud van de cursus. Het CRS heeft een unieke scoringsmethode ten opzichte van veel andere observatiesystemen. Niet alleen worden de frequenties van het gebruik van iedere gedragscategorie genoteerd, ook worden aan ieder type gedrag *beoordelingen* toegekend over hoe vaak (kwantiteit) en op welke wijze (kwaliteit) het is toegepast in het consult. Het voordeel van deze oordelen tegenover gedragsfrequenties is dat de context waarin een gespreksvaardigheid wordt toegepast kan worden meegewogen. De betrouwbaarheid en validiteit van deze oordeels-maten werden goed bevonden.
Geanalyseerd zijn 23 gedragscategorieën verdeeld over zeven gedragsclusters: 1) vragen, 2) informatie geven, 3) gedrag dat de effectiviteit van de informatie-overdracht vergroot, 4) receptief gedrag, 5) aandacht voor gevoelens en emoties van de patiënt, 6) negatief gedrag, en 7) non-verbaal gedrag. Tevens zijn er 3 globale maten: KWANTITEIT TOTAAL, KWALITEIT TOTAAL, en GLOBAAL OORDEEL. De eerste twee zijn gemiddelden van de oordelen van alle afzonderlijke oordelen in het consult. Het GLOBAAL OORDEEL is vergelijkbaar met een rapportcijfer dat aan het eind van de observatie van het consult door de beoordelaar aan het gedrag van de arts wordt toegekend.
De tweede bron van informatie is het subjectieve oordeel van de patiënten over de communicatie met hun arts. Daartoe vulden zij na het consult een tevredenheids-vragenlijst in (Medical Interview Satisfaction Scale; MISS).
De derde bron is het oordeel van de artsen over hun eigen gedrag. Zij vulden daartoe per consult een tevredenheidsvragenlijst in die een verkorte versie is van die van de patiënt (MISS-physician).

Deze drie bronnen van informatie zijn op vier tijdstippen gemeten, twee voor en twee na de cursus, met intervallen van vier weken. Aldus bestaat het onderzoeksdesign uit drie perioden: een controle periode met twee voormetingen T1 en T2, een interventie periode tussen T2 en T3, en een follow-up periode met de twee nametingen T3 en T4.
Iedere arts werd gevraagd ieder meetmoment 10 consulten met kankerpatiënten op te nemen op video en na afloop daarvan een vragenlijst in te vullen. Iedere patiënt kreeg een informatiebrief over het onderzoek en werd gevraagd naam en adres in te vullen op een toestemmingsformulier. De patiënten kregen na hun consult van de onderzoekers een vragenlijst thuisgestuurd.

Vooraf is de verwachting geformuleerd dat na de cursus het gedrag van de artsen meer patiënt-georiënteerd zal zijn. De patiënten zouden als gevolg daarvan meer tevreden zijn over de communicatie met hun arts. De grootste verschillen tussen de metingen werden verwacht tussen T2 en T3. Binnen de controle periode en de follow-up periode werden geen eenduidige gedragsveranderingen verwacht.

2.2 De haalbaarheid van Interact-Kanker

De eerste vraagstelling, betreffende de haalbaarheid van Interact-Kanker, is uitgewerkt in Hoofdstuk 7. Deze vraagstelling is onderzocht bij een groep van 33 medisch specialisten, werkzaam in 9 ziekenhuizen.

Analyses van de computer-registraties van het leergedrag van de cursisten laten zien dat een module door ruim drie-kwart van de deelnemers in 1 sessie wordt afgerond. De overige cursisten hadden meestal 2, hooguit 3 sessies nodig.
Het aantal sessies dat men nodig had om de cursus te voltooien varieerde van 1 tot 11, waarbij 70% van de cursisten 4 sessies of minder nodig had. Het aantal dagen waarop sessies werden gedaan varieerde van 1 tot 7; tweederde van de cursisten benutte drie dagen of minder. De gemiddelde tijdsduur die men nodig had om een module te voltooien bedroeg ruim 40 minuten en varieerde tussen ruim een half uur en meer dan een uur. Gemiddeld werd de cursus voltooid in 3 uur. Het herhalen van modules kwam weinig voor; een module werd door 2 cursisten herhaald, een andere module door 3 cursisten. Het is niet alle deelnemers gelukt de cursus te voltooien. Zo is de vierde module niet afgemaakt door 5 cursisten.

Het oordeel van de cursisten over de onderwijsvorm en de inhoud van Interact-Kanker was over het algemeen zeer positief. Men vond de COO methode aantrekkelijk en geschikt om communicatie-vaardigheden te leren. De cursus werd beschouwd als zinvol en relevant voor de dagelijkse praktijk. De theorie vond men helder gepresenteerd en ook de video-voorbeelden werden relevant gevonden. De oefenvragen stimuleerden de cursisten om over de stof na te denken. Ook attendeert de cursus duidelijk op onvolkomenheden in het eigen gedrag. De helft van de deelnemers geeft aan een aantal van de geleerde technieken daadwerkelijk toe te passen in de praktijk.
Over twee aspecten waren de deelnemers minder enthousiast. Een relatief groot deel gaf aan de cursus nogal tijdrovend te vinden, ondanks dat men er gemiddeld slechts 3 uur aan besteedde. Wellicht speelt een rol dat de cursus op het werk gevolgd wordt, waardoor interferentie met de reguliere dagelijkse verplichtingen sterker is.
Een tweede punt betreft kritiek op de leerzaamheid van de feedback. Deze kritiek kan deels te wijten zijn aan het feit dat in COO de feedback eenzijdig door de

cursus wordt gepresenteerd, zonder dat de cursist ruimte heeft voor weerwoord. Ook de statische presentatie van de multiple-choice vragen kan bijgedragen hebben aan een meer gematigd oordeel. Toekomstige technische verbeteringen op het gebied van COO, zoals het gebruik van open vragen en feedback op basis van artificiële intelligentie, kunnen wellicht enige verbetering bieden op dit vlak.

2.3 De effectiviteit van Interact-Kanker

De tweede vraagstelling, aangaande de effectiviteit van Interact-Kanker, is uitgewerkt in Hoofdstuk 8. De effectiviteit is onderzocht door de interacties te analyseren van 21 medisch specialisten, werkzaam in 7 ziekenhuizen, in 385 vervolgconsulten met kankerpatiënten. De 385 patiënten zijn geïncludeerd op vier meetmomenten; ieder meetmoment betreft een andere groep patiënten. Drie bronnen van informatie over de communicatie-vaardigheden van de arts zijn geanalyseerd: onafhankelijke observaties, tevredenheid van de arts en van de patiënt over het verloop van het consult.
De gegevens zijn geanalyseerd met een 'multi-level' analyse methode. Deze methode is toegepast omdat de data per meetmoment niet als onafhankelijke observaties kunnen worden beschouwd. De gegevens zijn gegroepeerd rond artsen. De veronderstelling is dat consulten van een arts onderling meer vergelijkbaar zijn dan consulten van verschillende artsen.

