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PROBLEM SOLVING WITHIN PROFESSIONAL SERVICES
A Study of Physicians' Prescribing Decisions

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”Me jäätiin kirjaan,” virkkoi Myy
”Niin käy, kun liiaks kehittyy!”
Tove Jansson (1952)”Kuinkas sitten kävikään”

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Turku, 7.1.2007
Elina Jaakkola

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1 BACKGROUND

1.1 Professional services as a research area

Most western societies have become service societies. In 2003, the share of services in total GDP (gross value added) was 66% in Finland, 73% in the United Kingdom, and almost 74% in France and the United States (UNECE 2005[1]). Following the industrial nations' transition to service economies, academic research on services started in the 1960s and 1970s, establishing itself as a distinct field of research within the marketing discipline by the 1990s (Berry & Parasuraman 1993; cf. Brown, Fisk & Bitner 1994). Services marketing academics have successfully argued that a number of marketing implications arise from the distinguishing characteristics of services, which are not encountered by marketers of tangible goods (e.g., Shostack 1977; Zeithaml, Parasuraman & Berry 1985; Gummesson 1991). Moreover, it has been recognised that important differences exist also *among* service firms, not just *between* service firms and goods firms (Zeithaml et al. 1985, 43; Hill & Motes 1995, 22). Since the 1970s, scholars have acknowledged that there are many characteristics and problems common to the group of services that can be labelled as "professional", and that their unique features need to be considered in the development of marketing theory for such services (e.g., Wilson 1972; Gummesson 1978). Alongside the high degree of specialisation and division of labour in Western economies, the importance of professional services has increased considerably (cf. Sharma 1997, 758). As Løwendahl (2000, *x*) states, the evolution towards a complex, fluid post-industrial or knowledge-based economy makes it imperative that attention is directed to professional services in particular.

Professional services are regarded as the most intangible services that involve a high degree of specialist knowledge (Ritsema van Eck-van Peet, Broekhuis & Gruisen 1992, 25; Lehtinen & Niinimäki 2005, 11). A variety of occupations in both consumer and industrial markets are included in the class of professional services, for example medicine, law, engineering, architecture, accounting, consulting and advertising (e.g., Sharma 1997, 763; Løwendahl 2000, 20). In general, academic research on professional services is based on

[1] Original sources: United Nations Economic Commission for Europe and The Statistical Year Book of the Economic Commission for Europe 2003.

the assumption that these diverse service industries form a cluster that differs from other services in some important respects, and that their special characteristics carry implications for the marketing and management of such services (cf. e.g., Wilson 1972; Kotler & Bloom 1984; Clemes, Mollenkopf & Burn 2000; Løwendahl 2000; Verma 2000).

In extant services marketing research, the special nature of professional services has been discussed mainly in the context of the marketing and buying of professional services, and perceived service quality and satisfaction. It is presumed that when selecting and buying professional services, the customer's search process and information use are different to those employed for generic services (Hill & Neeley 1988; Hill & Motes 1995; Ettenson & Turner 1997; Gallouj 1997; Day & Barksdale 2003). From the providers' perspective, the selling of professional services is considered to be distinct in terms of marketing problems such as pricing and promoting (Clemes et al. 2000; Laing & McKee 2001).

Many authors have also considered the special characteristics of professional services to influence customers' perceptions of quality (Brown & Swartz 1989; Stewart, Hope & Muhleman 1998), and the generation of customer satisfaction, loyalty, and relationship commitment (Rouse 1991; Patterson, Johnson & Spreng 1997; Sharma & Patterson 1999; Hausman 2003). Hence, quality management in professional service firms is considered to be distinct from that of generic services (Ritsema van Eck-van Peet et al. 1992; Harte & Dale 1995; Ojasalo 1999a).

Surprisingly little attention has been paid in the services marketing literature to the actual production of a professional service. A number of frameworks have been devised to describe how services in general are produced, for example from the perspective of a service delivery system (e.g., Sasser, Olsen & Wyckoff 1978, 14–21; Chase & Tansik 1983; Lehtinen 1983, 130–137; Eiglier & Langeard 1988, 13–20; Chase & Hayes 1992, 56–58; Lovelock 1996, 52–54), the processes related to service production and delivery (e.g., Mills & Moberg 1982; Shostack 1984; Shostack 1987; Mayer, Bowen & Moulton 2003; Fließ & Kleinaltenkamp 2004), and the service encounter (e.g., Solomon, Surprenant, Czepiel & Gutman 1985; Bitner, Booms & Tetreault 1990; Fisk & Grove 1995; Williams & Anderson 2005). However, particularly the early service delivery frameworks were prompted by the need to distinguish the production of services from the production of goods, and hence they focus on aspects that are common to services in general (cf. e.g., Sasser et al. 1978; Lehtinen 1983; Eiglier & Langeard 1988). Such frameworks offer the central elements of service production and delivery, but do not take into account the special nature of professional services. As the whole body of professional service research is based on the assumption that

professional services differ from other services on account of their special nature, *research is needed to elaborate on the implications the special nature has for the production of a professional service.* Furthermore, research on service encounters predominantly focuses on customer perceptions and experiences, which are considered important elements of customer satisfaction and perceived quality. In terms of service production, *more insight is hence needed particularly on the provider's domain*.

Some remarks regarding the nature of professional service production have been made in the services marketing and management literature. Many authors have considered professional service production to involve a high degree of customer interaction and customisation (e.g., Schmenner 1986; Larsson & Bowen 1989; Silvestro, Fitzgerald & Johnston 1992) and individual judgment on the part of the service provider (e.g., Shostack 1987; Cunningham, Young, Ulaga & Lee 2004). Attempts have also been made to outline the process of professional service production in terms of the steps through which the service is organised (Shostack 1987; Modell 1997; Orava & Tuominen 2002), value creation for the customer (Lapierre 1997; Løwendahl, Øivind & Fosstenløkken 2001), and relationship development (Halinen 1997). Some authors have studied the interaction between a professional and the customer at the service encounter (e.g., Rouse 1991; John 1996; Hogg, Laing & Winkelman 2003; Laing, Newholm & Hogg 2005). With the exception of Gummesson's (1978) model of the composition of a professional service, research has nevertheless omitted to draw a general framework of the pertinent elements of professional service production. *One can conclude that there is an apparent research gap in the services marketing literature concerning the production of a professional service.*

Descriptions of service production processes (e.g., Shostack 1987; Modell 1997) suggest that service production involves many different activities, and the production of the actual core service can be distinguished from the entire service process. Lehtinen (1983, 73–75) refers to *an intensive phase* of service production to distinguish the phase of core service production from activities related to joining and disengaging from the service. In the services literature, remarks made to describe the core professional service often relate to *problem solving*[2]. Gummesson (1978, 93) depicts the professional service as a problem solving process that leads to a solution to the customer's problem. According to a description by Ritsema van Eck-van Peet et al. (1992, 25), "the professional, on his own or in a team, tackles the often complex problems for which there are no ready-made solutions". Løwendahl (2000, 16) remarks that

[2] In general, a problem can be defined as an unsatisfactory situation which requires correction (e.g. Butler 1994, 6).

customers and professional service providers "engage in some form of joint problem solving activity". Lapierre (1997, 389–391) in turn divides the professional service process into three phases: problem recognition, solution finding during the customer-provider exchange, and the outcomes that follow for the customer. As condensed by Orava (2005, 18), *problem solving appears to be the essential activity in the production of professional services*. Hence, the problem solving approach is adopted in this thesis to study professional service production. *The thesis addresses the neglected area of professional service production by investigating problem solving within one professional service field, medical services.*

1.2 Medical services as an empirical context

Medicine is clearly a professional service; in fact it has been called an "archetypal professional service" (cf. Hogg et al. 2003, 477). Several authors have used physicians as representatives of professional service providers in their research (e.g., Brown & Swartz 1989; Ettenson & Turner 1997; Hausman 2003). Medical services is a meaningful context in which to study problem solving as it provides clearly distinguishable problems and their solutions: a simple example of a patient's problem is a sore throat where the problem is solved through diagnosing a bacterial infection and prescribing antibiotics for it. Furthermore, a wealth of empirical data and documentation is available on medical services as it is an area of major research effort and public interest. Problem solving in the medical field is also of great significance to individual consumers and society.

Health care represents a significant sector within the service industry: during the period 1960–2000, the share of health care spending of GDP has risen from 3.6% to 7.9% in Europe and from 5.0% to 13.1% in the USA (Figure 1). In 2002, the cumulative health spending of 24 OECD countries was 2.7 trillion USD, and it is expected to more than triple to 10 trillion USD by 2020, according to estimates by PricewaterhouseCoopers (HealthCast 2020 2005, 13). It seems that the economic impact of health services is, and will continue to be, considerable.

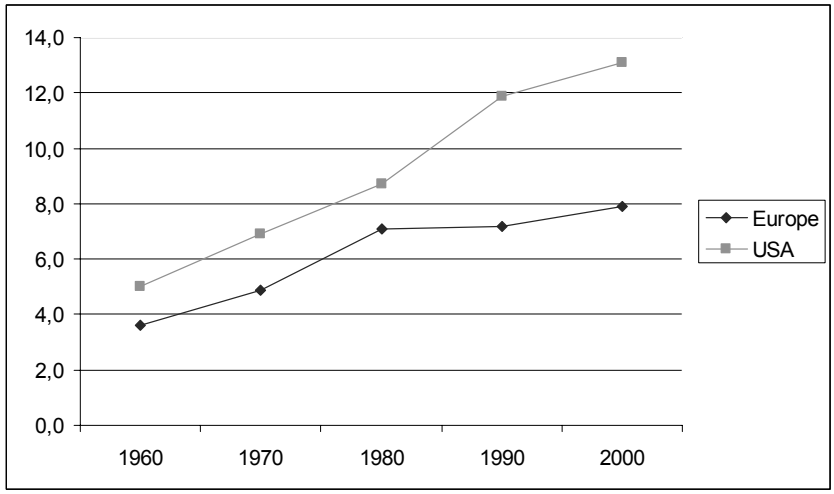

Figure 1 Total spending on health care in Europe[3] and the United States as a percentage of GDP at market prices (The Pharmaceutical Industry… 2005, 24[4])

Health care is a significant field also in terms of the number of practitioners. In the USA, health care provided 13.5 million jobs in 2004, of which about 567 000 were occupied by physicians and surgeons (U.S. Department of Labour 2005). In Finland the number of physicians has more than doubled during the period 1980–2003, increasing from 9 517 to 20 119[5] physicians. The number of persons per physician has been steadily decreasing in Finland: whilst there where more than seven thousand persons per physician at the beginning of the 20th century, in 2003 the number was only 259. (Aaltonen and Saarinen 2004, 163; see also Appendix 1.) In other words, people have an increasing volume of physician's services at their disposal.

Medicine is a professional service to which the majority of consumers have recourse at some point. For example, Eurostat (2005) reported in a study from 2003 that about 83 percent of Finns had consulted a physician in the previous 12 months. The percentage of persons who visited a physician was highest in a group of central European countries (Austria, Belgium, Czech Republic, Germany and Hungary), ranging from 86% to as high as 92% (Eurostat 2005). *One can conclude that studying problem solving within medical services is*

[3] Europe: non-weighted average (21 countries).
[4] Original source: OECD Health Data 2004.
[5] Note that the number of practising physicians is lower. In 2005, there were 18 079 physicians in practice in Finland, the majority of whom were employed by hospitals (Pharma Facts 2006, 15; see also Appendix 1).

relevant as it is a professional service of great significance to society and to individual consumers.

Medical services refers in this thesis to service encounters between the physician and the patient who goes to a clinic or hospital for an appointment with the physician. Within medical services, the problem that requires the attention of a professional is typically related to maintaining or restoring the customer's health. The customer, i.e. the patient, has some disturbing symptoms that he or she wants to be diagnosed and treated, or the patient needs medical expertise in preventing future health problems. A good example of a solution to a patient's problem is medication prescribed by a physician to cure or prevent an illness. Obviously, problem solving may lead to other solutions as well, such as a recommendation for a special diet or surgery, to information provision, or to the conclusion that nothing is wrong with the patient. *This study focuses on studying the prescribing decision as a representation of a solution to a problem addressed within medical services.*

Several reasons make prescribing decisions a relevant focus. First, the prescribing decision is the result of problem solving that clearly occurs during a professional service process, as *prescribing* refers to the choice of a medication that is authorized by a physician. Second, the pharmaceutical market is of substantial size: according to IMS World Review (2005), audited global pharmaceutical sales increased 7% to $550 billion in 2004, and the unmet needs for medications, ageing populations, and emerging markets such as China are expected to sustain growth in the industry (IMS Health 2005). In Finland, the value of pharmaceutical wholesales amounted to 1.8 million euros in 2005, of which human prescription pharmaceuticals accounted for 88.5% (Pharma Facts Finland 2006, 4; see also Appendix 2). In Europe, the pharmaceutical industry is the leading high-technology sector in terms of trade surplus (The Pharmaceutical Industry… 2005, 17).

Third, prescribing decisions have not only therapeutic consequences for the patient, but also important financial implications for patients and for society. Medication expenses accounted for 1.2% of Finnish GDP, and 38.1% of the national health insurance general benefit payments in 2004 (Pharma Facts Finland 2006, 10–12). The degree to which society bears the expenses of medications varies from country to country; the share of public expenses of total expenditure on medicines was 74.8% in Germany, 53.7% in Finland, and 21.2% in the United States in 2003 (see Appendix 2). The societal impact of the prescribing decision is at any rate considerable in most Western countries. Moreover, prescription drug spending is rising dramatically as a percentage of overall health care costs (Groves, Flanagan & MacKinnon 2002, 186). In Finland, the value of national health insurance reimbursement for medications has risen from 128 million euros in 1980 to 1 080 million euros in 2005

(Aaltonen & Saarinen 2004, 152; Pharma Facts Finland 2006, 10; see also Appendix 2). *One can conclude that increasing the understanding of factors that influence prescribing decisions is of interest to many stakeholders*.

Reflecting the importance of the topic, a substantial amount of research related to prescribing decision making has been conducted in the medical field. The dominant approach to studying decision making by physicians focuses on biomedical aspects of clinical problems and individual physicians' internal cognitive processes, that is, the evaluation of diagnostic and treatment alternatives and mental calculation of optimal choices (Clark, Potter & McKinlay 1991, 863). Elstein and Schwartz (2002) reviewed 30 years of psychological research on clinical diagnostic reasoning, and identified two particularly influential approaches: research that aims at describing reasoning by expert physicians to instruct less experienced practitioners, and research that aims to form statistical models to aid decision making under uncertainty. Descriptive research has investigated the types of reasoning processes and strategies used by physicians (e.g. Arocha, Wang & Patel 2005). Researchers focusing on aiding decision making have devised mathematical rules for reasoning to maximize utilities and to minimize errors (Schwartz & Griffin 1986, 13; Elstein & Schwartz 2002, 730). Many such studies are normative in nature and based on idealisations of rational decision making (Clark et al. 1991, 853). Evidence-based medicine is an example of an effort to apply statistical decision theory to clinical medicine (e.g. Elstein & Schwarz 2002, 731).

Another important research approach addresses the social context of prescribing decision making. This approach emphasises that decision making is accomplished through and influenced by patterns of social interaction between physicians and patients, which reflect their respective expectations, values, interests and orientations (Clark et al. 1991, 854). A number of theoretical models of physician-patient interaction have been discussed in the health science literature. An overview of the theoretical frameworks is provided for example by Ruusuvuori (2000, 18–21) and Wirtz, Cribb and Barber (2006, 117–119). On the basis of their reviews, three basic decision making models appear widely accepted: paternalistic, shared and informed decision making. In the traditional paternalistic model, the physician is in charge of decision making, and the patient's obligation is to provide information and comply with the decisions made (e.g. Ruusuvuori 2000, 17–19). Shared decision making takes place when both parties share information and a treatment decision is made to which both parties agree. This approach assumes that both parties are active and involved in decision making: both declare treatment preferences and their rationale while trying to build a consensus on the appropriate treatment to implement. (Charles, Whelan &

Gafni 1999, 781.) Finally, in the informed decision making model, the physician provides the patient with necessary information about treatment options, benefits and drawbacks, and the patient is in charge of decision making (e.g. Wirtz et al. 2006, 118).

Due to various socio-political changes, such as increasing consumer education and the availability and accessibility of health care information, diminishing social barriers between professionals and their clients, as well as changes in public policy towards consumer rights, the paternalistic model has increasingly come to be seen as outdated, and shared decision making in clinical consultation is advocated (Department of Health 2001; Hogg et al. 2003, 477; Makoul & Clayman 2006, 301). Patient empowerment and participation in medical service encounters, particularly in terms of decision making, has attracted considerable attention in the health science research. Researchers have investigated the extent to which patients wish to participate in decisions concerning their care (e.g., Guadagnoli & Ward 1998; Keating, Guadagnoli, Landrum et al. 2002), patient characteristics that influence their desire to participate (e.g., Thompson, Pitts, & Schwantovsky 1992; Street, Gordon, Ward et al. 2005), and potential means of increasing participation (e.g., Butow, Dunn, & Tattersall 1994; Kidd, Marteau, Robinson et al. 2004). Also critical views of patient influence in clinical decision making have been presented: researchers studying doctors' prescribing behaviour tend to regard patient participation as demand for potentially unnecessary prescriptions (e.g., Schwartz, Soumerai & Avorn 1989; Paredes, de la Peña, Flores-Guerra et al. 1996; Stevenson, Greenfield, Jones et al. 1999).

Research conducted in the medical field can be used to gain understanding of one particular professional service field, but as such it is not readily applicable to professional services marketing theory. Obviously, health science research reflects the agendas and traditions of a discipline other than marketing. Clinical decision making research has focused on the heuristics and cognitive processes of decision making rather than on the general elements of service production that influence problem solving, and much of the research has normative ambitions to advocate rational prescribing. Furthermore, health science researchers discuss the concept of patient participation from a narrower perspective than that of customer participation discussed in the services marketing literature. Research on patient participation is predominantly concerned with decision making, and little effort has been made in the medical field to identify different forms of participation and their implications for prescribing decisions. Decision making models focus on the patient's opportunity to engage in the final selection of treatment and overlook the factors that determine the range of drug options from which the choice is made (Wirtz et al. 2002, 119). Studying prescribing decision making from the

perspective of services marketing may therefore offer some new insights for health science research as well.

2 THE RESEARCH SETTING

2.1 Study objectives and positioning

As the discussion in the previous section shows, studying professional service production in terms of problem solving, especially in the context of medical services, is a meaningful endeavour in both the theoretical and practical sense. The importance of professional services in modern economies is increasing but, in services marketing research, little attention has been paid to studying the production of professional services. Research from the providers' perspective is scarce in particular. Medical services represents a classic professional service, where prescribing decisions can be considered a good example of a solution to a customer's problem.

Therefore, *the overall purpose of this study is to increase understanding of professional service production by analysing problem solving within medical services.*

This aim is pursued through three more specific sub-objectives. The first sub-objective relates to investigating whether problem solving in the context of professional services is distinct from purchase decision making by consumers and organisations. This issue needs to be addressed because problem solving has been discussed in the marketing literature mainly in the context of *buying behaviour* by organisations and consumers, where a problem is solved by the process of making a purchase (e.g., Webster 1979, 27; Engel, Blackwell & Miniard 1990, 27). Moreover, marketing scholars who have studied prescribing decision making have typically resorted to buying behaviour theories (e.g., Harrell & Bennett 1974; Turnbull & Parsons 1993; White & Johnson 1998; Gönül, Carter, Petrova & Srinivasan 2001; White & Johnson 2002; Narayanan, Manchanda & Chintagunta 2005). Some of these scholars have pointed out the distributed nature of prescribing decisions: the physician who has the ultimate responsibility for the drug choice is not the end user of the product, and the process of decision making is at least to some degree a joint effort with the patient (Gönül et al. 2001, 79; Mellor & Green 2002, 451; White & Johnson 2002, 144). To overcome this complexity, prescribing decision making has been equated with purchasing by families and organisational buying centres, where the decision-maker is a party other than the user (Turnbull & Parsons 1993; White & Johnson 1998; Gönül et al. 2001; White & Johnson 2002). Others have ignored the distributed nature of

prescribing decision making altogether; for example, Narayanan et al. (2005, 280) state that they "abstract away from this multiagent process and assume that there is a single decision maker, […] the physician". Turnbull and Parsons (1993, 30) postulate that such a unique status presents difficulty in the application of both consumer and organisational buying behaviour theories to studying physicians' prescribing.

It is true that many problems that are solved by professional service providers relate to purchase decision making. For example, management consultants, financial advisors and architects make recommendations and choices regarding investments and designs (cf. White & Johnson 1998, 76). Some scholars have even described service providers as "surrogate shoppers" (Hollander & Rassuli 1999) or "surrogate buyers" for their customers (Aggarwal & Cha 1997). Also three articles by White and Johnson (1998, 2001, 2002) that relate to problem solving for the customer within professional services draw on buying behaviour literature.

In sum, in the marketing literature buying behaviour has been the dominant approach to studying physicians' prescribing, and it has been applied to describe services offered by other professionals as well. Hence, the suitability and adequacy of the buying behaviour approach to study problem solving within professional services must be assessed. This is done by assessing the comparability of the purchase decision making that takes place within professional services with organisational and consumer buying. The first sub-objective is formulated as follows:

> *Sub-objective 1: To investigate whether professional services have distinct characteristics as a purchase decision making context in comparison to organisational and consumer buying.*

The second sub-objective relates to analysing what the often cited special features of professional services can tell us about problem solving. As the foundation of professional service research lies on the assumption that professional services share certain common features that demarcate them from other services, one would expect such features to be manifest also in the problem solving that is the principal activity in professional service production. However, the commonly cited special features are mostly the result of intuitive thinking or practical experience rather than any empirical justification. One of the few attempts to validate such features is a study by Thakor and Kumar (2000) that investigated consumer perceptions of the professionalism of selected services, and characteristics consumers associated with professionalism. Another study by Clemes et al. (2000) investigated the marketing problems that arise from these characteristics. Their findings were consistent with the assumptions that professional services are more people-

oriented and process-oriented, and have higher levels of customisation and employee discretion than generic services (Clemes et al. 2000, 584). Verma (2000) found that the high degree of customisation and labour intensity associated with professional services had an impact on managerial challenges experienced in legal services. However, these studies were not designed to examine service production, and hence do not provide a comprehensive picture of the implications that the special features may have for problem solving. Hence, in order to increase understanding of professional service production, the manifestations of the special features of professional services in problem solving need to be studied. A critical inspection of the commonly accepted characteristics of professional services would also strengthen the conceptual foundations of professional services marketing research (cf. Conchar 1998, 253–254; Thakor & Kumar 2000, 65). The second sub-objective is determined as follows:

> *Sub-objective 2: To investigate the manifestations of the commonly accepted special features of professional services in problem solving for the customer.*

It is emphasised in the services marketing literature that the customer participates in service production at least to some, but always to a critical extent (e.g. Grönroos 2000, 47). Customer participation is considered prominent particularly in professional services (e.g. Hausman 2003, 228), and as discussed earlier, evidence from the medical field supports its relevance. Hence, the production of a professional service cannot be studied without taking into account the influence of customer participation. Despite a wealth of literature on customer participation, services marketing research lacks empirical investigations into the actual manifestations of customer participation in professional service production. Extant research on customer participation in professional services has mainly studied the implications that participation has for customer satisfaction and perceived quality (cf. e.g., Kellogg, Youngdahl & Bowen 1997; Ennew & Binks 1999; Broderick & Vachirapornpuk 2002). Furthermore, most existing studies on participation take the perspective of the customer, and only a few studies investigate the effect of participation on the provider's work (see Boström 1995; Lachman 2000). More research concerning particularly the role of the customer's judgment in decisions affecting the service outcome is urged by Laing, Lewis, Foxall and Hogg (2002, 491), who argue that this question is central to defining the evolving nature of consumerism in the service sector and, in turn, the dynamics of the service encounter. Although empirical studies on patient participation have been conducted in the medical field, they predominantly focus on decision making and hence do not cover the whole scope of customer

participation as defined in the services marketing and management literature. The third sub-objective is therefore formulated as follows:

Sub-objective 3: To investigate the influence of customer participation on problem solving within professional services.

In order to provide a general framework of professional services as problem solving, a theoretical framework is built. Drawing on extant literature on professional services, the framework outlines the central elements of professional service production in terms of problem solving. Academic research on professional services has been conducted in the fields of marketing and management and there is considerable overlap in these fields. Research within professional services marketing tends to revolve around buying and marketing professional services and managing the customer interface, whereas scholars in the management field focus on the organisation and management of professional service firms. However, in many cases it is difficult to draw the line between professional services marketing and management research, and a clear demarcation does not even seem meaningful, as management literature is used in this thesis mostly to provide conceptualisations of the nature and characteristics of professional services. In addition, some concepts are borrowed from operations research to help devise the framework.

Literature addressing professional services both in the business-to-business and consumer sectors is utilised. Whilst empirical studies in particular are usually focused either on business-to-business or consumer services, many authors in fact define professional services without demarcating the types of customer to which the service is offered[6]. In fact, the characteristics that are commonly used to describe consumer and industrial professional services are for the most part alike (see Appendix 3).

The sub-objectives for the thesis aim to pose questions of interest from a theoretical perspective, which based on extant services research, should be covered in order to understand problem solving within professional services. The sub-objectives are addressed in five independent research articles incorporated in this thesis. The role of the theoretical framework is to provide a conceptual perspective on the distinct characteristics of professional services

[6] Some authors emphasise that they focus on business-to-business services, for example, Wilson (1972), Gummesson (1983), and Conchar (1998). However, Wilson (1975, 2) later states that while his paper is focused on corporate and other non-personal services, it is also largely applicable to the marketing and purchasing of services to and by individuals. Conchar (1998, 254) comments that she delimits her definition of professional services to b-to-b services in order to gain a more manageable population for empirical testing. She does not argue that the characteristics would be inadequate to describe professional services offered to consumers. Gummesson (1983) does not explicate his distinction between producer and consumer professional services.

as a decision making context (cf. sub-objective 1), that mainly derive from the special features associated with professional services (cf. sub-objective 2) and the influence of customer participation on problem solving (cf. sub-objective 3).

The theoretical framework is enriched and refined with evidence from the medical field. The role of health science literature and studies conducted in the medical field, mainly concerning physicians' prescribing behaviour and patient participation, is to provide understanding of the chosen empirical context of the study. Medical research plays a significant role particularly in Article 3, which reports on a systematic review of medical studies that investigate factors influencing prescribing decisions.

As the focus of the study lies on the production of the service, rather than customers' experience of it, *the choice of perspective is that of the provider's*. Problem solving is regarded as an activity conducted primarily by the professional, for and with the customer. Especially in prescribing decision making, physicians bear the ultimate responsibility for the decisions made. Hence, this study is delimited to investigating the providers' perspective on problem solving.

The original research articles elaborate on the sub-objectives and the elements highlighted in the theoretical framework, in terms of both theoretical discussion and empirical inquiry. The original articles included in this thesis contribute to the specific sub-objectives as explicated in Table 1.

The theoretical analysis discussing sub-objective 1 is conducted in Article 1, supported by empirical findings reported in Article 2. Sub-objective 2 is primarily addressed in Article 3, refined by further empirical insights provided in Article 2. Whilst the 3rd sub-objective is mainly tackled in Articles 4 and 5, the study reported in Article 3 provides empirical insights on the topic.

Table 1 The contribution of the individual articles in relation to the sub-objectives for the study

	Sub-objective 1	Sub-objective 2	Sub-objective 3
Article 1	▪ A literature-based analysis of the special features of professional services as a purchase decision making context, compared with consumer and organisational buying		
Article 2	▪ Primary data supporting the distinct characteristics of medical services as a purchase decision making context (regarding new products)	▪ Primary data regarding factors that influence problem solving by physicians ▪ Empirical support for manifestations of the special features of professional services in problem solving	
Article 3		▪ Literature review on special features of professional services ▪ A review study of extant empirical research (secondary data) on factors that influence prescribing decisions ▪ Empirical support for manifestations of the special features of professional services in problem solving	▪ Secondary data regarding patient participation in prescribing decisions ▪ Empirical support for customer induced input to problem solving
Article 4			▪ Primary data on patient participation in prescribing decision making ▪ Empirical support for customer induced input to problem solving
Article 5			▪ Literature review on customer participation ▪ Primary data on manifestations of patient participation ▪ Empirical support for customer induced input to problem solving

2.2 Research process

The research process of the study as a whole can be seen as an iterative interplay of deductive and inductive elements. The research topic was initially empirically driven, and later formulated and refined into a matter of theory with an increasing understanding generated during the process of composing the individual articles. The theoretical framework of the study as a whole (see Chapter 3), is theory driven: it aims to deduce what the central elements of professional service production as problem solving would be like on the basis on extant services research. The empirical studies reported in the articles are inductive in nature; they explore different aspects of problem solving as perceived by professional service providers. The empirical results are utilised to enrich and refine the theory-driven framework.

Due to the iterative nature of the research process, this thesis is the end product and summation of various theoretical considerations and empirical inquiries. The process that resulted in this report can hardly be described as linear or straightforward. Instead, it was a learning process where each step contributed to an evolved understanding with regard to the focal phenomenon and the theoretical perspective suitable for studying it. Each article is a staging point for such developments, and lays the groundwork for the next article. In the course of a learning process such as this, the purpose and theoretical focus of the overall study has evolved and been refined.

Initially, the study was prompted by my practical work with pharmaceutical and biotech companies who needed information regarding factors that influence treatment choices and prescribing decisions. It turned out that examining physicians' assessment of the pharmaceutical qualities of different products was not enough; prescribing decisions appeared to be affected by a bundle of factors. Exploring these factors became my initial object of interest. Articles 2 and 4 were written first and report on the findings of two empirical studies, conducted in 2000 and 2001. The findings suggested that besides medical aspects, factors related to the service context and patient participation were highly influential in physicians' consideration of treatment alternatives (see Figure 2). As discussed in the previous section, most extant research in marketing regards prescribing as the physician's buying behaviour and disregards the service context; and extant conceptual and empirical research in the services field offer little help in terms of clarifying professional service providers' decision making on behalf of their customers. Hence, further investigation on these aspects was needed. Article 1 was an attempt to analyse the special nature of the medical context from the theoretical perspective of professional services: the article compared the professional service context with traditional buying behaviour contexts. Article 5 was written to elaborate

on the influence of patient participation. Article 1 concluded that the special features of professional services do indeed make such services a distinct problem solving context; this prompted the research reported in Article 3, which investigated the manifestations of the special characteristics in prescribing decision making. The theoretical framework underwent constant development alongside the composition of the articles.