Analyses van deze observatie variabelen geven enige aanwijzingen dat de artsen na de cursus meer patiënt-georiënteerd gedrag laten zien dan ervoor. De descriptieve maten gebaseerd op de frequenties van de gedragscategorieën laten geen veranderingen zien na de cursus. Behalve de luisterhouding; artsen worden meer uitnodigend.
Wat betreft de kwantiteits- en kwaliteits-oordelen worden er geen effecten gevonden op de zeven clusters. Wel worden er effecten gevonden op de totaal scores. De KWANTITEIT TOTAAL maat laat een verbetering zien, wat betekent dat na de cursus gedrag minder vaak 'te veel' of 'te weinig' voorkomt in een consult.
Ook de KWALITEIT TOTAAL maat laat een verbetering zien na de cursus even als het GLOBAAL OORDEEL over de kwaliteit van de gespreksvoering.
Bij nadere analyse blijkt dat deze resultaten met name gelden voor een subgroep van 8 'implementerende' artsen, die zelf direct na de cursus aangaven het geleerde in praktijk te brengen. Dat betekent dat de motivatie van de deelnemers om het geleerde in de praktijk toe te passen een essentiële voorwaarde is voor het succes van de cursus.

De analyses van de tevredenheidsoordelen van zowel arts als patiënt laten geen cursus-effecten zien. Gemiddeld zijn de artsen en patiënten nogal tevreden over het verloop van de consulten. De patiënten zijn zelfs meer tevreden dan de artsen.

De aanname dat de tevredenheidsoordelen samenhangen met de oordelen over het consult op basis van de onafhankelijke observaties zijn niet juist gebleken. Ook de samenhang tussen de arts- en de patiënt-oordelen over het consult bleken uiterst zwak te zijn.

2.4 Conclusie

Bij één van de drie bronnen van informatie over het gedrag van de arts, namelijk de onafhankelijke observaties, zijn indicaties zijn gevonden voor de effectiviteit van Interact-Kanker. Na de cursus bleken artsen een meer patiënt-georiënteerde stijl te hanteren. Het aantal geobserveerde effecten is echter beperkt. Effecten zijn met name gevonden op een aantal globale oordelen over het gedrag van de arts. Bovendien blijkt dat de resultaten met name gelden voor een subgroep van 8 'implementerende' artsen.
De vraag is hoe te verklaren is dat de ene groep artsen wel het geleerde in praktijk brengt, terwijl de andere groep dat niet doet. Een veronderstelling dat beide groepen verschillen in het aanvangsnivo in gesprekstechnieken. Een lager vaardigheidsnivo geeft meer aanleiding tot gedragsverbetering, net zoals een hoog aanvangsnivo minder ruimte laat om verbeteringen te bewerkstelligen en te meten. Er blijkt echter geen verschil in aanvangsnivo tussen beide groepen artsen te bestaan. Wel blijkt dat de 'implementerende' artsen een positiever oordeel over de cursus hebben wat suggereert dat deze bij hen beter aansluit op hun behoeften.

3. Discussie

De discussie in Hoofdstuk 9 spitst zich toe op drie onderwerpen: 1) de manier waarop in dit onderzoek gespreksvaardigheden gemeten zijn, 2) het gebrek aan resultaten bij de satisfactie metingen, 3) de mogelijkheden van COO voor het onderwijzen van communicatie-vaardigheden.

3.1 Het meten van communicatie-vaardigheden

In dit onderzoek is een andere methode gehanteerd dan in veel ander onderzoek om gespreksvaardigheden te meten. Meestal worden alleen de frequenties gemeten waarmee gedrag voorkomt in een consult. Gedragsfrequenties kennen twee nadelen bij het beoordelen van gespreks-vaardigheden. Ten eerste zegt de frequentie van een gedrag niets over hoe het gedrag uitgevoerd wordt. Bijvoorbeeld hoe *vaak* informatie gegeven wordt in een consult, zegt niets over of deze informatie *helder en begrijpelijk* gepresenteerd wordt. Een tweede punt is dat frequenties niet alleen bepaald worden door de communicatie stijl van de arts, maar ook door de communicatie stijl van de patiënt en door de context waarin de

communicatie plaatsvindt.
In dit onderzoek is geprobeerd aan beide nadelen tegemoet te komen door naast de registratie van de frequenties van gedrag, ook globale oordelen over dat gedrag toe te kennen. Daartoe zijn in de CRS aan iedere gedragscategorie oordelen toegekend over kwantitatieve en kwalitatieve aspecten.
Globale maten verschaffen meer integrale informatie over het gedrag. Een nadeel van globale maten is echter dat ze minder betrouwbaar te scoren zijn, omdat ze gevoeliger zijn voor subjectieve interpretaties van de observator. Afgaande op de inter- en intra-beoordelaars betrouwbaarheden heeft dit probleem zich echter bij de CRS niet voorgedaan. Ook de validiteit van de CRS observaties bleek voldoende, afgaande op vergelijking van de CRS observaties van een aantal consulten met gegevens ontleend aan een aangepaste versie van het RIAS observatiesysteem. Deze gegevens leiden tot de conclusie dat het heel goed mogelijk is om globale oordelen te geven over kwalitatieve en kwantitatieve aspecten van gespreks-vaardigheden. In dit onderzoek werden geen effecten gevonden op de frequenties van gedrag, maar wel op globale oordelen over het gedrag. Dit resultaat suggereert dat globale oordelen gevoeliger zijn voor systematische verschillen in gedrag dan gedragsfrequenties. Mogelijk is dit het gevolg van de veronderstelling dat globale oordelen minder gevoelig zijn voor consult specifieke factoren zoals situationele en patiënt-kenmerken.

3.2 Satisfactie metingen

Satisfactie is een veelvuldig toegepaste uitkomstmaat in onderzoek naar medische communicatie. In dit onderzoek werden satisfactie metingen toegepast om aanvullende informatie te verkrijgen over het effect van Interact-Kanker op de gespreksvaardigheden van de artsen. In tegenstelling tot de verwachtingen zijn er geen cursuseffecten gevonden op de tevredenheid van de arts noch op die van de patiënt over het verloop van het consult. Een viertal factoren kan hierbij een rol hebben gespeeld.
Ten eerste is het goed mogelijk dat de effecten van de cursus op het gedrag van de artsen te beperkt is geweest om duidelijk opgemerkt te worden door de patiënten. Wellicht is een verbetering in de globale kwaliteit van de gespreksvoering moeilijker waarneembaar voor een patiënt dan wanneer bepaald gedrag door een arts vaker of minder vaak gebruikt wordt.
Een tweede factor die een rol kan spelen is dat een verbetering van de tevredenheid niet meetbaar is als gevolg van psychometrische beperkingen van het meetinstrument. De satisfactie metingen worden gekenmerkt door een scheve verdeling van de scores. De patiënten en ook de artsen zijn vóór de cursus al erg tevreden. Als gevolg van dit zogenaamde plafond-effect is de mogelijkheid beperkt om een eventuele verbetering van de tevredenheid vast te stellen.
Ten derde is het mogelijk dat de satisfactie maten op andere aspecten van

communicatie gericht zijn dan de onafhankelijke gedragsobservaties. Dit moge blijken uit het feit dat er geen relaties zijn gevonden tussen de drie bronnen van informatie over het gedrag van de arts. Patiënten zullen over het algemeen niet alleen belangrijk vinden *hoe* er gecommuniceerd wordt maar ook *wat* er gecommuniceerd word. De onafhankelijke oordelen daarentegen zijn voornamelijk gericht op dat laatste aspect.
Tenslotte is het mogelijk dat een patiënt zijn oordeel over de wijze van gespreksvoering van de arts niet uitsluitend baseert op dat ene consult waarover de patiënt gevraagd is een oordeel te geven. Patiënten zijn wellicht meer geneigd om een oordeel te geven over de arts als persoon, dan over hoe een arts is op een bepaald moment. Het gevolg van dit verschil in optiek is, dat de relaties tussen de verschillende bronnen van informatie over het gedrag van de arts verzwakken.