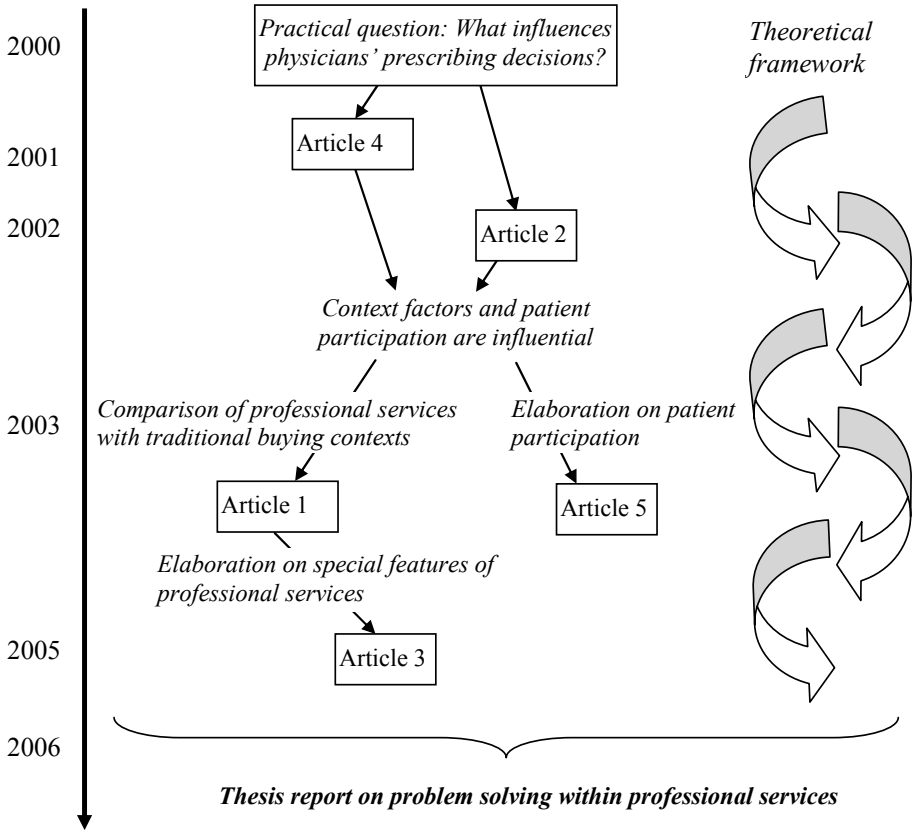

Figure 2 The research process

Figure 2 depicts the individual articles roughly in the order in which their composition began. Due to a number of rewrites, their order of final publication was otherwise. As can be seen, the articles are not numbered chronologically, but in an order considered logical in terms of the overall research purpose and sub-objectives[7].

Gummesson (2000) describes access to reality and sufficient pre-understanding as the two main challenges for academic researchers. By access

[7] See Chapter 4.

he means a researcher's opportunities to find data, and the concept of pre-understanding refers to people's insight into a specific problem and social environment before they start a research project (Gummesson 2000, 14–15). The heterogeneity and evolving theoretical foci of the individual articles constituting this thesis may be compensated by the fact that the practical grounding of my studies permitted me access to rich data, and the stepwise process allowed the increased employment of gained pre-understanding.

Gummesson (2000, 57) argues that researchers give insufficient consideration to the significance of pre-understanding in choosing their scientific approach and methods. Pre-understanding, generated through one's own experience or through intermediaries (i.e. experiences of others, communicated for instance through books and lectures), is the basis on which understanding is built (ibid., 67). In my case, pre-understanding developed through work in a research group studying markets in the life sciences. A *hermeneutic spiral* refers to an iterative process whereby each stage provides the researcher with knowledge, and functions as pre-understanding for the next stage (ibid, 70–71). Gummesson (2000, 66) stresses that pre-understanding should also be subject to change, which means that researchers should not be blocked by their own pre-understanding (see also Hirschman 1986, 242).

As the research process illustration in Figure 2 suggests, the article format of the thesis allowed me to utilise flexibly the understanding generated in each phase of the study as pre-understanding for the next, and to adjust the approach for the next article accordingly. In the process of writing independent articles that report several empirical studies, each piece of research was built on increased understanding, which can be considered a strength of an article-based thesis.

2.3 Methodological approach

The philosophical discussion in social sciences culminates in the debate between subjective and objective approaches. According to the division by Burrel and Morgan (1979, 3), the objectivist researcher adopts a realistic ontology and a positivist epistemology, considers human action to be based on determinism, and uses a nomothetic methodology. The subjectivist researcher adopts a nominalistic ontology and anti-positivistic epistemology, considers human action to be based on voluntarism, and uses an ideographic methodology (ibid). Various paradigms and methodological approaches can be located on the subjectivist (relativistic) – objectivist (rationalistic) continuum,

where positivism and constructivism are considered the polar paradigms (see e.g., Guba & Lincoln 1994, 109; Arbnor & Bjerke 1997, 27).

According to Rudestam and Newton (2001, 27), the method adopted for a study needs to evolve out of the research question and be determined by it; in other words, the problem itself determines the best technique for its solution. However, Arbnor and Bjerke (1997, 6) argue that the way a research problem appears to the knowledge creator is intimately related to the approach they, consciously or unconsciously, will use for the research. The researcher brings to the choice of research method assumptions about the essence of the phenomenon under investigation (ontology), grounds of knowledge (epistemology), and the human nature, in particular the relationship between human beings and their environment (Burrell & Morgan 1979, 1–2). In other words, the researcher's scientific paradigm is their perception of what constitute interesting questions to ask, and the approaches that can be used to tackle them (cf. Gummesson 2000, 18).

A fundamental difference between positivistic and anti-positivistic research may be considered to lie in the ultimate aim of the research: the objectivist researcher aims to *explain* phenomena[8], following the same logic as in the natural sciences; whereas the subjective researcher aims to *understand* or *interpret* phenomena (Arbnor & Bjerke 1997, 45). This thesis aims to *increase understanding* of a phenomenon by identifying and analyzing its central elements and their features. Hence, the philosophical underpinnings of this study lean towards an anti-positivistic approach. The ontological assumptions of the thesis relate to that of constructivism: realities are apprehendable in the form of multiple constructions, socially and experimentally based, and local or specific in nature although often shared among many individuals (Guba & Lincoln 1994, 110–111). In terms of epistemology, this study sees the social world as relativistic, which can only be understood from the perspective of the individuals who are directly involved in the activities that are to be studied (cf. Burrell & Morgan 1979, 5). The epistemological underpinnings of the study also relate to the constructivist paradigm which assumes that inquiry aims at understanding and reconstructing the constructions that people have, and sees knowledge accumulation as the formation of more informed and sophisticated reconstructions (Guba & Lincoln 1994, 113–114).

In terms of methods, this study relies on qualitative, inductive inquiry. Guba and Lincoln (1994, 105) state that both quantitative and qualitative methods may be used appropriately with any paradigm. However, Burrel and Morgan (1979, 2) suggest that different ontologies and epistemologies are

[8] The term "phenomenon" is used here to refer to the subject matter about which the researcher is inquiring.

likely to incline towards different methodologies. In terms of the "world view" and aims of this study, qualitative methods seem a natural choice. The main reasons for choosing a qualitative approach are the following:

- There is an element of exploration in the research purpose. Instead of explaining, the purpose is to increase understanding of a phenomenon that is not sufficiently modelled, constructed, or described in extant literature. Hence, data beyond extant conceptualisations of the studied phenomenon are needed. Whilst quantitative methods are used to verify specific, *a priori* hypotheses that are derived from literature, qualitative methods are more suitable for exploring the reality when the researcher does not want to impose *a priori* hypotheses (cf. Hirschman 1986, 240). The etic (outsider) theory of the investigator may have little meaning within the emic (insider) view of studied individuals. Qualitative data are useful for uncovering emic views (Guba & Lincoln 1994, 106).
- Qualitative data are rich and holistic, with powerful potential for revealing complexity (cf. Gummesson 2006, 170–171). Qualitative data are also fundamentally well suited to locating people's perceptions, assumptions, prejudgments, and presuppositions, and for connecting these meanings to the social world around them (Miles & Huberman 1994, 10). Such potential is essential in exploring the elements and features of a phenomenon.
- Quantitative methods that focus on selected sets of variables necessarily "strip" from consideration other variables that exist in the context that might, if allowed to exert their effect, greatly alter findings (Guba & Lincoln 1994, 106). Qualitative data instead are well suited to providing contextual information (Marschan-Piekkari, Welch, Penttinen & Tahvanainen 2004, 244; Gummesson 2006, 173). If one is to pursue an in-depth understanding of a phenomenon, the method of inquiry should allow also contextual factors to emerge.

The empirical data for the thesis comprise four studies, three of which are based on primary and one on secondary data. The studies investigated problem solving in the medical services context, focusing on the prescribing decision as a representative of a solution to a patient's problem. A summary of the empirical data used in the thesis is presented in Table 2, followed by a brief overview of the data collection and analysis methods employed in the empirical studies.

Table 2 A summary of the empirical data used in the study

	Year	*Data collection method*	*Sources of data*	*Locations*	*Main focus of the empirical study*
Article 2	2001	Semi-structured interviews	16 GPs[9] and 29 specialists[10]	Finland, UK	Factors that physicians consider important when assessing a new pharmaceutical product
Article 3	2005	A systematic review	29 medical studies	11 countries	Factors that influence prescribing decisions
Article 4	2000	Semi-structured interviews	26 gynaecologists[10]	Finland, UK, France, Italy	Physicians' perceptions on patient participation in prescribing decision making for HRT
Article 5	2002	Semi-structured interviews	20 specialists[10]	UK, USA	Physicians' perceptions on patient participation in prescribing decision making for the treatment of osteoporosis and schizophrenia

Articles 2, 4 and 5 are based on primary data collected in three qualitative studies. In each study, an inductive approach was employed: the researcher did not impose much of an organising structure on the data, nor started with a strict *a priori* model consisting of discrete variables embedded in a causal network, but the goal was to comprehend and interpret the focal phenomenon on its own terms (Rudestam & Newton 2001, 37; cf. Hirschman 1986). In other words, the studied phenomena were interpreted according to the meaning they had for the informants (cf. Arbnor & Bjerke 1997, 193).

Interviews were conducted to collect data in the three studies. In general, interviewing can serve a very wide variety of purposes depending on its format and the role of the researcher. Structured interviewing refers to a situation where the interviewers ask every respondent the same series of pre-defined questions, with a limited set of response categories, without deviating

[9] General practitioners
[10] Specialised physicians

from the questionnaire, and without influencing the respondent (Fontana & Frey 1994, 363; cf. Holstein & Gubrium 1997, 118). The opposite of structured interviews can be considered to be in-depth, unstructured interviewing where the researcher seeks "deep" information on a particular topic without imposing any *a priori* categorisation that may limit the field of inquiry (Fontana & Frey 1994, 366; Hesse-Biber & Leavy 2006, 119–120).

The interviews conducted for the three studies can be characterised as "semi-structured interviews". This means that they relied on a certain set of open-ended questions and discussion themes, and the interviewer tried to guide conversation to remain, at least loosely, on those themes (cf. Hesse-Biber & Leavy 2006, 125). However, the interviewees were allowed great latitude and freedom to talk about what was of interest to them, and the order and emphasis of the topics discussed were adapted according to individual informants. The same themes were discussed with each interviewee, but the discussion ran freely and the interviewees could themselves also take up matters that were not specifically queried. There was room for the conversation to move in new and unexpected directions. Short descriptions of the interview studies and discussion themes used are provided in Appendix 4.

Each of the three qualitative studies focused on problem solving (i.e. prescribing decision making) related to certain medical conditions. Physicians who typically treat the condition in focus were considered suitable informants. Each study involved data collection in several countries. As mentioned earlier, the studies were conducted in association with practical research projects commissioned by pharmaceutical and biotech companies. Hence, their areas of interest determined the medical conditions studied and the countries where the data were gathered. All three studies investigated conditions that are chronic (i.e. they require long-term medication) and in themselves fairly common, and there is a wide range of different medications available. Although the freedom to choose the medical conditions and geographical focus was lost, the practical grounding of the studies meant good access to the interviewees. It would have been very hard to arrange lengthy meetings with 91 physicians in five different countries with the resources of one doctoral student alone. A detailed list of the interviews can be found in Appendix 5.

In every study, the interviews were tape-recorded and transcribed for analysis. The method of analysis was similar for each study: the transcribed interviews were coded in terms of the thematic content of interviewees' remarks, and such remarks were compared and linked to find recurring themes (e.g. Coffey & Atkinson 1996, 26–32). Factors and themes that emerged from the data were then analysed in the light of the focal theoretical topics of the articles.

Article 3 utilises secondary data acquired through a systematic review of empirical studies conducted in the medical field regarding the factors that influence physicians' prescribing behaviour. A search was conducted in the PubMed database using multiple search words, and it returned a total of 877 articles, 29 of which were accepted for the review.

The review method enabled inductive reasoning, as it allowed the emergence of all potential factors that have been found to influence the prescribing decision, and not merely the aspects that were the object of interest in the particular study. Hence, the results of the review study contribute empirical insights for the whole thesis, although Article 3 mainly focuses on the manifestations of the special characteristics of professional services in problem solving.

A review of medical studies addressing prescribing decision making was essential for the thesis as it provided a broad view of factors that influence prescribing decisions, unattainable with the resources of a single study. The studies reported in the articles reviewed utilised heterogeneous research approaches: both qualitative and quantitative methods were employed, and a broad range of illnesses and medications was studied in various countries. Due to such heterogeneity, the results of the reviewed studies as a whole are likely to give a reasonably justified view of the factors that influence prescribing decisions. Article 3 provides a more detailed discussion regarding the benefits and disadvantages of using research results from another discipline as secondary data.

2.4 Structure of the study

The thesis consists of two parts. The first provides an overview of the study by arguing for its motivation and explicating its theoretical base, and by presenting a synthesis of the findings of the independent articles and their contributions and implications as a whole. The second part is comprised of five independent research articles. The articles differ in their perspective and theoretical focus, but they all relate to problem solving within professional services.

Figure 3 illustrates the outline of the first part of the thesis. Chapter 1 motivates the study from both a theoretical and a practical standpoint. Chapter 2 explicates the research setting. In Chapter 3, the theoretical framework for the study is formulated. Literature addressing the nature of professional services is reviewed, and applied to conceptualise professional service production as problem solving.

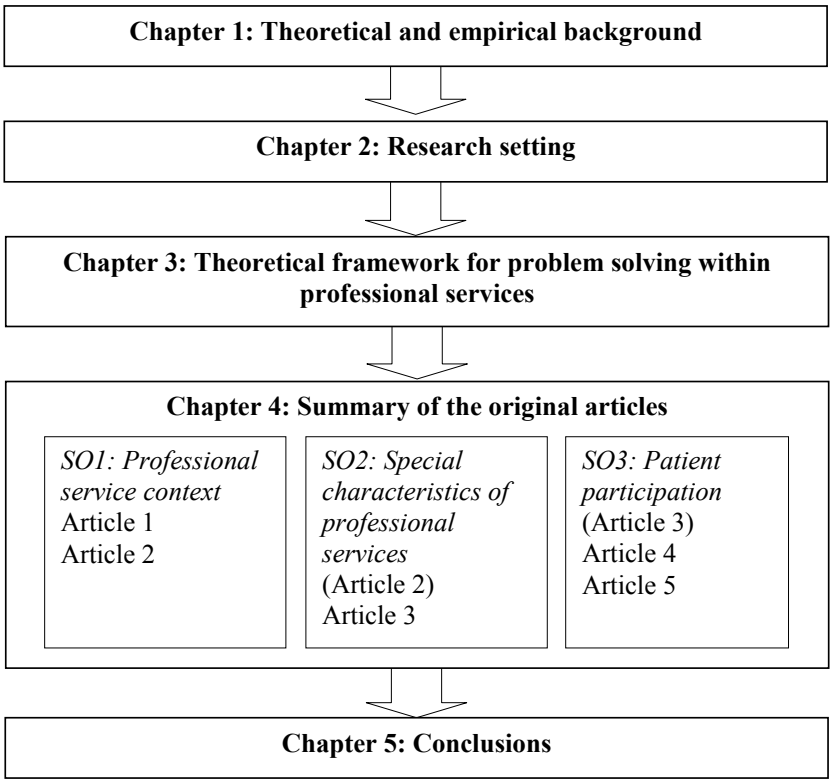

Figure 3 Outline of the study

Chapter 4 provides an overview of the objectives, approaches, methods, and findings of the individual articles. The contribution of the articles in terms of the whole dissertation process is highlighted. The first sub-objective (SO1) is served mainly by Articles 1 and 2. Article 1 provides a theoretical analysis of the distinct nature of professional services as a purchase decision making context in comparison to organisational and consumer buying. Article 2 reports an empirical study that investigated a special case of purchase decision making – new product adoption – in the context of medical services. To fulfil sub-objective 2 (SO2), the manifestations of the special features of professional services in problem solving are elaborated on in Article 3, supported by empirical findings reported Article 2. Sub-objective 3 (SO3) is addressed primarily in Articles 4 and 5 that focus on patient participation. Also Article 3 provides some contribution for the third sub-objective.

In Chapter 5, the findings of the independent articles are synthesised, and the conclusions, contributions and implications of the thesis research as a whole are presented.

3 PROBLEM SOLVING APPROACH TO PROFESSIONAL SERVICES

3.1 The special nature of professional services

In order to construct a theoretical framework of professional service production as problem solving, the special nature of professional services needs to be explicated. The next section reviews the service classification schemes that distinguish professional services from other services, and the subsequent section examines the characterisations that are used to define professional services.

3.1.1 Professional services vis-à-vis the services field

The range of services is too diverse to allow a meaningful, in-depth analysis of the entire field (cf. Lovelock 1996, 27). Insights gained from experience in one service industry are difficult to utilise in others without a clear understanding of the differences and similarities among services (cf. Cunningham et al. 2004, 421–422). Hence, scholars have attempted on the one hand to segment services into clusters that share certain characteristics, and on the other to facilitate a better understanding of the characteristics that differentiate between service delivery systems and organisations. Service typologies, taxonomies, and classification schemes have been proposed by e.g. Lovelock (1983), Schmenner (1986), Silvestro et al. (1992), and Collier and Meyer (1998). By examining the classification schemes that take a stand on the position of professional services in a scheme, one can identify the common aspects of professional services that are considered to distinguish them vis-à-vis the whole service field.

Professional services are referred to in a number of service classification schemes, most of which were constructed on the basis of theoretical considerations either to facilitate service design and positioning, or the marketing and management of services (see Table 3). A classic article by Lovelock (1983) proposed five different classification schemes to identify service clusters that share certain marketing characteristics. Among Lovelock's (1983) classifications, the characteristics that differentiate between traditional professional fields such as architecture, legal services and health

care, and more generic services are the degree of *customisation* and the degree to which contact personnel exercise *judgement* concerning the characteristics of the service and the way it is delivered (p. 15–16). Degree of judgement was considered a factor distinguishing between types of service also by Shostack (1987), who classified service processes according to their *complexity* (i.e. the number and intricacy of steps required to perform the service) and *divergence* (the degree of freedom allowed or inherent in a step). She regards professional services as highly divergent and complex because they involve a considerable amount of judgement, discretion, and situational adaptation (Shostack 1987, 35).

Table 3. Characterisation of professional services in selected service classification schemes

	Purpose of the typology	*Focus of the classification dimensions*	*Characterisation of professional services in the typology*	*Approach*
Mills and Margulies (1980)	To classify service organisations to predict their behaviour	Customer – organisation interface	Personal interactive (information intensive, judgmental, information and power asymmetry, long duration, low substitutability)	Theoretical
Lovelock (1983)	To facilitate marketing and strategy development	Customer / provider influence in the service process	High degree of customisation – High degree of judgment by service personnel	Theoretical
Schmenner (1986)	To facilitate service operations management and process choice	Customer influence and service system	High degree of customer interaction and customisation – High degree of labour intensiveness	Theoretical
Shostack (1987)	To facilitate service design and positioning	Service process and provider influence	High degree of complexity – High degree of divergence	Theoretical
Larsson and Bowen (1989)	To facilitate design and coordination of service systems	Customer influence in the service process	High degree of customer disposition to participate – High degree of diversity of demand	Theoretical
Silvestro et al. (1992)	To facilitate service management	Customer influence and service system	Low number of customer processes by a typical unit per day – High in people focus, contact time, customisation, discretion, front office focus, and process focus	Empirical
Cunningham et al. (2004)	To understand how consumers classify services to facilitate marketing	Customer / provider influence in the process and nature of the service product	High degree of personalisation (high risk, judgment, customisation, and personal contact)	Empirical

A service typology by Schmenner (1986) focused on the elements of the service delivery process to characterise service businesses and to identify managerial challenges associated with different types of process. In Schmenner's (1986, 25) matrix, professional services are identified as one of the four specific service types, positioned in the quadrant at the high end of the axes defined as the degree of *labour intensity*, and the degree of *interaction and customisation* associated with the service process[11]. Customer influence on the service process was used as a basis for classification also in a typology by Larsson and Bowen (1989). In their typology, service designs were matched with two sources of customer induced input uncertainty: *diversity of demand* and *customer participation*; professional services being the example of the high ends of these dimensions.

An organisational perspective on classifying services is offered by Mills and Margulies (1980), who suggest a typology of service organisations based on the characteristics of the personal interface between the customer and the service organisation. They suggest three core types of service organisation – maintenance-, task- and personal-interactive – that are distinguished in seven dimensions which describe the customer-organisation interaction. In this typology, professional service organisations represent the *personal-interactive* category[12], and are described by the following characteristics: the service is *information intensive* and the information is typically *confidential*; decisions to be made are *complex, judgemental and important*; the service interface is of long *duration*; *customers' knowledge* of the problem and their ability to evaluate the service is low; *substitutability* of the provider is low; the provider has a high degree of *authority and power* with respect to the customer; and there is a greater *identification* of the provider with the customer and less attachment to the affiliated organisation, since the welfare of the customer is the provider's main concern in performing the task (Mills & Margulies 1980, 262–264).

Professional services are distinguished also in two empirically grounded service typologies. Silvestro et al. (1992) classified service organisations in terms of six dimensions to find clusters of features. As a result, the authors suggested three types of service process: professional services, service shops and mass services. In their matrix, professional service processes are described

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[11] See Schmenner (2004) for his revision of the original classification matrix. In the revised matrix, "labour intensity" is relabelled "relative throughput time" and "customisation and interaction with customers" is relabelled "degree of variation". In the revised matrix, professional services are positioned as involving a high degree of variation and relative throughput time.

[12] It should be noted that in the typology by Mills and Margulies (1980), some professional service fields such as engineering and advertising are labelled "task-interactive". However, a central characteristic used to distinguish professional services in other typologies, namely the high degree of provider judgment, is associated with task-interactive services as well (p. 263).

as low in the *number of customer processes* by a typical unit per day, but high in *contact time*, *customisation*, and *employee discretion*; and focus on *people*, *front office*, and *process* (Silvestro et al. 1992, 73). Similar conclusions were drawn by Cunningham et al. (2004), who built a service classification scheme based on the characteristics that consumers associate with certain services. Their findings suggested two primary dimensions for the classification of services –the degree of personalisation, and the presence of a physical product as a part of the service – as these two dimensions explain about 80 percent of the total variance in service perceptions and classifications (p. 427). The authors studied a range of industries, of which legal, hospital, and university services – which can be regarded as professional services – represented highly personalised services, associated with characteristics such as high *riskiness*, a high degree of *judgement*, high *customisation*, and high *personal contact* (Cunningham et al. 2004, 427).

In sum, the main aspects distinguishing professional services from generic services, proposed in a number of classification schemes, relate to the dependency of service production on the divergent influences of the customer and the provider: professional service production is considered to involve 1) a high degree of provider judgment and discretion, and 2) a high degree of customer influence, interaction, participation, and customisation. Further elaboration is next sought from the professional services marketing and management literature.

3.1.2 The distinct characteristics of professional services

No commonly accepted definition of professionals, professional services, or professional service providers seems to exist. Most scholars define professional services by listing some characteristics of professionals, or refer their readers to examples of professional services providers (e.g., Brown & Swartz 1989, 93; Ettenson & Turner 1997, 91; Sharma & Patterson 1999, 151–152). This indicates that authors either assume that the definitions are intuitive, or are not entirely satisfied with the existing definitions in the literature (Conchar 1998, 255). In Appendix 3, the characteristics and criteria used in the services marketing and management literature to define professional services are reviewed. The review shows that scholars are relatively unanimous about the following characterisations:

- Professional service providers possess specialist knowledge and skills which are acquired by extensive, formal training and practice (e.g., Wilson 1972, xvi; Hill & Neeley 1988, 18; Hausman 2003, 227).

- Professional service providers have a distinct professional identity (e.g., Gummesson 1978, 90; Conchar 1998, 256).
- Professional services providers are to a large extent autonomous (e.g., Mills, Hall, Leidecker & Margulies 1983, 119; Harte & Dale 1995, 34; Stewart et al. 1998, 209).
- Professional service providers are subject to collegial control (Løwendahl 2000, 36). Professional norms of conduct or ethics are defined, shared, and enforced by the professional institute (e.g., Wilson 1972, 4; Mitchell 1994, 319).
- Professional service providers advance the best interests of the customer rather than self-seeking motives (Wilson 1972, 4; Conchar 1998, 256; Løwendahl 2000, 19).
- Professional services are advisory and focus on problem solving where the professional exercises a high degree of personal judgement (e.g., Gummesson 1978, 90; Ritsema van Eck-van Peet et al. 1992, 25; Løwendahl 2000, 20).
- The professional service process is complex and involves high levels of personal interaction, customer participation, and customisation (e.g., Mills & Moshavi 1999, 54; Hausman 2003, 228).
- The outcomes of a professional service are difficult for the customer to evaluate (e.g., Sharma & Patterson 1999, 152; Hausman 2003, 227).
- The output of professional services is intangible and involves high levels of risk for the customer (e.g., Mitchell 1994, 318–319; Harte & Dale 1995, 34; Lehtinen & Niinimäki 2005, 11).
- Professional service providers traditionally have not perceived themselves to be sales- or marketing oriented; particularly the use of advertising has been resented (Hill & Neeley 1988, 18; Conchar 1998, 254)[13].

Due to the lack of an exhaustive definition, it is not clear which services can be labelled as "professional". It may be that the characteristics of professional services discussed in the literature are too versatile to be condensed into a single, exclusive definition. Some of the characteristics describe the production of the service, whereas others describe the providers, i.e. set criteria for who is to be considered a professional and who is not. Some characterisations relate to the service outcome.

Defining a "professional service" simply as a service that is provided by a professional is problematic as it emphasises only profession-related criteria. Historically speaking, the traditional professions such as medicine and law

[13] Further discussion regarding the characteristics of professional services can be found in Articles 1 and 3.

have been the model for conceptualising professionalism, emphasising the self-governing nature of professional associations (cf. Freidson 1994, 4, see also p. 129). However, whilst the traditional professions are very few in number (see Wilson 1975, 3), there has been in recent decades an increase in the number of occupations rooted in higher education that nevertheless do not meet the strict criteria for being termed a "profession" (cf. Alvesson 1993, 998). For instance, management consultants and advertising agencies are generally considered to lie within the business category of professional services (e.g., Halinen 1996; Conchar 1998, 259), although they do not qualify as professional services according to the strict definition. As Løwendahl (2000, 19) points out, there is no established body of knowledge or scientific theory for consultants, who are typically members of some other profession, such as engineering, in addition to being consultants. The lack of established professions does not, however, mean that these services do not share the same marketing and management related challenges as do for instance law firms. For example, an empirical study by Clemes et al. (2000) investigated the marketing problems associated with certain types of service. Their sample of professional services included both traditional and less traditional professions, such as advertising agencies and graphic designers. The authors found that this sample of professional services shared certain marketing problems that were not evident in retailing or mass services.

For the purposes of services marketing and management, it seems meaningful to define professional services primarily as a type of service, rather than by determining whether the provider can be classified as a "professional" (see also Løwendahl 2000, 19). The concept of professional services is used widely here, with less emphasis placed on the strict boundaries of what marks out the traditional professions, and more on the service characteristics. However, it is noted that the profession-related characteristics may carry implications for service production, as they set norms for appropriate problem solving.

It seems that the common denominator in the classic and modern professional services is the use of specialist knowledge in problem solving for the customer (cf. e.g., Gummesson 1978; Ritsema van Eck-van Peet et al. 1992, 25; Alvesson 2001, 865; Lehtinen & Niinimäki 2005, 9; Orava 2005, 18). Alvesson (1993, 998) suggests that the term "knowledge-intensive" could be employed instead of "professional" to describe these services, in order to bypass the strict, traditional definition of a profession. However, it should be noted that there are knowledge-intensive organisations that employ skilled and qualified personnel without delivering professional services, such as schools, and software companies developing new products (Løwendahl 2000, 22). In this thesis, professional services are considered a subcategory of knowledge-

intensive services, demarcated by customised problem solving for the purposes of the individual customer.

The following definition of professional services is formulated for the purposes of this study: *a professional service is provided by qualified persons who apply specialist knowledge and exercise personal judgement for the purpose of customised problem solving for the customer*. This definition encompasses 1) the importance of knowledge in service provision, 2) the professionalism of the service provider, and 3) the critical influence of individual providers and customers in service production.

3.2 Professional service production as problem solving

This section aims to conceptualise professional service production. "Production" is considered to be a question of modifying inputs in a way that is valued by customers (Sampson & Froehle 2006, 333), which in the case of professional services is problem solving for the customer. First, an appropriate theoretical approach for analysing professional service production as problem solving is chosen. Thereafter, the different elements of professional service production as problem solving are characterised. This is done on the basis of notions held in the services marketing and management literature about the nature of professional services.

3.2.1 The theoretical approach to professional service production

A number of approaches have been adopted in the services literature to describe how a service is produced. Early work in particular focused on distinguishing the production of services from traditional manufacturing (see e.g., Sasser et al. 1978; Lehtinen 1983; Eiglier & Langeard 1988). Frameworks of a service delivery system outline the elements and processes that relate to "assembling" and delivering the service to the customer. According to frameworks proposed by Lehtinen (1983, 60) and Eiglier and Langeard (1988, 18[14]), a service is produced in interaction between contact personnel, the customer, and physical resources. Scholars have suggested also more complex models of a service delivery system by refining and adding elements, for example, technology such as information systems, systems for

[14] Earlier in Eiglier, Pierre – Langeard, Eric – Lovelock, Christoffer – Bateson, John – Young, Robert (1977) *Marketing Consumer Services: New insights.* Marketing Science Institute: Massachusetts.

planning and control, and process descriptions (e.g., Heskett 1987, 120; Armistead 1990, 12–13; Grönroos 1990, 208; Chase & Hayes 1992, 56–58).

Research on service encounters elaborates on customers' experiences of service production. The service encounter has been defined as the period of time during which customer and service provider interact (e.g., Bitner et al. 1990, 72). An underlying assumption in service encounter research is that customer experiences of service encounters, or "moments of truth", are important determinants of customer satisfaction, perceived quality and long-term loyalty (cf. Brown et al. 1994, 34). Much of the research is focused on understanding how customers evaluate service encounters, for example in terms of interaction with service employees (e.g., Bitner 1990; Bitner et. al 1990; Johnson & Zinkhan 1991; Hausman 2004) and the tangible elements in the service setting (e.g., Bitner 1992; Babin, Lee, Kim & Griffin 2005).

The drama metaphor of the service encounter suggests that services are essentially "performances" by "actors" for their "audience" in a "setting" (e.g., Fisk & Grove 1995; Williams & Anderson 2005). The dramaturgical framework of the service encounter has been used to understand the service consumption experience, particularly the influence of various dramatic elements in the service setting (Fisk, Grove & John 2004, 25–27). Solomon et al. (1985, 101) posit that the interaction which occurs between providers and customers is principally determined by the roles which each adopts, leading to a role script for their performances during the service encounter.