Bij nadere bestudering van de literatuur blijkt dat er in veel onderzoek lage verbanden worden gevonden tussen onafhankelijke observaties van het gedrag van de arts en satisfactie oordelen van de patiënt over dat gedrag. Sterke verbanden worden alleen gevonden als beide oordelen ontleend worden aan de patiënt, dus als patiënten zowel het vóórkomen van gedrag als tevredenheid over dat gedrag scoren.

3.3 De mogelijkheden van COO

Of COO een succesvolle methode is om medisch specialisten communicatie-vaardigheden te leren is feitelijk afhankelijk van enerzijds de kenmerken van COO en anderzijds de behoeften van de doelgroep. COO kent in dat opzicht zowel een aantal sterke als minder sterke kenmerken.
Een belangrijk *voordeel* van COO onderwijs is dat het tijds-efficiënt is; het stelt de cursist in staat om tussen de bedrijven door gedeeltes van de cursus te volgen. Desondanks bleek echter dat de deelnemers de cursus nogal tijdrovend vonden. Wellicht is dat een gevolg van het feit dat de cursus op de werkplek werd aangeboden. Juist dan ervaren de cursisten de interferentie van de dagelijkse activiteiten en cursus verplichtingen. Echter de programma-opties om korte sessies te doen werden weinig gebruikt. Bij voorkeur werd de cursus voltooid in een aantal langere sessies. Langere sessies zijn bevorderlijk voor de concentratie op de leerstof, en zijn ook efficiënter omdat men de start en stop procedures van het cursus-programma niet zo vaak behoeft te doorlopen.
Een ander voordeel van COO in het algemeen is de gestandaardiseerde en gestructureerde presentatie van de cursus. Iedere cursist wordt dezelfde informatie gepresenteerd op exact dezelfde wijze. Conventionele cursussen worden gekenmerkt door meer variatie in hoe informatie gepresenteerd wordt, hoe voorbeelden getoond worden, welke vragen gesteld worden, en dergelijke.

Nadelen van COO voor het leren van communicatie-vaardigheden betreffen vooral de relatief beperkte mogelijkheid om concrete ervaring op te doen. Het feitelijk oefenen van vaardigheden is voor de cursist van belang om zich eigen te maken wanneer en hoe deze moeten worden toegepast. Met een COO cursus worden vaardigheden vooral geleerd op een cognitief nivo en nauwelijks op een gedragsnivo. Zelfs als een praktijksituatie wordt gesimuleerd, dan reageert de cursist daar niet op door het verlangde gedrag feitelijk te *tonen*, maar door met muis of toetsenbord een respons te kiezen uit de door de cursus gepresenteerde alternatieven.
Ook de mogelijkheid om feedback te krijgen op het eigen gedrag is daardoor beperkt. Bovendien wordt COO feedback eenzijdig gepresenteerd, zonder dat de cursist daarop kan reageren. Met een COO programma is geen discussie mogelijk. Deze eenzijdigheid vormt wellicht ook een verklaring voor de bevinding dat de deelnemers in dit onderzoek relatief minder tevreden waren over de leerzaamheid van de feedback. Wellicht dat andere typen vragen, met name open vragen, of een andere logistiek achter de interactie met de cursus, zoals bijvoorbeeld artificiële intelligentie, verbeteringen kunnen brengen op dit vlak.

Een gemeenschappelijke kant van een conventionele en een COO cursus is dat uiteindelijk de cursist zelf moeite moet doen om het geleerde in praktijk te brengen. Aangezien het vaak aantrekkelijk is om in de praktijk terug te vallen op de oude vertrouwde routine, zal de cursist moeite moeten doen om zijn gedrag te veranderen. Ongeacht of hij een COO cursus of een conventionele cursus gevolgd heeft bestaat er in dat opzicht geen verschil.

Motieven van cursisten en de bereidheid om te veranderen
Van de kant van de cursist speelt een aantal factoren een rol die bepalen of een cursus succesvol is. De doelgroep moet geïnteresseerd zijn om überhaupt een cursus te volgen. Is men eenmaal begonnen aan een cursus dan moet de presentatie en de inhoud aansluiten bij de interessen en behoeften van de cursist. Na de cursus moet de cursist mogelijkheden zien om het geleerde in praktijk te brengen. Motieven om aan een cursus deel te nemen kunnen heel divers zijn. Belangrijke motieven zijn: 'interesse in het onderwerp' en 'kennis verbetering'. Aan dergelijke motieven kan COO onderwijs goed voldoen. Aan motieven van cursisten als 'er even uit zijn', 'mensen ontmoeten', of 'genieten van het ontspannings-programma' waarmee nascholingscursussen soms omgeven zijn, kan COO veel minder voldoen.
COO kan echter weer heel goed in andere behoeften voorzien. Het biedt cursisten een veilige omgeving waar men niet op de vingers wordt gekeken door een lastige docent of kritische blikken voelt van collega-cursisten. Het is zelfs denkbaar dat artsen die zich normaal niet voor een cursus zouden inschrijven, door de

aanwezigheid van een COO cursus op het werk misschien makkelijker over de streep getrokken worden om mee te doen, wellicht nieuwsgierig geworden door activiteiten van deelnemende collega's.

De bereidheid om een cursus te voltooien kan bij COO iets moeilijker liggen dan bij conventionele cursussen. COO onderwijs doet een sterker beroep op de motivatie en het doorzettingsvermogen van de cursist. In conventionele cursussen zijn sociale controle van de docent en mede-cursisten belangrijke factoren die ervoor zorgen dat een cursist de lessen blijft volgen. Ook het vastgestelde lesrooster heeft een meer sturende invloed op het voltooien van de cursus.
In dat opzicht heeft de flexibiliteit van COO in het plannen van sessies en hoe snel men de cursus doorloopt ook zijn keerzijde. Mede door de interferentie die COO onderwijs kan ondervinden van alledaagse verplichtingen op het werk, kent COO een groter risico dat men de cursus niet afmaakt.

De motivatie en bereidheid van cursisten om uiteindelijk het geleerde toe te passen in de praktijk en het eigen gedrag te verbeteren, is een punt dat speciale aandacht verdient. In dit onderzoek gaf 'slechts' minder dan de helft van de cursisten aan na de cursus het geleerde in praktijk te brengen. Verschillende factoren kunnen daarbij een remmende invloed hebben. In de geneeskunde is het denkkader vooral biomedisch georiënteerd. Daarin is weinig ruimte voor aandacht voor communicatie-vaardigheden. Het aanvaarden van een biopsychosociaal model, met meer ruimte voor de psychische en sociale kanten van gezondheids-problemen helpt om meer aandacht te besteden aan communicatieve aspecten. Bovendien vraagt het veranderen van communicatie-vaardigheden iets anders van een arts dan het toepassen van nieuwe medische technieken. Een andere manier van communiceren heeft meer persoonlijke consequenties, hetgeen de kans op het bereiken van veranderingen verkleint.
Tot slot, een belangrijke factor die de biomedische benadering versterkt in de geneeskunde is de wijze waarop het medisch handelen vergoed wordt. Artsen worden betaald voor verrichtingen en niet voor gesprekken. Het aanpassen van dit honoreringssysteem, bijvoorbeeld door het invoeren van 'kijk- en luistergeld', zou een beter klimaat kunnen brengen voor goede communicatie met de patiënt waardoor de waarde van het gesprek als diagnostisch en therapeutisch instrument wordt versterkt.