Service delivery and encounter frameworks bring together the customer and the service provider in a physically defined service setting. They identify the central elements that are present in any service exchange – they are broad enough to describe a variety of service organisations. However, while such frameworks provide central elements of service production, they are for a number of reasons insufficient alone to delineate professional service production as problem solving. First, the focus of these frameworks does not lie on conceptualising the activities that constitute the production of the core service, and they reveal little about the outcomes of service production. Service encounter research aims to understand provider-customer relationships rather than service production, and focuses on studying the process resulting in satisfaction, not the process resulting in problem resolution. In other words, service encounter research addresses other outcomes of the service than what is of interest in this study. Secondly, service delivery system and encounter frameworks emphasise the role of organisationally determined physical resources in the service setting. These elements seem less relevant a focus for professional service production, where individual service providers are the central resource and exercise a high degree of personal judgment and discretion in problem solving. Thirdly, service delivery system frameworks do

not specify the influence of customer participation on service production. Fourthly, service encounter research is focused on the specific period of time when customers and professionals interact. As problem solving within professional services may occur during extended periods of time and during phases where the customer may not always be present, a general framework of professional service production need not be bound to a temporal definition. Although service encounter research provides important insights into customers' roles and the interaction that occurs during service encounters, it is for the most part concerned with customer perceptions as service recipients, rather than with service production.

Service blueprinting is an approach that elaborates on the activities that constitute the service production and denotes actions by customers. A process description of service production is concerned with the way a service is organised; i.e. the different steps, tasks and mechanisms that are needed to deliver the benefit to the customer (e.g., Shostack 1987, 35; Mayer et al. 2003, 621). Service blueprinting visualizes the service process as a flow chart where the steps constituting the service process are portrayed in such a way as to analyse, manage and control the processes more systematically (Shostack 1984, 134–135; Kim & Young-Gul 2001, 140; Fließ & Kleinaltenkamp 2004, 396). However, as professional service processes are complex, fluid, and non-standardised, and include considerable adaptation and discretion, a rigid description of all possible steps that the professional service process may encompass does not seem meaningful. Furthermore, the process description approach does not focus on the production of the core service.

Most of the shortcomings discussed above can be overcome by viewing the service more broadly as a *production system* which models the fundamental nature in which inputs to the system are converted into the service output (Mills & Moberg 1982, 470; Armistead 1990, 10). In general, a system is a set of elements that works towards a common goal by acting on inputs to produce outputs. A productive system is one that adds value, economic or otherwise, in the conversion of inputs to outputs. (Murdick, Render & Russell 1990, 24.) Various authors have depicted the service process as a system (cf. e.g., Mills & Moberg 1982, 470–471; Mills, Chase & Margulies 1983, 302–304; Ojasalo 1999b, 71–73; Fließ & Kleinaltenkamp 2004, 393–394; Grönroos & Ojasalo 2004, 417–418)[15]. This approach is beneficial to studying professional

[15] There is some variability in the level of abstraction used in these models. For example, Mills and Moberg (1982, 470) depict the service process as analogous to manufacturing, regarding the input and output of the service process as depositories of customers waiting for entry and exit. Mills and Moberg (1982, 470–471) demonstrate that applying the manufacturing originated systems model as such to the services context is problematic, due to the simultaneous production and consumption of services: the distinction between inputs, transformation and outputs is complex because the service is already consumed during the transformation, or even as the customer is waiting to be served.

services, as it pays less attention to the service setting but allows a more detailed examination of provider- and customer-related inputs, i.e. aspects that have been considered to distinguish professional service production from other services.

In the traditional manufacturing process, inputs are raw materials that pass into a conversion process within which technologies are applied and added, resulting in finished goods (e.g. Mills & Moberg 1982, 470). In service processes, input usually stems from both the provider's and the customer's domain (Johnston 1989, 191–192). The *provider induced* inputs to the service process are assets and commodities such as employees, technology, buildings, information and systems that are needed in the production of the output (Ojasalo 1999b, 71; Fließ & Kleinaltenkamp 2004, 393; Grönroos & Ojasalo 2004, 417). However, it is the *customer* who provides the raw material to work on, and often inputs effort into the production process, too (Mills & Moberg 1982, 469–470; Fließ & Kleinaltenkamp 2004, 394; Sampson & Froehle 2006, 331).

The service is created during the *service operation*[16]. Parts of the service may be created in isolation from the customer, but usually the service is at least to some extent produced in interaction between the provider and the customer (Ojasalo 1999b, 73). The *output* of the process is the benefit of the service, such as a functioning vehicle in the case of car repair provision (Van Raaij & Pruyn 1998, 814). Figure 4 depicts the basic components of the service production system.

However, in many succeeding papers, the output has been considered to comprise service outcomes and experiences created during the entire process, with less emphasis placed on when these outcomes in fact emerge (e.g., Van Raaij & Pruyn 1998, 813–814; Goldstein, Johnston, Duffy & Rao 2002, 126; Grönroos & Ojasalo 2004, 418).

[16] The stage where inputs are transformed into outputs has been termed the conversion process (Mills & Moberg 1982, 470; Mills et al. 1983a, 306), realisation or throughput (Van Raaij & Pruyn 1998, 813), or operation of an assignment (Gummesson 1978, 91).

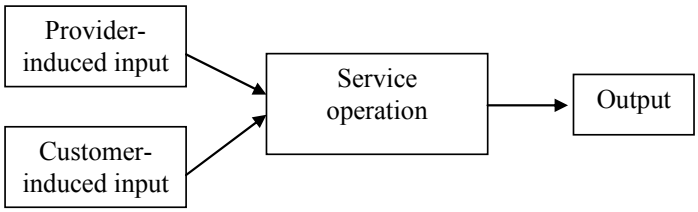

Figure 4 A basic model of a service production system (cf. e.g., Johnston 1989, 192; Van Raaij & Pruyn 1998, 813; Ojasalo 1999b, 71)

Another way of describing a service system, *the structured analysis and design technique (SADT),* was introduced by Congram and Epelman (1995). This technique focuses on the activities that constitute a service process, and describes each activity in terms of

1) What activity is being performed (activity)
2) What is being transformed into what (inputs and outputs)
3) What guides or constrains the activity (controls)
4) Who or what is performing the activity (mechanism).

The idea behind SADT is that a simple system model (see Figure 5) summarises the general activity at hand, but the model can be deconstructed to describe detailed processes that are required to perform the general activity. In other words, the main activity can be broken down into sub-activities, each of which can be analysed using the same components of which the main model is composed (inputs, outputs, control, mechanism), resulting in a set of interrelated diagrams that collectively describe a system. The structured analysis and design technique ultimately aims to provide a more focused and parsimonious model than services blueprinting can produce. (Congram & Epelman 1995.) In fact, the SADT model has been noted as a systems model ideal for services (Congram & Epelman 1995, 9; Van Looy, Gemmel, Desmet et al. 1998, 363). Kim & Young-Gul (2001, 142) remark that the SADT framework models information flow rather than process flow, making it suitable for describing services, and professional services in particular (cf. Wathen & Anderson 1995, 65).

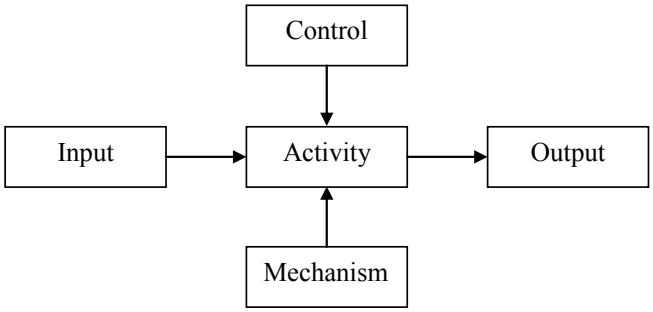

Figure 5 An SADT model of a service production system (Congram & Epelman 1995, 11)

The SADT model does not fundamentally differ from the basic input-operation-output model, if one considers the "mechanism" to correspond to the provider induced input. It does, however, add the inclusion of control factors. As discussed earlier, professional service provision is considered to be subject to norms defined by the professional institute, suggesting that the inspection of control factors is relevant in studying problem solving within professional services. Furthermore, the SADT model provides an opportunity, on the one hand, to present the fundamental elements of the service system at a general level and, on the other, also to depict more detailed activities. The idea of studying certain activities instead of the whole service process is helpful in terms of focusing the analysis. Professional service production can be deconstructed to a set of sub-activities, not all of which relate to the core professional service. For example, Modell (1997, 318) presents a detailed illustration of the service process associated with a dental practice. In his process description, three main sets of activities can be identified: those related to initiating the service (involving nurses or receptionists); to the actual examination and treatment (involving dentists and hygienists); and to the patient leaving the service organisation (involving nurses or receptionists).

Similar phases are discussed by Orava and Tuominen (2002, 680), who describe the surgical service process as consisting of a complex chain of interlinked services. Drawing on Lehtinen (1986), they identified three sets of activities: the joining phase, the consumption phase, and the detachment phase. The consumption phase relates to the production and delivery of the surgical service, while other phases involve less complex activities such as parking or making an appointment (Orava & Tuominen 2002, 680; see also Orava & Brännback 2005, 118–119).

Another process description of a medical service is provided by Shostack (1987), who used a service blueprint to illustrate the structure of a general practitioner service. Also in her visualisation, the professional service process

includes activities that relate to the core professional service, such as examining the patient, making a diagnosis, and deciding about treatment or hospitalization; other activities include e.g. scheduling an appointment or collecting payment.

The examples above show that the production of the core professional service can be set apart from the entire service delivery process. *This core phase, problem solving for the* customer*, is the main focus of the study and the activity that is to be described and analysed*. Few attempts have been made to conceptualise the production of the core professional service. A useful – and almost the only – starting point for this endeavour is a model of the composition of the professional service by Gummesson (1978), introduced in his seminal article that called for research effort to develop a theory for professional services marketing. Gummesson (1978) referred to the model as "components of a professional service", but the components in fact constitute the basic elements of a service system; namely input, operation, and output (Figure 6).

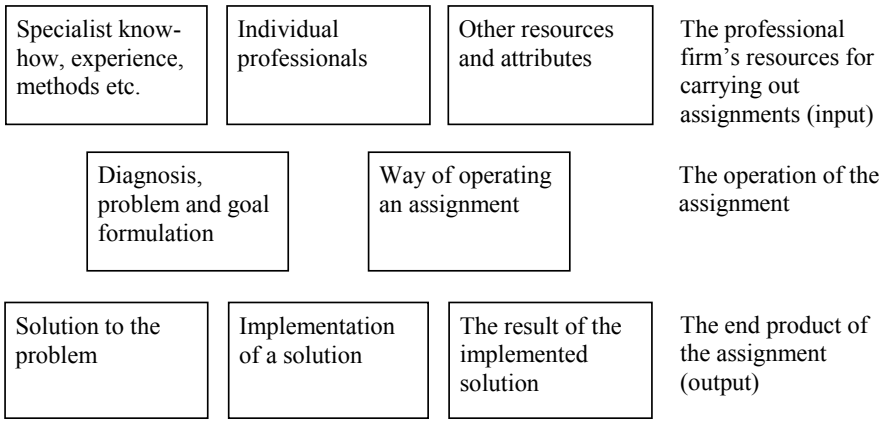

Figure 6 The components of a professional service (Gummesson 1978, 91)

In the model, the problem solving nature of professional services is clearly evident: resources are used to produce a solution to the customer's problem. It should be noted that Gummesson's (1978) model focuses on describing the resources provided by the professional firm, and does not attend to customer induced inputs.

This study approaches professional service production as a system focusing on problem solving. The SADT model is used as a basis for the theoretical framework. It should be noted that the purpose of this study does not lie in testing the SADT methodology nor in applying it rigorously to map the professional service process (for an example of SADT use in medical service

process mapping, see Staccini, Joubert, Quarante & Fieschi 2005). Rather, the basic SADT model is considered here as a refinement of the general systems model, and it serves as a starting point for devising a framework of problem solving activity within professional services.

A tentative framework of professional service production focusing on problem solving can be devised by integrating the professional service specific components outlined by Gummesson (1978) into the SADT model (see Figure 7). The *input* to be acted on is induced by the customer (e.g., Sampson & Froehle 2006, 331). Provider induced input, emphasised in Gummesson's (1978) model, constitutes the *mechanism* that performs the action. Although Congram and Epelman (1995) refer to "mechanism" as the physical elements which facilitate the performance of the activity, e.g. employees, software and library resources, mechanism is used in this study in reference to all types of resource that professional service providers employ to perform the activity – physical and non-physical. A similar adaptation was made by Staccini et al. (2005, 338–339), who defined mechanism as consisting of "men" related factors such as functions, skills, capabilities, and "machinery", referring to equipment and materials. The core *activity* focused on is problem solving, performed under certain *controls*. The output of the activity is a solution to the customer's problem.

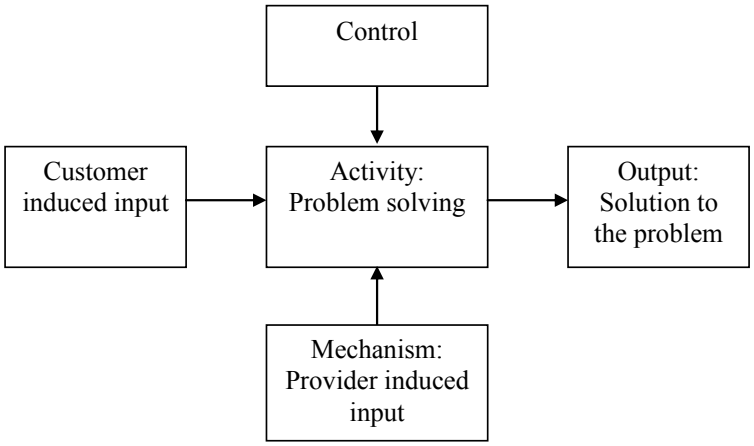

Figure 7 A tentative framework of a professional service production system focusing on problem solving

3.2.2 Elements of the professional service production system

The following sections draw mainly on the literature on professional services marketing and management to elaborate on the elements of the tentative framework. What do the provider- and customer-induced input, the activity, control and output of a professional service production as problem solving encompass?

3.2.2.1 Input

As discussed earlier, input to service production is induced by both the service firm and the customer. First, we discuss provider induced input (mechanism), which refers to the resources that professional service providers use to perform the activity. Secondly, we elaborate on customer input to service production.

Provider induced input: the mechanism
The professional service provider uses a set of resources to carry out an assignment (Gummesson 1978, 91–92). Due to their specialist knowledge and skills, professionals are afforded the right to isolate problems and determine the means for their solution (Mills et al. 1983b, 119). The professionals are approached by potential customers to obtain benefit from this knowledge, which cannot easily be learned by the customers themselves (Conchar 1998,

255). In other words, problem solving is based on the *specialist knowledge* of the professional.

Professional knowledge has been considered to reside not only in the professionals themselves, but also in the professional organisation (Nonaka, Toyama & Nagata 2000)[17]. Furthermore, provider input encompasses many types of knowledge: Løwendahl et al. (2001, 916–917) discuss fact-based, experience-based, and dispositional knowledge. *Fact-based knowledge* is explicit, objective, and task-related (Løwendahl et al. 2001, 916). For the individual, such knowledge is acquired by the mastery of a specific discipline that often has its foundations in a particular field of science (Werr & Stjernberg 2003, 883, cf. Kyrö 1995, 120–121). That mastery is typically the result of formal, higher education, and many professionals have passed rigorous tests to demonstrate their knowledge before being allowed to practice (Hill & Neeley 1988, 18; Hausman 2003, 227). Fact-based knowledge at the collective level refers to synthesising the relevant knowledge into generally applicable methods and codified knowledge resources such as databases, manuals, and formulas (Løwendahl et al. 2001, 917–919; Werr & Stjernberg 2003, 883; cf. Nonaka et al. 2000, 5).

Professionals possess also *experience-based knowledge* which in many professional fields is considered a major determinant of ability (Hausman 2003, 227). This knowledge is tacit in nature and based on the experience of the professional (Løwendahl et al. 2001, 916). Maister (2003, 4–5) uses the term "Gray Hair" to describe the approach to professional practice that brings, first and foremost, experience to bear on solving customers' problems. He suggests that customers who seek a firm with accumulated experience in handling certain types of problems, could be attracted by the firm having created an institutional reputation based on its ability to deploy collective knowledge derived from past engagements (Maister 2003, 24). According to Nonaka et al. (2000, 5), organisational knowledge is embedded in organisational procedures, processes, routines, and structures. Although tacit knowledge is in general considered to reside within the individual (e.g., Newell, Robertson, Scarbrough & Swan 2002, 3), such shared norms and ways of doing things may be regarded as experience-based knowledge at the collective level (Løwendahl et al. 2001, 917–918).

Finally, *dispositional knowledge* refers to talent, aptitudes, artistic abilities, creativity and intuition (Løwendahl et al. 2001, 917). This type of knowledge is considered to be the major provider input for instance in advertising services (Halinen 1997, 28). Løwendahl et al. (2001, 917–918) suggest that at firm

[17] For practical examples, see Orava (2005, 67).

level, dispositional knowledge is reflected in a unique language or code, and in corporate identity and culture shared by the professionals.

Table 4 summarises the dimensions of knowledge as discussed above, which are regarded as the primary provider induced input to professional service production. In addition to knowledge and expertise, service providers' inputs include the tangible and intangible resources of the professional organisation, such as buildings, finances, technology, systems, and corporate culture (Gummesson 1978, 92; Løwendahl et al. 2001, 915; Grönroos & Ojasalo 2004, 417).

Table 4 Dimensions of knowledge in professional services (building mainly on Løwendahl et al. 2001, 916–918)

	Individual knowledge	*Collective knowledge*
Fact-based knowledge ("know-what")	Information-based, explicit, objective, task-related knowledge	Methods and knowledge resources (databases, manuals, formulas)
Experience-based knowledge ("know-how")	Tacit, subjective skills	Norms, routines, best practices
Dispositional knowledge	Talent, aptitudes, creativity, intuition	Shared culture, unique language or code, corporate identity

Customer induced input

An inherent feature of services is that customers provide the primary input to service production (Lovelock 1983, 10; Mills et al. 1983a, 302; Larsson & Bowen 1989, 214; Fitzsimmons & Fitzsimmons 1994, 26; Bitner, Faranda, Hubbert & Zeithaml 1997, 195; Sampson 2000, 351). In other words, all services basically act on something that is provided by the customer (Sampson 2000, 351). "Customer participation" is a term commonly used to refer to the contributions that customers make to service production (e.g., Mills et al. 1983b, 120; Larsson & Bowen 1989, 217; Rodie & Kleine 2000, 11–12). Hence, in this thesis, *customer participation is understood as the input that customers contribute to service production;* although some authors define participation more narrowly, as encompassing only the "work" done by the customer (e.g., Dellande & Gilly 1998, 266; Bendapudi & Leone 2003, 20).

The services marketing literature offers a variety of suggestions regarding what customer induced inputs to service production might include. Larsson and Bowen (1989, 217) provide an extensive definition by suggesting that customer inputs may be a) information about the desired outcomes, b) the customer's body, mind, or tangibles to be serviced, and c) actions participating

in the service production. Some authors include also customers' input in terms of their manner of behaviour (Kelley, Skinner & Donelly 1992, 199; Rodie & Kleine 2000, 111–112). Table 5 outlines different types of customer induced input that have been suggested in the literature[18].

Table 5 Suggested types of customer induced input to service production

Type of input	*Examples of authors*
Information (about the problem, goals, tastes, etc.)	Mills et al. 1983b; Larsson & Bowen 1989; Kelley et al. 1992; Bitner et al. 1997; Ennew and Binks 1999; Rodie & Kleine 2000; Yen et al. 2004; Sampson & Froehle 2006
Labour, actions, effort	Mills et al. 1983b; Larsson & Bowen 1989; Kelley et al. 1992; Cermak et al. 1994; Bitner et al. 1997; Ennew and Binks 1999; Rodie & Kleine 2000; Bendapudi and Leone 2003; Yen et al. 2004
Manner of behaviour, relationship building	Kelley et al. 1992; Ennew and Binks 1999; Rodie & Kleine 2000; Yen et al. 2004
Customer's tangibles	Lovelock 1983; Larsson & Bowen 1989; Bitner et al. 1997; Rodie & Kleine 2000; Sampson & Froehle 2006
Customer self (body, mind)	Lovelock 1983; Larsson & Bowen 1989; Sampson & Froehle 2006
Time	Cermak et al. 1994

The services literature does not clearly indicate whether or how professional and non-professional services differ in terms of customer participation. As discussed in the earlier sections, service typologies tend to demarcate professional services on the basis of the degree of customer participation and influence in the service process. Lachman (2000, 620) speculates that while in many non-professional services participation depends on the consumer's decision with regard to how willing he/she is to contribute personal effort in obtaining the service, participation in professional services is more likely to be imperative (see also Silpakit & Fisk 1985, 118). Unless the customer does something (for instance, puts the necessary information together for a tax return or takes the prescribed medication), the professional service provider cannot effectively produce and deliver the service outcome (Bitner et al. 1997, 195; Dellande, Gilly & Graham 2004, 79). In contrast, a

[18] A more thorough discussion on customer participation can be found in Article 5. Note that the input types listed in Table 5 are not restricted to professional services but relate to services in general.

customer can choose whether to order a salad served by a waiter or to make her own salad at a salad bar (Silpakit & Fisk 1985, 118). Hubbert (1995, 19) describes "low participation services" as those that require simply the customer's presence during the service delivery, such as airline travel or a concert; and "high participation services" as those that cannot be created other than with the customer's input, such as marriage counselling and personal training. Perhaps the aspect that most effectively marks out participation in professional services is not related to the types of input customers contribute, but to the degree to which the service is *customised according to individual customer's input*. However, as is evident in the examples provided by Hubbert (1995, 19), also some non-professional services such as personal training involve customisation.

Some suggestions have nevertheless been made regarding the types of input that customers contribute to the professional service process. According to Lachman (2000, 618), in many non-professional services customers participate by performing relatively simple tasks that are mostly preparatory or modular parts of the service e.g. filling out forms or operating automatic machines. The provider may control, regulate, and also correct the performance of these tasks, if they are improperly executed by the customer. However, it is suggested that professional services require more complex contributions from customers (cf. Mills & Morris 1986, 729).

According to Dawson (2000, 322), information is very clearly the raw commodity to which knowledge-based organisations add value in their production processes. Information provision is indeed emphasised by many authors as the primary customer contribution to the production of a professional service (Larsson & Bowen 1989, 222; Boström 1995, 153; Ennew & Binks 1996, 8). Wathen and Anderson (1995, 65) postulate that while all service delivery systems require customer information as a primary input, they differ widely in terms of the type of information received and used. In professional services, information is typically unclear and results in many interpretations, while in other service delivery systems, information is highly specified and unequivocal (ibid).

Although the critical value of the information provided by the customer is emphasised, the customer is nevertheless considered to have little understanding of the use of that information in the problem solving. Customers are traditionally expected to delegate responsibility for processing information – which drives decision making on their behalf – to the professional service provider (cf. Mills and Moshavi 1999, 50). Due to the complex nature of the professional service, customers are considered to be unclear about their own needs with respect to the service (Hill & Neeley 1988, 18); and unable to evaluate the service even after purchase and consumption

(Stewart et al. 1998, 210–211; Sharma & Patterson 1999, 155). However, Laing et al. (2002, 491) posit that the Internet-driven information empowerment of consumers, together with the trend towards the commodification of services, changes the role of consumer and professional in the service encounter, shifting the parties towards a partnership as opposed to the traditional professional dominance (cf. also Hogg et al. 2003).

As discussed earlier, increasing participation by patients in decision-making concerning their care is widely discussed in the health science literature (e.g. Charles et al. 1999; Wirtz et al. 2006). Evidence for the weakening of professional dominance is provided for instance by Laing et al. (2005) who found in their empirical study that patients may engage in explicitly consumerist interaction with their physician, where the professional is reduced to acting purely as an advisor with the consumer evaluating the advice and making decisions independently (p. 518–519). Studies by Boström (1995) and White and Johnson (2001; 2002) give empirical examples of the influence of customer induced information input on problem solving in architecture and medical services.

Empirical research addressing other types of customer contribution to professional service production is scarce. Lachman (2000, 625–626) describes some concrete efforts that customers may be expected to make in order to co-produce the professional service, and studies by Dellande and Gilly (1998) and Dellande et al. (2004) emphasise the importance of customers' efforts in implementing the service.

It seems that service research addressing customer participation in terms of interpersonal interaction, for example the manner of behaviour, and relationship building efforts, is concerned more with how such input influences customer experience of the service than its production per se. Researchers have suggested that customers' difficulties in evaluating the technical performance of the professional lead to evaluations weighted heavily on how the process functions in terms of interaction and communication between the customer and the professional (Sharma & Patterson 1999, 155; cf. Hausman 2003, 228). Hausman (2003) found that in more classically professional services (such as medicine), the relationship between social aspects of the provider-customer relationship and satisfaction with the service was stronger than in less professional occupations. Furthermore, Sharma and Patterson (1999) found that communication effectiveness – referring to the sharing of meaningful information between a customer and a professional in an empathetic manner – has a significant, positive effect on relationship commitment and also on perceptions of both technical and functional quality.

Solomon et al. (1985, 103–104) postulate that satisfaction with the service encounter depends on the fit between perceived behaviour and the behaviour

expected by customers based on their role expectations regarding service production. Customers have a set of normative expectations associated with what the service provider is responsible for, and also what the customers themselves are responsible for (Kelley et al. 1990, 317). Role expectations are created through learning and communication (cf. Rouse 1991, 18–19; Broderick 1999, 122), and they comprise the privileges and obligations that relate to a social position (Solomon et al. 1985, 103).

Besides affecting customers' quality perceptions, role expectations determine the behavioural patterns that customers adopt during service encounters (cf. Solomon et al. 1985, 103; Kelley et al. 1990, 321). As an individual's expectations concerning social behaviour are associated with his/her and cultural orientations, customers vary in the extent of desired control and participation in the service encounter (Rouse 1991, 19; John 1996, 69). In other words, customers' individual role expectations determine their behaviours during service production. Hence, customers' role expectations are posited to be an important input they provide to service production.

Solomon et al. (1985, 103) emphasise that both service providers and customers have role expectations regarding service production. A role player's behaviour is also posited to be interdependent with the behaviour of others at the service encounter: specific behaviours on the part of the provider may influence the client's ability and willingness to participate, i.e. play his/her role in service production (cf. Broderick 1998, 349). Mills and Moshavi (1999) postulate that professional service providers can manage customer participation through mechanisms that relate to the roles of both parties, such as provider authority, social affiliation and objectivity, and customer role accountability. One can conclude that role expectations may be considered an input induced both by service providers and customers.

3.2.2.2 Activity

From the perspective of this study, the general activity that produces the core service offering of a professional service is problem solving. In other words, problem solving is the activity of transforming inputs into outputs in a way that is valued by the customer. As discussed in an earlier section, the services marketing and management literature emphasises the professional's use of *individual judgement* in service production (Mills & Margulies 1980, 264; Ritsema van Eck-van Peet et al. 1992, 25). Instead of following a standardised procedure, professional service providers exercise a considerable amount of individual judgement, discretion, and situational adaptation in the process (Shostack 1987, 35). Furthermore, while some service organisations may

apply fairly standardised and routinized procedures to provide the same predictable output every time, problem solving is customised specifically for each individual (Hill & Neeley 1988, 18; Løwendahl 2000, 40–41). Dependency on customer inputs and provider judgment may have contributed to the notion that professional service production involves a high degree of complexity.

The literature on professional services offers less insight into the actual *activities* that professional service production may involve. The model by Gummesson (1978) (Figure 6) outlines phases of the problem solving process: the problem is identified, goals are formulated, the method of problem resolution is specified, and a solution to the problem is found (cf. Gummesson 1978, 91–93). Similarly, Løwendahl (2000, 35) notes that professional service production involves problem definition, the choice of solution, and often the implementation of the solution, too. However, problem solving has received little attention among professional service researchers. Hence, in order to obtain a more elaborate idea of problem solving, a brief look at decision making and problem solving literature is in order.

Research on problem solving and decision making has a long tradition in many scientific fields, such as psychology, mathematical statistics, economics, operations research, political science, artificial intelligence, and cognitive science (e.g., Simon 1986; Cooksey 1996, 38). In brief, the multitude of different research approaches to decision making and problem solving can be divided into two general classes – prescriptive and descriptive theories – on the basis of the objective of the research. The aim of prescriptive research is to construct normative models that would tell decision makers how they should make decisions; whereas descriptive research aims to simulate, as accurately as possible, how decision makers actually go about the business of making decisions and solving problems (Taylor 1970, 31; Simon 1986)[19]. The same central approaches are employed also in health science research to study physicians' decision making (Elstein & Schwarz, 2002).

In general, a problem can be defined as a situation that calls for change; an unsatisfactory situation which requires correction, but where there is no direct, obvious way to accomplish the change (Mayer 1983, 5; Butler 1994, 6). As Lang, Dittrich and White (1978, 855–856) point out, there is some evident variation with respect to how authors distinguish between problem solving and decision making. For instance, while Holmberg (1997, 17) considers problem

[19] Prescriptive theories provide a set of rules for combining beliefs (mathematical probabilities of outcomes to occur) and preferences (utilities attached to outcomes) to make a decision (Schwartz & Griffin 1986, 13; cf. Hastie & Dawes 2001, 29–33). Descriptive theories focus on how decision makers cut problems down to size: how they apply approximate, heuristic techniques to handle complexity (Simon 1986).

solving a broad process which includes decision making about which problems to attend to and what course of action to take, Cyert, Simon and Trow (1970, 83) describe a decision process that comprises a series of problems. Simon (1986), on the other hand, postulates that problem solving encompasses the work of choosing the issues that require attention, setting goals, and designing suitable courses of actions, whereas decision making refers to the latter phases of the process, namely evaluation and choice among alternative actions. Yet another view is to treat problem solving and decision making as synonyms to describe a general process of information gathering, analysis and choice (cf. Lang et al. 1978, 865). It is noteworthy that in decision making and problem solving research, the term decision making tends to be associated with the prescriptive line of research, e.g. the evaluation of probabilities and utilities; while problem solving is more linked with descriptive research regarding the psychological processes and heuristics related to decision making (cf. Simon 1986; Elstein & Schwarz 2002). In this study, the term "problem solving" refers to the broad process during which problems are identified, studied, and solved, instead of the phase that represents merely choosing among alternatives.

The literature exhibits a higher degree of consistency with regard to the conceptualization of the basic problem solving or decision making process. A review by Lang et al., dating back to 1978, presents 15 different models for managerial problem solving, which encompass the basic phases of decision making: problem recognition, evaluation of alternatives, and the choice of action.

As discussed earlier, marketing scholars have addressed problem solving particularly with reference to buying: Webster (1979, 27), for instance, states that a purchasing problem arises when someone in the organization observes an opportunity to solve a problem by purchasing goods or services. The phases of a buying process indeed resemble the basic phases of problem solving; for example Engel et al. (1990, 27) describe the consumer purchase process in terms of the following phases: 1) need recognition, 2) search for information, 3) alternative evaluation, and 4) purchase and outcomes[20]. It is nevertheless noted that in many cases, buying decisions are habitual and routine and involve only limited problem solving, and only in the case of *extended problem solving* will buyers follow all of these steps (Engel et al. 1990, 28–33; cf. Webster 1979, 29).