3.4 Conclusies

Dit is een van de eerste studies waarin de effecten van een COO cursus op de communicatie-vaardigheden van medisch specialisten is geëvalueerd. Drie elementen maken deze studie uniek: 1) COO cursussen voor communicatie-vaardigheden bestaan nog nauwelijks, 2) de effecten van dergelijke cursussen op

gedrag zijn nog weinig onderzocht, 3) dit onderzoek is gericht op de medisch specialisten, terwijl het meeste communicatie onderzoek tot nu toe vooral gericht is geweest op de huisarts.
De resultaten van dit onderzoek laten zien dat COO goede mogelijkheden biedt voor nascholing van communicatie-vaardigheden voor medisch specialisten. Er zijn ook aanwijzingen gevonden dat de deelnemende artsen na de cursus meer patiënt-georiënteerd gedrag vertonen. Deze resultaten zijn met name van toepassing op het deel van de artsen dat zelf aangeeft het geleerde in praktijk te brengen.
Dit geeft aan dat het effect van een cursus op gedrag afhankelijk is van de motivatie om te veranderen. Het ontwikkelen van methoden en strategieën om gedragsverandering van cursisten te bevorderen verdient daarom aandacht in volgend onderzoek.

Aanbevelingen voor COO

COO is een nieuwe leermethode die niet beoogt conventioneel onderwijs te verdringen, maar cursisten de mogelijkheid biedt op een tijds-efficiënte wijze een cursus te volgen.
Verbeteringen van COO voor communicatie-vaardigheden dienen gericht te zijn op het ervaringsleren en meer persoonlijke feedback. Enerzijds kan dit bereikt worden door meer geavanceerde vormen van COO te ontwikkelen, bijvoorbeeld gebaseerd op principes van artificiële intelligentie. Anderzijds kan COO aangevuld worden met een of meer rollenspel sessies om de cursist in staat te stellen het geleerde gedrag daadwerkelijk te oefenen en feedback daarop te ontvangen van een instructeur. Ook feedback op video-opnamen van praktijksituaties bieden in dit opzicht goede mogelijkheden. Een andere mogelijkheid is om een COO cursus met twee cursisten tegelijk te volgen. Dat biedt mogelijkheden om onderwerpen onderling te bespreken en ervaringen uit te wisselen. Een nadeel daarvan kan zijn dat het extra discipline vergt van de cursisten om de aandacht bij de cursus te houden. Hoewel dergelijke uitbreidingen maken dat een cursus meer tijd kost, blijft COO een relatief tijds-efficiënt leermiddel.
Om COO te bevorderen zouden ziekenhuizen faciliteiten beschikbaar kunnen stellen in de vorm van zowel ruimtes als apparatuur. Ook verdient het aanbeveling dat er periodiek aandacht wordt besteed aan deze faciliteiten en dat er andere activiteiten worden georganiseerd die artsen stimuleren om aan communicatie aandacht te besteden.

Aanbevelingen voor evaluatie onderzoek

Met name de relatieve waarde van frequentie-georiënteerde en oordeel-georiënteerde observatiesystemen verdient nader onderzoek. In dit onderzoek worden geen veranderingen geobserveerd van frequenties van gedrag, terwijl wel

verschillende oordelen over de uitvoering van gedrag verbetering liet zien.
In dit onderzoek werden alleen de effecten op het gedrag van de arts geanalyseerd. Het gedrag van de patiënt is niet gescoord. Observatie van beide partijen verschaft een meer compleet beeld van de interactie, en geeft ook zicht op of de patiënt meer ruimte krijgt in de interactie en daadwerkelijk meer invloed heeft op de inhoud van het gesprek.
Bij het meten van de tevredenheid van de patiënt werden geen verbeteringen gevonden. Wellicht dat verbetering van de meetinstrumenten voor tevredenheid nodig is. Met name nadruk op verwachtingen van patiënten geeft inzicht in hoeverre door de arts aan de verwachtingen is voldaan.

Conclusie

COO is een veelbelovende manier om nascholing te verzorgen voor praktizerende medisch specialisten. COO maakt nascholing toegankelijker en is daardoor een geschikte methode om artsen bewust te maken van het belang van communicatie-vaardigheden. Het verwerven en onderhouden van optimaal communicatie gedrag ontstaat door een dynamisch proces van het vergaren van nieuwe kennis en vaardigheden en het integreren daarvan in de bestaande expertise. Dit veronderstelt een cyclisch proces van regelmatig terugkerende leerervaringen. COO kan dit leerproces ondersteunen en daarbij kennis en vaardigheden opfrissen.

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Appendix 1: Course Evaluation Questionnaire (CEQ)

E.J. Hosli, R.L. Hulsman, W.J.G. Ros, M. Jansen (1992)

Hieronder vindt u een aantal vragen met betrekking tot de interactieve training communicatie vaardigheden. Wilt u de vragen zo volledig mogelijk invullen en geen enkele vraag overslaan?

CEQ-General

De volgende vragen hebben betrekking op de gebruikte WERKVORM van de training.

De werkvorm heeft de volgende kenmerken:
- individueel werken,
- gesproken tekst,
- video-fragmenten,
- opdrachten,
- werken met computer

1	Hoe vond u de gebruikte werkvorm voor deze cursus?	zeer geschikt	1	2	3	4	5	zeer ongeschikt
2	Hoe vond u het om te werken met deze werkvorm?	zeer plezierig	1	2	3	4	5	zeer onplezierig
3	Hoe was de cursusduur in relatie tot de te verwerken stof?	erg lang	1	2	3	4	5	erg kort
4	Kostte deze cursus u tijd ten nadele van andere werkzaamheden?	ja, zeer veel	1	2	3	4	5	nee, helemaal niet
5	Wat vond u van de structurering van de cursusonderdelen?	zeer goed	1	2	3	4	5	zeer slecht
6	Vond u dat de cursusonderdelen in duidelijke en heldere taal waren geformuleerd?	ja, zeer zeker	1	2	3	4	5	nee, zeker niet
7	Waren er binnen de cursus hinderlijke doublures te constateren?	ja, zeer veel	1	2	3	4	5	nee, helemaal geen
8	Wat vond u van de gesproken teksten?	zeer moeilijk te volgen	1	2	3	4	5	zeer makkelijk te volgen
9	Waren hoofd- en bijzaken in de gesproken teksten moeilijk of makkelijk te onderscheiden?	zeer moeilijk	1	2	3	4	5	zeer makkelijk
10	Hoe ondersteunden de schermteksten de gesproken tekst	zeer goed	1	2	3	4	5	zeer slecht
11	Hoe sloten de video-fragmenten aan op wat in de cursus werd behandeld?	zeer goed	1	2	3	4	5	zeer slecht
12	Hoe sloten de video-fragmenten aan op uw dagelijkse praktijk?	zeer goed	1	2	3	4	5	zeer slecht

13	Wat vond u in het algemeen van het verschil tussen het "goede" en het "slechte" video-fragment?	zeer instructief	1	2	3	4	5	niet instructief
14	Wat vond u van de opdrachten bij de cursusonderdelen?	zeer moeilijk	1	2	3	4	5	zeer makkelijk
15	Wat vond u van de feed-back bij de opdrachten?	zeer leerzaam	1	2	3	4	5	niet leerzaam
16	Wat vond u van het aantal opdrachten per onderwerp?	erg veel	1	2	3	4	5	erg weinig

De volgende vragen hebben betrekking op de INHOUD en EVALUATIE van de totale training.