[20] The industrial buying process has been described with similar phases; see e.g. Webster 1979, p. 28.

One can also find examples of problem solving processes within different professional service fields, which illustrate the phases discussed above. These examples are presented in Table 6.

Table 6 Examples of problem solving processes within different professional services

	Business consultancy	*Engineering design*	*Medical services*	*Tax accounting services*
	Albert (1983, 4–5)	Salter and Gann (2003, 1310)	Thomas et al. (1991, 5)	Roberts (1998, 82)
Problem identification and goal formulation	Defining the problem	Problem identification	Collecting history data for generating, confirming and eliminating hypotheses concerning diagnosis Producing diagnosis / problem statement	Acquiring information about the customer's return or planning opportunity Analysing the information to identify potential business and tax issues and goals
Identification and evaluation of alternative methods for problem resolution	Gathering information Analysis and conclusions	Development of different conceptual solutions	Deciding whether to intervene or refer Canvassing intervention options	Locating authoritative information Analyzing and evaluating information
Choice of action and potential implementation	Recommendation and implementation	Designing a favoured solution Working out details of the physical artefact	Selecting (and administrating) intervention options Monitoring outcomes Discharge or referral	Developing recommendations Assisting the customer in implementing the recommendations

Based on the above discussion, the main activity being performed within professional service production, i.e. problem solving, is specified as consisting

of three general sub-activities: 1) problem identification and goal formulation (diagnosis), 2) identification and evaluation of alternative methods for problem resolution (evaluation), and 3) choice of action and potential implementation (choice).

3.2.2.3 Control

The structured analysis and design technique for analysing a service system identifies control factors that guide, regulate, or constrain the transformation of inputs into outputs (Congram & Epelman 1995, 10; Staccini et al. 2005, 338). The literature suggests that in professional services, constraints and guidance regarding the actions of professionals derive from the profession rather than from customers, an organisation, or markets at large (cf. e.g. Mills et al. 1983b, 119; Sharma 1997, 771). *The constraints of professional norms* can be considered the general controls under which professional service providers are allowed to exercise their judgment in problem solving for their customer (cf. Løwendahl 2000, 20).

Professional norms are necessary because of the complexity and intrinsic ambiguity of customers' problems, and the dependency on specialist knowledge and individual judgment for their resolution. Since professional service production requires specialist knowledge, only other professionals are considered qualified to assess performance (Mills et al. 1983b, 119). A belief in *collegial control*[21] is the reason why the professional community is allowed to take charge of peer reviews, licensing, and sanctioning of what constitutes appropriate and inappropriate behaviour (Hall 1968, 93; Løwendahl 2000, 36). The profession defines, shares, and enforces certain rules of conduct, traditions, and a code of ethics (Wilson 1972, 4; Ritsema van Eck-van Peet et al. 1992, 23; Mills & Moshavi 1999, 54). Such norms provide profession-wide controls on problem solving for the customer.

A fundamental professional norm is the expectation of *altruism*[22] (cf. Sharma 1997, 764; Løwendahl 2000, 19; Laing & Hogg 2002, 181). A belief in the professional's benevolent intent is an important premise of the professional service encounter. The inherent information asymmetry in the encounter puts the customer in a situation where s/he must rely on the advisor

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[21] The terms "collegial control" and "self-regulation" are used interchangeably in this thesis to refer to the notion that the professional community defines and enforces norms regarding appropriate service production.

[22] Altruism is defined as "devotion to the welfare of others, regard for others, as a principle of action; opposed to egoism or selfishness" in the Oxford English Dictionary *(http://dictionary.oed.com/)*. In this thesis, altruism is used to refer to professional service providers' devotion to advance the client's interests rather than self-seeking interests.

(cf. Sharma & Patterson 1999, 156). According to Halinen (1996, 327), some level of trust is necessary for exchange to occur at all in professional services. Halliday (2004, 47) discusses "placed trust", which refers to trust placed in the trustworthiness of the other, and is considered to be the initiator of the service process rather than its result. Placed trust enables the service to take place and, over time, to continue. She argues that expert power (sic) does not stem from expertise alone, but "placed trust" needs to be present. (Halliday 2004, 54.) Membership of a professional community declares to customers that a service provider is trustworthy, i.e. acts according to professional norms (cf. Alvesson 2001, 872–873). The customer's trust in the professional is grounded on the premise that the service provider can be counted upon to advance the customer's best interests, rather than act from self-seeking motives such as profits or status (Conchar 1998, 256; Løwendahl 2000, 18).

Another professional norm that can be considered a prerequisite for exercising individual judgment in an objective and impartial manner, is the autonomous status of professional service providers (cf. Harte & Dale 1995, 34). *Autonomy* refers to professionals' freedom to exercise individual judgement in defining problems and the means for their resolution, without external pressures from customers, non-members of the profession, or the employer organisation (Hall 1968, 93). Autonomy in problem solving can be considered a requirement for objectivity; according to Gummesson (1978, 90), professional service providers are expected to be independent of suppliers of other goods and services. As a control factor in professional service production, autonomy guides professionals to solve problems free from the influence of non-members of the profession.

3.2.2.4 Output

The *output* of the professional service process is the benefits of the service for the customer. The immediate outcome of the professional service may be advice, a professional opinion or recommendation, or information that contributes to the resolution of the customer's problem (Ritsema van Eck-van Peet et al. 1992, 23–24; Løwendahl 2000, 16). The outcome may also take a very tangible form, such as blueprints, tax returns, plans, reports, prescriptions for medications, or surgical procedures (cf. Gummesson 1978, 93; Lehtinen & Niinimäki 2005, 11). According to an empirical study by Lapierre (1997, 388–391)[23], customers perceive the value of a professional service to be the

[23] Lapierre's (1997) study was conducted in the context of business-to-business professional services.

solution to their problem, and the results that derive from that solution in the future. Sometimes, the final result of the implemented solution unfolds only over time: it is likely to be many months before the earnings or losses produced by an instance of investment advice, for example, can be assessed (Sharma & Patterson 1999, 155). The result of an implemented solution can be described as the ultimate service outcome (cf. Halinen 1996, 324).

Due to the nature of the inputs to professional service production – specialist knowledge and customer participation – the output of the process is difficult to evaluate and guarantee. As discussed in the previous sections, customers typically lack the technical expertise to assess whether their problem was solved in the best possible way (Sharma & Patterson 1999, 155). The complexity of evaluation is compounded by the fact that competent professionals do not always produce favourable results (Hausman 2003, 227). For example, the success of a risky surgical procedure is never entirely certain, despite the skills of the surgeon. Similarly, Halinen (1996, 321–322) points out that a satisfying service outcome does not necessarily lead to a desired ultimate service outcome: for example, a lawyer may argue a superb case but the court might still rule against the customer. Ritsema van Eck-van Peet et al. (1992) posit that the relation between the professional and the customer can almost always be characterised as an effort contract, rather than a result contract, since the output of the professional service cannot be guaranteed. It should nevertheless be noted that professional service firms can and do offer some forms of service guarantee (see e.g. Hart, Schlesinger & Maher 1992). For example, clinics that perform laser eye surgery to correct reflective errors of vision often offer a further corrective operation free of charge if the initial operation results in less than optimal eye sight. However, in line with the notion expressed by Ritsema van Eck-van Peet et al. (1992), Hart et al. (1992, 25) point out that a guarantee offered in professional services would be unethical *if it implied certainty of results*. Also, an inability to or the undesirability of having the service re-enacted contributes to the high perceived risk encountered with professional services (Hill & Neeley 1988, 21).

Dependency on customer induced input is another factor that contributes to the difficulty of predicting the output of a professional service process. As the service creation is largely dependent on the quality and quantity of input provided by the customer, customers themselves ultimately enhance or detract from the value received (Bitner et al. 1997, 193). Furthermore, the professional may be involved only in finding the solution to the customer's problem, leaving its implementation to the customer (cf. Gummesson 1978, 93). For example, the problem resolution achieved in a medical service encounter may be a prescription for medication to treat the patient's illness,

and the quality of the ultimate outcome of the service is dependent on the patient taking the prescribed medication as directed. In other words, customer induced input influences the ultimate service outcome, both in terms of problem resolution and its implementation.

3.3 A framework of problem solving within professional services

Previous sections discussed problem solving as the core activity in professional service production. A tentative framework to describe the elements of problem solving was devised by integrating basic service production system models (e.g. Johnston 1989, 192), the SADT model (Congram & Epelman 1995, 11), and Gummesson's (1978, 91) framework of the components of the professional service (Figure 7). Then, literature on professional services marketing and management, as well as on problem solving and decision making, was drawn on to provide content for the basic elements of the framework (see Figure 8).

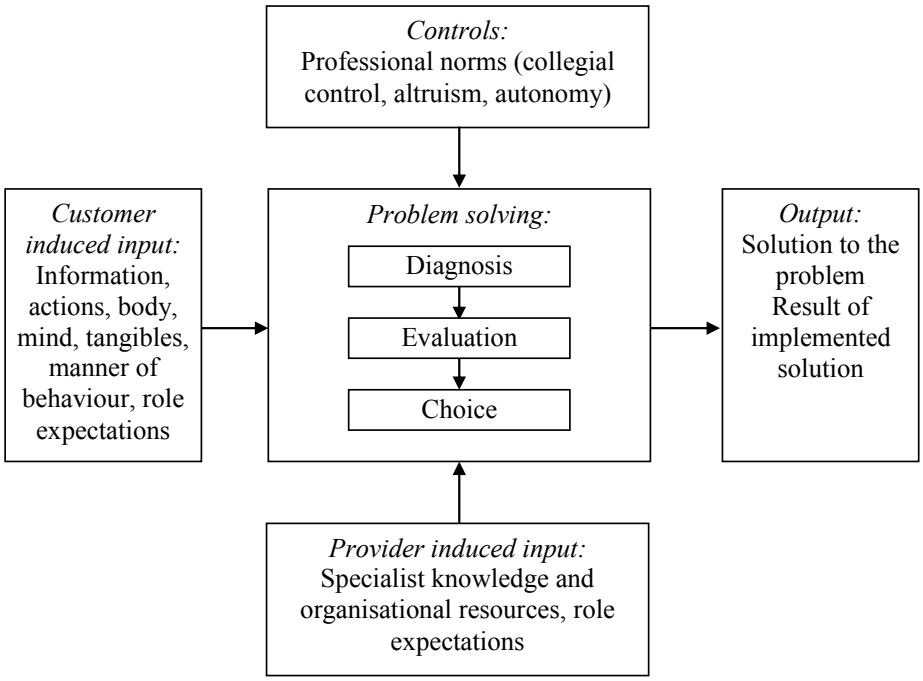

Figure 8 A theoretical framework of professional service production as problem solving

As depicted in Figure 8, the main activity in professional service production is problem solving, which typically involves the basic steps of diagnosing the

problem, evaluating alternatives for its resolution, and selecting the appropriate actions. Customers provide the main problem input for processing by professional service providers using their specialist knowledge and organisational resources. Problem solving is guided and controlled by professional norms, such as collegial control, altruism and autonomy. The immediate output of the service is a solution to the customer's problem, followed by the ultimate result of the implemented solution.

The framework is based on theoretical considerations and past empirical research concerning professional services and service production. It depicts the *professional service production system, where customer inputs are processed into solutions to customer problem by professional service providers working to professional norms*. The framework provides the general frame for how problem solving is approached in this thesis, identifying the elements that are central to it on the basis of extant literature on professional services. The framework outlines the entity to which each original article makes a contribution.

The independent articles refine and enrich the theoretical framework. Each article studies problem solving within professional services. Articles 2–5 provide empirical findings regarding elements that matter in problem solving within medical services, more precisely in the context of prescribing decision making. The findings of the independent articles provide empirical insights not only into the elements identified in the framework, but also into other factors that influence problem solving in the medical context.

4 SUMMARY OF THE ORIGINAL ARTICLES

This chapter summarises the main results of the original manuscripts incorporated into the thesis. The papers are not presented in the order of their composition[24], as their writing was very much a matter of parallel processes, due to a number of revision rounds and work-in-progress papers preceding their current form. Instead, an attempt was made to organize the papers in the most reader-friendly manner, and to allow the reader to follow the "red line" of the general study: the first sub-objective is mainly covered in Articles 1–2, the second sub-objective in Articles 2–3, and the third sub-objective in Articles 3–5. As each article constitutes an independent entity, their focus, theoretical perspective and terminology are not congruent with each other. Furthermore, the focus of the main research purpose as well as the use of theoretical concepts has evolved and been refined during the research process. This summary emphasizes mainly the findings that contribute to the purpose of the whole thesis. A brief summary of the manuscripts can also be found in Appendix 6.

4.1 Article 1: Purchase decision making in professional services: Organisational or consumer buying behaviour?

Article 1 directly addresses the first sub-objective. As the choice of prescription pharmaceuticals has usually been studied as buying behaviour by the physician, Article 1 set out to analyse whether purchase decision making in the context of professional services can from a theoretical perspective be considered comparable to organizational or consumer buying.

The purpose of Article 1 was to analyse purchase decision making in the context of professional consumer services. In other words, the object of investigation was the type of customer problem that is resolved by a professional service provider through purchase decision making. The article compared the distinct characteristics of purchase decision making in the professional service setting, and in the context of organisational and consumer buying. Three aspects of purchase decision making were elaborated on: the actors involved (who make the decisions), the purchase decision task (what

[24] The temporal order of the articles is depicted in Figure 2.

kind of decisions are made), and the nature of the decision making process (how the decisions are made).

The comparison of the three decision making contexts is summarised in Table 7. In terms of the *actors* involved in the decision making, it was considered that a fundamental distinction between professional services and traditional buying behaviour contexts lies in the distributed nature of decision making: while organisations and consumers act on their own or their unit's (e.g. family) interests, professional services providers are commissioned to decide for others. The professional and the customer are two financially separate parties joined in a service relationship. The paper also discussed the sources of the parties' decision making power, and brought forth the possibility that the provider's need to strive for customer satisfaction may grant the customer more decision making power.

Article 1 argued that purchase *decision tasks* within professional services can be characterised as complex and risky for the customer. From the provider's perspective, the complexity stems from the high degree of customer participation in decision making and the ambiguity of customers' problems.

The *nature* of the purchase decision making process within professional services was considered to have many similarities with that of organisational buying; however, unique features were also identified, particularly profession-related factors such as collegial control, and autonomy.

Table 7 A comparison of purchase decision making characteristics in organisational, consumer, and professional service contexts

	Organisational context	*Consumer context*	*Professional service context*
Motive for the purchase	Purposes of the organisation	Purposes of the consumer/ household	Purposes of the customer (Personal motives of the provider)
Cost bearing	Joint (within organisation)	Joint (within household)	Separate (customer or third-party payer)
Actors involved in decision making	Typically a group	Typically an individual	Typically a dyad of a professional and a customer
Sources of power and influence for actors involved in decision making	Expertise and information Formal status Referent power Reinforcement power Control over resources	Expertise and information Informal status Referent power Reinforcement power Control over resources	Professional: Expertise and information Formal status Societal mandate Customer: Experience and information Provider's aspiration to customer satisfaction
Characteristics of decision tasks	From complex and significant to routine and insignificant	From complex and significant to routine and insignificant	Typically complex and ambiguous Require task-specific knowledge Highly customised Significant and risky Irreversible
Professionalism of decision making	Decision-maker(s) expected to possess expertise	Decision-maker(s) not expected to possess expertise	Decision making involves an expert and a novice
Nature of decision making process	Rationality often endorsed as a goal May involve formal decision guidelines Usually subject to some regulation	Rationality not necessarily endorsed as a goal No formal decision guidelines No regulations	Rationality often endorsed as a goal May involve formal decision guidelines Usually subject to some regulation Collegial control

The comparison revealed that while the three purchase contexts studied share some similar characteristics, professional services are distinct in some important respects. The distinct features mainly relate to (1) the dyadic, distributed nature of decision making, where the purchase decision maker is not the user or payer of the purchase, but makes the decision to serve the best interests of the customer, (2) the service relationship between the parties, (3) the complex nature of the purchase decision task, and (4) the professional affiliation of the service provider. The paper concluded that the paradigms relevant to consumer or organizational buying behaviour are of limited use in the services context, and hence made a case for studying problem solving as professional service production. Based on the distinct features identified in the literature-based comparison, the paper proposed a theoretical framework for describing professional services as a purchase decision making context (Figure 9).