17	De doelen van de cursus-onderdelen waren	zeer duidelijk	1	2	3	4	5	zeer onduidelijk
18	Waarop was volgens u de inhoud van de cursus vooral gericht?	op de theorie	1	2	3	4	5	op de praktijk
19	Werd u door de cursus geattendeerd op eigen gedragingen die voor verbetering vatbaar zijn?	ja, zeer zeker	1	2	3	4	5	nee, helemaal niet
20	Gaven de opdrachten u aanleiding tot nadenken over de stof?	ja, zeer zeker	1	2	3	4	5	nee, helemaal niet
21	Was de cursus relevant voor uw werk?	ja, zeer relevant	1	2	3	4	5	nee, helemaal niet relevant
22	Hebt u onderdelen van de cursus al in praktijk gebracht?	ja, in ruime mate	1	2	3	4	5	nee, helemaal niet
23	Vond u deze cursus zinvol?	ja, zeer zeker	1	2	3	4	5	nee, helemaal niet
24	Heeft de cursus uw belangstelling voor de behandelde thema's vergroot?	ja, zeer zeker	1	2	3	4	5	nee, helemaal niet
25	Kreeg u door deze cursus meer belangstelling voor andere cursussen op hetzelfde gebied?	ja, zeer zeker	1	2	3	4	5	nee, helemaal niet
26	Zou u een collega adviseren deze cursus te volgen?	ja, zeer zeker	1	2	3	4	5	nee, zeker niet

CEQ-Modules

De nu volgende pagina's van deze vragenlijst hebben betrekking op de afzonderlijke cursusonderdelen:

1. anamnesegesprek
2. slecht-nieuws gesprek
3. informatief gesprek
4. omgaan met emoties

Per cursusonderdeel worden u dezelfde vragen gesteld.

Deel 1: anamnesegesprek

1	Hoe relevant vond u dit cursus-onderdeel?	zeer relevant	1	2	3	4	5	niet relevant
2	Hoeveel voorkennis veronderstelde dit cursusonderdeel?	veel	1	2	3	4	5	weinig
3	Hoe relevant vond u de verschil-lende thema's van dit deel?							
	• non-verbale signalen van de patiënt	zeer relevant	1	2	3	4	5	niet relevant
	• verbale signalen van de patiënt	zeer relevant	1	2	3	4	5	niet relevant
	• non-verbale technieken van de arts	zeer relevant	1	2	3	4	5	niet relevant
	• verbale technieken van de arts	zeer relevant	1	2	3	4	5	niet relevant
4	Wekten de gesproken teksten interesse voor de behandelde thema's op?	ja, zeker wel	1	2	3	4	5	nee, helemaal niet
5	Waren de opdrachten relevant met betrekking tot de aan te leren vaardigheden?	ja, zeer relevant	1	2	3	4	5	nee, helemaal niet relevant
6	Wekten de video-fragmenten interesse op voor de behandelde thema's?	ja, zeker wel	1	2	3	4	5	nee, helemaal niet
7	Sloten de gesproken tekst en de gepresenteerde video-fragmenten goed op elkaar aan?	ja, zeer goed	1	2	3	4	5	nee, zeer slecht
8	Wat leerde u van het commentaar dat u kreeg op uw antwoorden op de opdrachten?	zeer veel	1	2	3	4	5	helemaal niets
9	Wat vond u van de duur van dit cursusonderdeel in verhouding tot de te verwerken stof?	erg lang	1	2	3	4	5	erg kort

► Als u dit cursusonderdeel in zijn geheel beschouwt, welk cijfer zou u dan geven? (s.v.p. omcirkelen)

1 2 3 4 5 6 7 8 9 10

Deel 2: slecht-nieuws gesprek

1	Hoe relevant vond u dit cursus-onderdeel?	zeer relevant	1	2	3	4	5	niet relevant
2	Hoeveel voorkennis veronderstelde dit cursusonderdeel?	veel	1	2	3	4	5	weinig
3	Hoe relevant vond u de verschillende thema's van dit deel?							
	• onderscheiden van drie fasen	zeer relevant	1	2	3	4	5	niet relevant
	• timing en formulering van het slechte nieuws	zeer relevant	1	2	3	4	5	niet relevant
	• gelegenheid geven voor het uiten van emoties	zeer relevant	1	2	3	4	5	niet relevant
	• emoties reflecteren	zeer relevant	1	2	3	4	5	niet relevant
	• informatie beperkt houden en daarvoor een apart consult reserveren	zeer relevant	1	2	3	4	5	niet relevant
4	Wekten de gesproken teksten interesse voor de behandelde thema's op?	ja, zeker wel	1	2	3	4	5	nee, helemaal niet
5	Waren de opdrachten relevant met betrekking tot de aan te leren vaardigheden?	ja, zeer relevant	1	2	3	4	5	nee, helemaal niet relevant
6	Wekten de video-fragmenten interesse op voor de behandelde thema's?	ja, zeker wel	1	2	3	4	5	nee, helemaal niet
7	Sloten de gesproken tekst en de gepresenteerde video-fragmenten goed op elkaar aan?	ja, zeer goed	1	2	3	4	5	nee, zeer slecht
8	Wat leerde u van het commentaar dat u kreeg op uw antwoorden op de opdrachten?	zeer veel	1	2	3	4	5	helemaal niets
9	Wat vond u van de duur van dit cursusonderdeel in verhouding tot de te verwerken stof?	erg lang	1	2	3	4	5	erg kort

► Als u dit cursusonderdeel in zijn geheel beschouwt, welk cijfer zou u dan geven? (s.v.p. omcirkelen)

1 2 3 4 5 6 7 8 9 10

Deel 3: informatie overdracht

1	Hoe relevant vond u dit cursus-onderdeel?	zeer relevant	1	2	3	4	5	niet relevant
2	Hoeveel voorkennis veronderstelde dit cursusonderdeel?	veel	1	2	3	4	5	weinig
3	Hoe relevant vond u de verschillende thema's van dit deel?							
	• rekening houden met de informatie- behoefte van de patiënt	zeer relevant	1	2	3	4	5	niet relevant
	• overzicht geven van wat in het gesprek aan de orde zal komen	zeer relevant	1	2	3	4	5	niet relevant
	• aansluiten bij leef- en denkwereld van de patiënt	zeer relevant	1	2	3	4	5	niet relevant
	• nagaan wat de patiënt al weet	zeer relevant	1	2	3	4	5	niet relevant
	• informatie verstrekken in korte blokken, tussendoor nagaan of de patiënt het begrepen heeft	zeer relevant	1	2	3	4	5	niet relevant
	• onderdelen samenvatten, belangrijkste informatie herhalen	zeer relevant	1	2	3	4	5	niet relevant
4	Wekten de gesproken teksten interesse voor de behandelde thema's op?	ja, zeker wel	1	2	3	4	5	nee, helemaal niet
5	Waren de opdrachten relevant met betrekking tot de aan te leren vaardigheden?	ja, zeer relevant	1	2	3	4	5	nee, helemaal niet relevant
6	Wekten de video-fragmenten interesse op voor de behandelde thema's?	ja, zeker wel	1	2	3	4	5	nee, helemaal niet
7	Sloten de gesproken tekst en de gepresenteerde video-fragmenten goed op elkaar aan?	ja, zeer goed	1	2	3	4	5	nee, zeer slecht
8	Wat leerde u van het commentaar dat u kreeg op uw antwoorden op de opdrachten?	zeer veel	1	2	3	4	5	helemaal niets
9	Wat vond u van de duur van dit cursusonderdeel in verhouding tot de te verwerken stof?	erg lang	1	2	3	4	5	erg kort

► Als u dit cursusonderdeel in zijn geheel beschouwt, welk cijfer zou u dan geven? (s.v.p. omcirkelen)

1 2 3 4 5 6 7 8 9 10

Deel 4: omgaan met emoties

1	Hoe relevant vond u dit cursus-onderdeel?	zeer relevant	1	2	3	4	5	niet relevant
2	Hoeveel voorkennis veronderstelde dit cursusonderdeel?	veel	1	2	3	4	5	weinig
3	Hoe relevant vond u de verschillende thema's van dit deel?							
•	opvangen van agressieve patiënt	zeer relevant	1	2	3	4	5	niet relevant
•	opvangen angst en onzekerheid rondom diagnose	zeer relevant	1	2	3	4	5	niet relevant
•	patiënt voorbereiden op ontslag uit het ziekenhuis	zeer relevant	1	2	3	4	5	niet relevant
•	patiënt begeleiden bij re-socialisatie	zeer relevant	1	2	3	4	5	niet relevant
•	opvangen en begeleiden van een uitbehandelde patiënt	zeer relevant	1	2	3	4	5	niet relevant
4	Wekten de gesproken teksten interesse voor de behandelde thema's op?	ja, zeker wel	1	2	3	4	5	nee, helemaal niet
5	Waren de opdrachten relevant met betrekking tot de aan te leren vaardigheden?	ja, zeer relevant	1	2	3	4	5	nee, helemaal niet relevant
6	Wekten de video-fragmenten interesse op voor de behandelde thema's?	ja, zeker wel	1	2	3	4	5	nee, helemaal niet
7	Sloten de gesproken tekst en de gepresenteerde video-fragmenten goed op elkaar aan?	ja, zeer goed	1	2	3	4	5	nee, zeer slecht
8	Wat leerde u van het commentaar dat u kreeg op uw antwoorden op de opdrachten?	zeer veel	1	2	3	4	5	helemaal niets
9	Wat vond u van de duur van dit cursusonderdeel in verhouding tot de te verwerken stof?	erg lang	1	2	3	4	5	erg kort

► Als u dit cursusonderdeel in zijn geheel beschouwt, welk cijfer zou u dan geven? (s.v.p. omcirkelen)

1 2 3 4 5 6 7 8 9 10

	Description		Judgement	
	Observations	Occurrence y n ?	Quantity > + < ?	Quality ++ + - ?
1. Open question	+ _			
2. Closed question	+ _			
3. Asking for clarification	+ _			
4. Labelling feelings	+ _			
5. Discussing feelings	+ _			
6. Using silence	+ _			
7. Softening	+ _			
8. Delay of bad-news	+ _			
9. Interrupting	+ _			
10. Checking pre-existing knowledge	+ _			
11. Checking understand	+ _			
13. Summarizing	+ _			
14. Using Jargon	+ _			
15. Providing information	+ _			

Occurrence:
y = yes
n = no
? = not applicable

Quantity:
> = too much
+ = good
< = too little

Quality:
++ = good
+ = sufficient
- = poor

	Description		Judgement	
	Observations	Occurrence y n ?	Quantity > + < ?	Quality ++ + - ?
16. Incoherent continuation	+ _			
17. Stimulating patient particip.	+ _			
18. Attending to lifeworld	+ _			
19. Paraphrasing	+ _			
20. Answering explicit question	+ _			
21. Answering implicit question	+ _			
22. Posture	+ _			
23a. Eye-gaze while listening	+ _			
23b. Eye-gaze while speaking	+ _			

Occurrence:
y = yes
n = no
? = not applicable

Quantity:
> = too much
+ = good
< = too little

Quality:
++ = good
+ = sufficient
- = poor

Appendix 3: Medical Interview Satisfaction Scale. Dutch Translation (Wolf et al. 1978)

Hieronder vindt u een aantal uitspraken die betrekking hebben op het gesprek dat u onlangs met uw arts gevoerd hebt.
Het is de bedoeling dat u per uitspraak aangeeft in hoeverre u het met deze uitspraak eens bent.

	helemaal mee eens	mee eens	noch mee eens noch mee oneens	niet mee eens	helemaal niet mee eens
1. De dokter vertelde me in duidelijke woorden welke ziekte ik heb.	☐	☐	☐	☐	☐
2. Na het gesprek met de dokter weet ik precies hoe ernstig mijn ziekte is.	☐	☐	☐	☐	☐
3. Na het gesprek met de dokter heb ik een goed idee over wat ik kan verwachten van mijn gezondheidstoestand in de komende weken en maanden.	☐	☐	☐	☐	☐
4. De dokter vertelde me alles wat ik wilde weten over mijn ziekte.	☐	☐	☐	☐	☐
5. Deze dokter kan goed uitleggen waarom medische onderzoeken nodig zijn.	☐	☐	☐	☐	☐
6. De dokter vertelde me in hoeverre ik met mijn ziekte nog kan werken.	☐	☐	☐	☐	☐
7. De dokter heeft mijn zorgen over het ernstig ziek-zijn verminderd.	☐	☐	☐	☐	☐
8. De dokter vertelde me welke werking mijn medicijnen hebben.	☐	☐	☐	☐	☐
9. Ik heb het gevoel dat ik aardig begrijp hoe de dokter mij wil helpen.	☐	☐	☐	☐	☐
10. De dokter gaf me de gelegenheid te zeggen wat mij echt bezig houdt.	☐	☐	☐	☐	☐
11. Ik voelde me echt begrepen door deze dokter.	☐	☐	☐	☐	☐
12. Na het gesprek met de dokter voelde ik me veel beter over mijn problemen.	☐	☐	☐	☐	☐
13. Ik had het gevoel dat deze dokter echt wist hoe ongerust ik me over mijn lichamelijke klachten maak.	☐	☐	☐	☐	☐

	helemaal mee eens	mee eens	noch mee eens noch mee oneens	niet mee eens	helemaal niet mee eens
14. Ik voelde me vrij om mijn persoonlijke gedachten met deze dokter te bespreken.	☐	☐	☐	☐	☐
15. Ik had het gevoel dat deze dokter me als persoon accepteerde.	☐	☐	☐	☐	☐
16. Ik had het gevoel dat deze dokter mijn problemen serieus nam.	☐	☐	☐	☐	☐
17. Deze dokter was aardig tegen me.	☐	☐	☐	☐	☐
18. Deze dokter is iemand aan wie ik mijn leven durf toe te vertrouwen.	☐	☐	☐	☐	☐
19. De dokter onderzocht me zorgvuldig.	☐	☐	☐	☐	☐
20. De dokter was niet zachtzinnig tijdens het lichamelijk onderzoek.	☐	☐	☐	☐	☐
21. De dokter ging in op alle klachten die ik noemde.	☐	☐	☐	☐	☐
22. Ik was tevreden met de medicijnen die de dokter me voorschreef.	☐	☐	☐	☐	☐
23. Ik heb het gevoel dat de dokter niet genoeg tijd aan me besteedde.	☐	☐	☐	☐	☐
24. De dokter leek gehaast terwijl hij me onderzocht.	☐	☐	☐	☐	☐
25. De dokter gaf te snel aanwijzingen bij het lichamelijk onderzoek.	☐	☐	☐	☐	☐
26. De dokter leek te weten wat hij deed tijdens het onderzoek.	☐	☐	☐	☐	☐

Appendix 4: Medical Interview Satisfaction Scale. Physician version (Wolf et al. 1978)

Hieronder vindt u een aantal uitspraken met betrekking tot het verloop van het consult dat u zo juist afgerond hebt. Het is de bedoeling dat u per uitspraak op de bijbehorende vijf-puntsschaal aangeeft in hoeverre u het met deze uitspraak eens bent.
Wilt u alstublieft alle vragen beantwoorden.

	helemaal mee eens	mee eens	noch mee eens noch mee oneens	niet mee eens	helemaal niet mee eens
1. Ik heb het gevoel dat ik de patiënt duidelijk heb uitgelegd hoe ernstig zijn/haar ziekte is	☐	☐	☐	☐	☐
2. Ik heb de consequenties van de ziekte voor het dagelijks functioneren van de patiënt voldoende besproken	☐	☐	☐	☐	☐
3. Ik heb het gevoel dat ik de patiënt duidelijk heb uitgelegd waar de behandeling uit bestaat	☐	☐	☐	☐	☐
4. Ik denk dat ik de zorgen van de patiënt over zijn problemen verminderd heb	☐	☐	☐	☐	☐
5. Ik heb het gevoel dat ik de patiënt voldoende de gelegenheid heb gegeven om te vertellen wat hem/haar echt bezig houdt	☐	☐	☐	☐	☐
6. Ik denk dat ik goed heb aangevoeld hoe ongerust de patiënt zich maakt	☐	☐	☐	☐	☐
7. Ik beschouw het contact met deze patiënt als goed	☐	☐	☐	☐	☐
8. Ik vond het consult in zijn geheel moeilijk	☐	☐	☐	☐	☐
9. Ik denk dat ik aandacht besteed heb aan alles wat de patiënt aan de orde stelde	☐	☐	☐	☐	☐
10. Ik denk dat de consultduur voor deze patiënt voldoende was	☐	☐	☐	☐	☐
11. Ik denk dat ik er bij het lichamelijk onderzoek voor gezorgd heb dat het voor de patiënt zo aangenaam mogelijk verliep	☐	☐	☐	☐	☐
12. Ik denk dat de patiënt vertrouwen heeft in de door mij uitgevoerde medische behandeling	☐	☐	☐	☐	☐
13. Ik vond het verloop van het consult in het algemeen bevredigend	☐	☐	☐	☐	☐

Appendix 5: CRS descriptive ratings: Average frequencies of each observation category per hour per measurement moment

	T1	T2	T3	T4
Questions (open and closed)	**66.5**	**69.6**	**65.7**	**61.6**
1. Percentage open-ended questions	26.5%	28.5%	27.8%	30.3%
1,2. Percentage non-directive questions	60.6%	57.8%	59.5%	63.1%
3. Percentage Asking for clarification	17.7%	14.3%	17.6%	16.1%
Information behaviours	**74.5**	**79.4**	**72.5**	**77.1**
15. Providing information and advice	42.4	44.1	37.9	41.8
20. Answering explicit question	23.5	24.0	23.4	24.4
21. Answering implicit question	8.6	11.2	11.3	10.9
Percentage answering questions	41.8%	44.2%	45.6%	44.8%
Enhancing information effectiveness	**7.6**	**6.2**	**6.4**	**6.9**
10. Checking pre-existing knowledge	0.2	0.5	0.9	0.5
11. Checking understanding	1.0	0.6	0.8	0.7
12. Repeating information	6.1	4.4	4.5	5.5
13. Summarizing	0.4	0.7	0.3	0.1
Receptive behaviours	**28.9**	**27.9**	**31.1**	**29.8**
6. Using silence	1.3	1.2	1.8	2.0
17. Stimulating patient participation	4.7	4.4	5.6	6.0
18. Attending to life-world	8.3	9.3	8.7	8.7
19. Paraphrasing	14.7	13.0	14.9	13.1
Attending to feelings	**4.4**	**2.8**	**4.3**	**5.4**
4. Labelling feelings	2.7	1.9	2.8	2.9
5. Discussing feelings	1.7	0.9	1.5	2.5
Negative behaviours	**2.7**	**2.2**	**1.6**	**2.2**
7. Softening	0.6	0.6	0.2	0.2
8. Delay of bad-news	0.0	0.0	0.0	0.0
9. Interrupting	1.6	1.1	0.8	1.4
14. Using jargon	0.3	0.3	0.3	0.4
16. Incoherent continuations	0.2	0.2	0.3	0.3
Nonverbal behaviour	**70.3%**	**65.8%**	**71.8%**	**71.0%**
22. Posture (% positive)	67.7%	62.3%	69.0%	69.1%
23. Eye gaze (% positive)	73.0%	69.4%	74.7%	72.9%
- when listening	70.2%	64.8%	70.5%	70.3%
- when talking	76.4%	73.5%	79.0%	76.1%

Appendix 6: CRS quantity ratings of the physician's behaviour per measurement moment

	T1	T2	T3	T4
Percentage inadequate quantity	% (N)	% (N)	% (N)	% (N)
Total	**10.2 (94)**	**11.7 (96)**	**9.1 (95)**	**8.4 (100)**
Questions	**4.1 (94)**	**3.7 (94)**	**3.0 (94)**	**2.5 (100)**
1. Open question	4.9 (81)	1.2 (83)	3.8 (80)	1.2 (85)
2. Closed question	4.3 (93)	5.4 (93)	4.3 (94)	3.0 (99)
3. Asking for clarification	1.4 (71)	0.0 (63)	0.0 (72)	0.0 (66)
Information behaviours	**1.1 (94)**	**0.5 (96)**	**0.0 (94)**	**1.5 (100)**
15. Providing information & advice	1.1 (94)	1.0 (96)	0.0 (94)	0.0 (100)
20. Answering explicit questions	0.0 (88)	0.0 (87)	0.0 (86)	2.2 (89)
21. Answering implicit questions	0.0 (59)	0.0 (59)	0.0 (70)	1.5 (66)
Enhancing information effectiveness	**0.0 (53)**	**0.0 (50)**	**0.0 (54)**	**0.0 (62)**
10. Checking pre-existing knowledge	0.0 (4)	0.0 (5)	0.0 (10)	0.0 (9)
11. Checking understanding	0.0 (12)	0.0 (9)	0.0 (12)	0.0 (11)
12. Repeating information	0.0 (50)	0.0 (44)	0.0 (43)	0.0 (56)
13. Summarizing	0.0 (6)	0.0 (10)	0.0 (6)	0.0 (3)
Receptive behaviours	**0.9 (89)**	**0.0 (87)**	**0.0 (89)**	**1.3 (96)**
6. Using silence	0.0 (12)	0.0 (11)	0.0 (14)	5.3 (19)
17. Stimulating patient participation	0.0 (41)	0.0 (42)	0.0 (52)	0.0 (58)
18. Attending to lifeworld	3.9 (52)	0.0 (51)	0.0 (51)	0.2 (62)
19. Paraphrasing	0.0 (72)	0.0 (67)	0.0 (76)	0.0 (77)
Attending to feelings	**3.0 (33)**	**3.7 (27)**	**2.5 (40)**	**1.1 (43)**
4. Labelling feelings	3.2 (31)	4.0 (25)	2.6 (38)	0.0 (41)
5. Discussing feelings	0.0 (13)	0.0 (9)	0.0 (15)	5.3 (19)
Negative behaviours	**48.1 (26)**	**64.6 (24)**	**50.0 (18)**	**52.3 (22)**
7. Softening	66.7 (3)	100.0 (6)	50.0 (4)	100.0 (2)
9. Interrupting	47.1 (17)	41.7 (12)	45.5 (11)	40.0 (15)
14. Jargon	40.0 (5)	66.7 (6)	66.7 (3)	60.0 (5)
16. Incoherent continuations	50.0 (4)	100.0 (2)	33.3 (3)	75.0 (4)
Nonverbal behaviour	**37.2 (94)**	**42.6 (95)**	**35.1 (94)**	**32.0 (97)**
22. Posture	41.5 (94)	45.3 (95)	40.4 (94)	33.0 (97)
23. Eye gaze	33.0 (94)	40.0 (95)	29.8 (94)	30.9 (97)

Appendix 7: CRS quality ratings of the physician's behaviour per measurement moment

	T1	T2	T3	T4
Quality ratings (1=inadequate, 3=adequate)				
Total	**2.60 (.27)**	**2.55 (.32)**	**2.64 (.29)**	**2.62 (.31)**
Questions	**2.64 (.36)**	**2.59 (.39)**	**2.62 (.39)**	**2.63 (.45)**
1. Open question	2.93 (.26)	2.84 (.37)	2.95 (.22)	2.98 (.15)
2. Closed question	2.37 (.60)	2.33 (.61)	2.36 (.57)	2.37 (.67)
3. Asking for clarification	2.73 (.45)	2.70 (.46)	2.67 (.47)	2.71 (.46)
Information behaviours	**2.83 (.36)**	**2.80 (.36)**	**2.85 (.30)**	**2.87 (.32)**
15. Providing information & advice	2.78 (.44)	2.75 (.48)	2.84 (.40)	2.88 (.36)
20. Answering explicit questions	2.89 (.32)	2.84 (.37)	2.88 (.32)	2.90 (.37)
21. Answering implicit questions	2.92 (.28)	2.86 (.39)	2.87 (.34)	2.85 (.40)
Enhancing information effectiveness	**2.77 (.40)**	**2.78 (.39)**	**2.78 (.41)**	**2.69 (.43)**
10. Checking pre-existing knowledge	2.75 (.50)	2.80 (.45)	2.80 (.42)	2.89 (.33)
11. Checking understanding	2.67 (.49)	2.67 (.50)	2.83 (.39)	2.18 (.40)
12. Repeating information	2.78 (.42)	2.84 (.37)	2.79 (.41)	2.75 (.44)
13. Summarizing	3.00 (.00)	2.70 (.48)	3.00 (.00)	2.33 (.58)
Receptive behaviours	**2.54 (.43)**	**2.57 (.45)**	**2.69 (.38)**	**2.62 (.39)**
6. Using silence	2.58 (.51)	2.55 (.52)	2.71 (.47)	2.68 (.48)
17. Stimulating patient participation	2.44 (.50)	2.50 (.55)	2.71 (.50)	2.66 (.48)
18. Attending to lifeworld	2.59 (.54)	2.75 (.44)	2.75 (.48)	2.77 (.42)
19. Paraphrasing	2.60 (.49)	2.52 (.53)	2.71 (.46)	2.56 (.50)
Attending to feelings	**2.48 (.50)**	**2.46 (.51)**	**2.59 (.54)**	**2.51 (.51)**
4. Labelling feelings	2.47 (.51)	2.42 (.50)	2.59 (.55)	2.56 (.50)
5. Discussing feelings	2.77 (.44)	2.67 (.50)	2.67 (.49)	2.47 (.61)
Negative behaviours	**1.92 (.23)**	**1.75 (.44)**	**1.94 (.24)**	**1.93 (.50)**
7. Softening	1.67 (.58)	1.67 (.52)	2.00 (.00)	2.00 (.00)
9. Interrupting	1.88 (.33)	2.00 (.00)	2.00 (.45)	1.93 (.59)
14. Jargon	2.00 (.00)	1.50 (.55)	2.00 (.00)	1.80 (.45)
16. Incoherent continuations	2.00 (.00)	1.00 (.00)	1.33 (.58)	2.00 (.00)
Nonverbal behaviour	**2.34 (.70)**	**2.28 (.74)**	**2.37 (.73)**	**2.40 (.75)**
22. Posture	2.24 (.79)	2.19 (.79)	2.28 (.81)	2.32 (.81)
23. Eye gaze	2.43 (.68)	2.35 (.76)	2.46 (.71)	2.46 (.75)

Curriculum vitae

Robert Hulsman werd op 12 mei 1961 geboren te Purmerend. Na het behalen van zijn VWO diploma aan het Berlingh College van Beverwijk in 1980, studeerde hij van 1980 tot 1988 psychologie aan de Universiteit van Amsterdam met als afstudeerrichting neuropsychologie. Stage en afstudeeronderzoek werden verricht bij de Vakgroep Biologische Psychiatrie van de Universiteit Utrecht, alwaar ook de eindscriptie werd geschreven. Het afstudeeronderzoek betrof de neuropsychologische effecten van een experimentele behandeling van dwangneurosen. De eindscriptie betrof een literatuurstudie naar de neuropsychologische diagnostiek van de subcorticale dementie NPH.

Van 1988 tot 1990 vervulde hij gedurende 18 maanden zijn vervangende dienstplicht bij de Vakgroep Klinische Psychologie en Gezondheidspsychologie van de Universiteit Utrecht. Hij leerde er verschillende programmeertalen, ontwikkelde computertestjes voor onderzoek, en begeleidde studenten in het gebruik van statistische software.

Vanaf 1990 was hij verbonden aan het in dit proefschrift beschreven onderzoek. Eerst bij de Vakgroep Klinische Psychologie en Gezondheidspsychologie, later bij de Projectorganisatie Verplegingswetenschap van de Faculteit Geneeskunde.

Sinds 1995 is Robert als wetenschappelijk assistent verbonden aan het Nederlands instituut voor onderzoek van de gezondheidszorg (NIVEL).