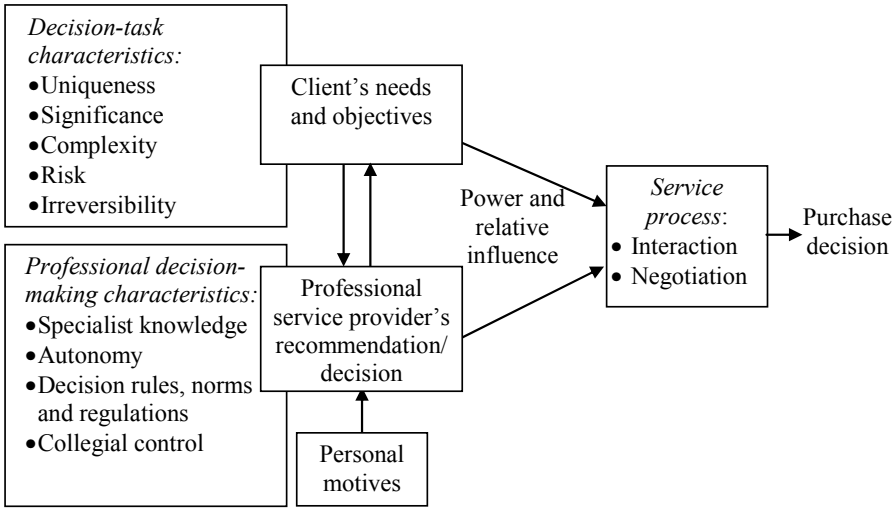

Figure 9 A framework of purchase decision making within professional services

The framework suggested in Article 1 can be considered the first step towards analysing problem solving within professional services. The framework describes the distinct characteristics of professional services as a purchase decision making context, drawing attention to certain aspects that are relevant for problem solving within professional services: the influence of customer- and provider-induced input, profession related factors, and particularly the fact that purchase decision is an outcome of a professional service. Such elements were also studied in subsequent papers.

4.2 Article 2: Critical innovation characteristics influencing the acceptability of a new pharmaceutical product format

Article 2 contributes primarily to the first sub-objective by providing empirical data on the distinct characteristics of medical services as a purchase decision making context. The theoretical perspective of the article is innovation adoption, which can be considered a special type of purchase decision making, involving the phases of extended problem solving (cf. e.g. Engel et al. 1990, 700; Solomon 1992, 553). The study reported in Article 2 provides insight into the distinct nature of purchase decision making for new products in the context of medical services and hence brings an empirical perspective to the issues discussed in Article 1. Furthermore, the study produced information about factors that influence physicians' prescribing decision making – albeit in the case of new pharmaceuticals – which exemplifies problem solving within medical services. Hence, the paper contributes partly also to the second sub-objective.

The study reported in the paper investigated inductively the factors that physicians considered important when assessing the acceptability of a new pharmaceutical product format that was introduced to them, i.e. the factors that influence physicians' willingness to prescribe a new product for their patients. As an individual paper, Article 2 was motivated by the lack of innovation adoption research that would take into account the distributed nature of adoption in the medical service context; innovation literature in general has made the implicit assumption that there is a single adopting group, the end user (Plouffe, Vandenbosh & Hulland 2001, 66).

The purpose of Article 2 was to investigate the critical innovation characteristics that influence the acceptability of a new pharmaceutical product format. Extant research on innovation characteristics that are assumed to influence adoption was reviewed and compared with the factors that physicians themselves consider important. The comparison can be considered to say something about the adequacy of the innovation adoption approach to explaining physicians' decision making.

The empirical study reported in Article 2 was inductive in nature as it investigated the characteristics that physicians themselves evaluated when assessing the acceptability of a new pharmaceutical product. Hence, the results as such are not determined by the theoretical focus of the paper; the study explored the arguments physicians themselves used when assessing the new product. The inductive approach improves the applicability of the results to the purposes of the whole thesis. The empirical data for the study consisted of interviews with 45 physicians and was conducted in the UK and Finland in

2001 (see Appendices 4 and 5). Further information concerning the methodology for the study is provided in Chapter 2.3 and in Article 2.

Article 2 supports the conclusion reached in Article 1 that professional services as a purchase decision making context possess distinct features, essentially deriving from the dyadic, distributed nature of the decision making, and the professionalism of the service provider. It was postulated in Article 2 that adoption in a medical context is a two-phase process: it is not enough that the physician adopts the product, but also the end user, the patient, must adopt it before positive outcomes can result. The data indicated that physicians' acceptance of a new pharmaceutical product depends not only on the product's pharmaceutical and clinical features, but also on physicians' estimation of patient demand for and acceptance of the new product. The findings also suggest that private practitioners who are concerned with patient retention evaluate a new product also in terms of its influence on customer satisfaction.

Article 2 contributes also to the second sub-objective as the empirical study provides information about the manifestations of the special features of professional services in problem solving for the customer. Physicians' consideration of patient preferences suggests that such patient induced input influences prescribing decisions. The study indicated also that physicians consider patient participation to increase the risks involved in the prescribing decision: physicians were reported to perceive products that require only minor input by the patient as easier to accept, since they were considered less risky.

The specialist knowledge of the professional service provider was found to influence problem solving. Physicians with a higher level of expertise, i.e. specialists, evaluated the new product more favourably than general practitioners who perceived it as complex. Also organisational resources such as the facilities of the clinic received support as relevant provider induced input to problem solving; as such resources were found to influence physicians' perception of the acceptability of the new product.

The empirical data provided insight also into factors that control and guide problem solving. The influence of collegial control in physicians' problem solving became evident in the study. While manifestations of formal collegial control, such as a code of ethics, were not observed, a more informal influence by professional peers was evident in physicians' evaluations of the acceptability of a new pharmaceutical product. The findings suggest that more qualified members of the profession lead the development of "acceptable" practice: general practitioners indicated that they follow specialists in their adoption of new pharmaceuticals.

Some contradiction to assumptions of professional altruism and autonomy was evident in this study. The findings indicated that when physicians evaluate

the acceptability of an innovation, they may use criteria unrelated to the end-users' perspective to reject it. For example, if adopting a new pharmaceutical requires uncompensated training and extended appointment times, many physicians may not be interested in suggesting it to their patients even if it offered benefits for the users. Furthermore, physicians' willingness to accept a new pharmaceutical into their repertoire was found to be influenced by the cost, savings, and opportunities for earnings that the pharmaceutical would produce for the physician. As for autonomy, the decision as to whether or not to adopt a new pharmaceutical did not seem to be based entirely on the professional's autonomous judgement of its medical qualities, but was influenced by organisational and other constraints. Particularly general practitioners' decision making was affected by constraints such as a tight schedule and budget. Furthermore, issues related to cost-bearing and reimbursement appeared to influence the product's appeal.

Physicians' assessment of the innovation was found to be dependent in many respects on factors related to their operating environment. Organisational, regulative, and societal context was found not only to influence *the very characteristics* that physicians pay attention to, but also to shape *their perceptions of the characteristics*. Hence, factors embedded in the physician's environment were found to be critical in terms of their evaluation of the innovation.

4.3 Article 3: Problem solving within professional services: evidence from the medical field

Motivated by notions put forward in Articles 1 and 2 about the distinct nature of professional services as a decision making context, Article 3 continued to study the special features of professional services. Article 3 directly addresses the second sub-objective, as it studied the manifestations of the commonly accepted special features of professional services in problem solving that occurs in service production. This was achieved by studying the existence of associations between the commonly cited professional service features and problem solving in the medical field.

Article 3 emphasises that professional service provision principally involves problem solving for the customer. The article reviewed professional service features that are considered central in the literature addressing professional services, and discussed the implications of these features for problem solving. It was concluded that the following assumptions commonly appear in the literature:

- Professional service providers base their problem solving on their specialist knowledge, skills, and experience.
- Professional service providers solve problems in a manner that advances the best interests of the customer.
- Problem solving within professional services is influenced by collegial control, typically manifested in codes of ethics defined and shared by the profession.
- Professional services providers are expected to solve problems autonomously, free from the influence of non-members of the profession.
- Problem solving within professional services is determined by the customer's input.

In order to see whether these assumptions received support from empirical studies conducted in the medical field, a systematic review of empirical studies concerning physicians' prescribing decisions was conducted. The empirical findings reviewed were used as secondary data to provide information about the factors that influence problem solving in medical services (the method is discussed more thoroughly in Chapter 2.3 and in Article 3).

The review of the empirical studies revealed that a number of different types of factors have been found to influence the prescribing decision. The factors were grouped under eight headings:

- *Drug-related factors*, such as the effectiveness and safety of a drug
- *Physical condition of the patient*, such as age and symptoms
- *Physician characteristics*, such as level of training and length of practice
- *Patient preferences,* such as demand for prescription
- *Cost factors,* such as the price of the drug, its reimbursement status, and a patient's insurance coverage
- *Information sources and guidance factors,* such as commercial and scientific information, and advice from colleagues
- *Organisational and administrative factors,* such as budgetary issues and restrictions on prescribing
- *Conventions,* such as a physician's personal habits and social norms.

These factors were compared with the assumed professional service characteristics, in order to see whether the service characteristics are manifested in problem solving in medical services.

The contribution of the paper was twofold. First, the existence of relationships between the professional service assumptions and the empirical findings was tested. Empirical support was found for many of the assumed special features of professional services, but there was also some

contradiction. The professional's specialist knowledge and the customer's input found support as significant influencing factors in prescribing decisions. The assumption regarding the influence of collegial control on problem solving was partially supported: the influence of ethical codes found no support, but that of other professionals as collegial advisors became evident, although their influence seemed more informal than expected. Some degree of contradiction was evident with respect to presumed altruism and autonomy of professionals.

Secondly, besides addressing the characteristics proposed in the medical literature, the study revealed a number of other factors that influence problem solving within medical services. The results of the reviewed empirical studies suggested that problem solving is influenced also by factors embedded in the broader context of professional services, namely the organisational, market and institutional environment. These findings are in line with the results reported in Article 2. Moreover, the influencing factors were found to be interrelated rather than independent. The types of factors that were reported to influence prescribing decisions are summarised in Figure 10.

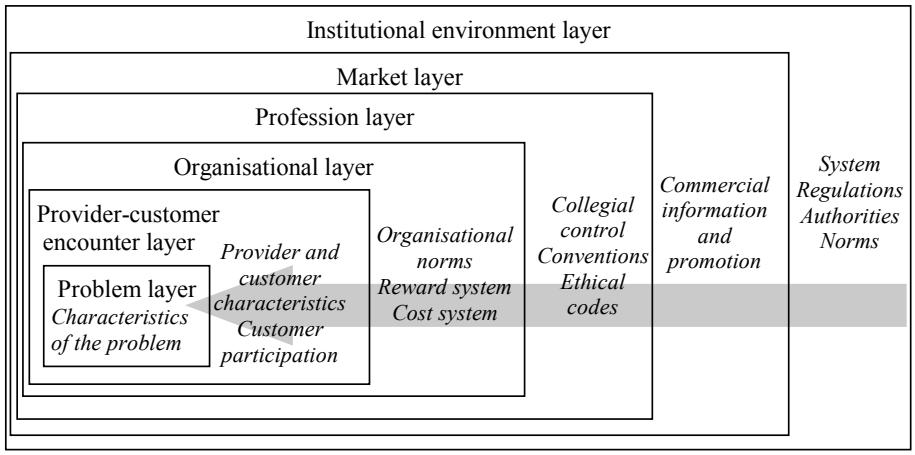

Figure 10 Layers of factors that influence problem solving within professional services

In the light of the entire research process, Article 3 provides an overview of both the theoretical propositions made about the characteristics of professional services, and also of the empirical research results regarding prescribing decisions. The secondary data from medicine validate the findings of the empirical study reported in Article 2, and also impart empirical refinement for the elements incorporated in the theoretical framework of the thesis (Figure 8).

4.4 Article 4: Changes in professional service management: Do physicians meet the needs of the modern patient?

Article 4 contributes primarily to the third sub-objective, which relates to the influence of customer participation on problem solving. Article 4 can be considered a preliminary inquiry into physicians' perceptions of patient participation in prescribing decision making. The article brings out the trend towards patient empowerment that is discussed in the medical literature, and examines the effect that the increasing patient participation may have on the interaction between the professional service provider and the customer, in the medical service encounter. The paper focuses on investigating physicians' views on patient input to prescribing decision making.

Article 4 reports on an empirical study conducted in the year 2000. The qualitative data comprised 26 interviews with gynaecologists in four European countries. The aim was to investigate physicians' perceptions of prescribing decision making for hormone replacement therapy, particularly patients' influence in the process. More information about the research approach can be found in Chapter 2.3. The interview themes and interviewees are detailed in Appendices 4 and 5.

Article 4 discussed the factors that may accelerate patient empowerment, and outlined three different models of decision making that have been suggested in the medical literature (e.g., Charles et al. 1999, 781): (i) the paternalistic model, where the patient passively acquiesces to professional authority by agreeing to the physician's choice of treatment; (ii) the shared model, where there is a two way exchange of information and the patient and the physician decide together; and (iii) the informed model, where the patient decides after the physician has explained the options. The empirical findings suggested that physicians differ in terms of the decision making model they prefer and practice: while some physicians indicated that they encourage patient participation in prescribing decision making or even authorise the patient to make the decision on their own, others felt that patients are not knowledgeable enough to make such decisions. In other words, paternalistic, shared and informed decision making models were applicable to the interviewed physicians. Physicians were also found to consider patients to differ in terms of their ability and eagerness to participate. Furthermore, the interviewed physicians reported that many patients have strong preconceived notions and preferences towards the class of medication under investigation. The paper also speculated that the interaction and decision making during the medical service encounter may be affected by the degree to which a physician's and patient's preferred decision making models and attitudes towards the treatment match.

In terms of the entire research process, Article 4 contributes by providing a pre-understanding of the potential ways in which patients may influence problem solving within medical services. The findings indicated that patients may have preconceived notions about the treatments they should or should not take, and that they may differ in terms of the decision making role they wish to assume. According to physicians' perceptions, patients supply inputs to service production not only in terms of their problem, but also in terms of their preferences regarding its resolution. The study hence provided support for information provision and role expectations as customer induced inputs in problem solving.

The study also indicated that patients differ with regard to the stages of the problem solving process they contribute to: while some patients provide input only to the diagnosis phase of problem solving, i.e. their condition to be treated, others influence also the evaluation of alternatives and even the choice of action (cf. Figure 8). Furthermore, the findings imply that physicians differ in their willingness to accept and encourage patient participation in the actual problem solving, i.e. prescribing decision making. Role expectations hence received support as a provider induced input as well.

4.5 Article 5: Customer participation in medical services: Service providers' perceptions

Article 5 continues the study of the influence of patient participation on problem solving in medical service encounters, hence contributing directly to the third sub-objective. The purpose of Article 5 was to investigate physicians' perceptions of the manifestations of patient participation in the medical service process, and the influence of such manifestations on prescribing decision making. It was argued that whilst the influence of customer participation is well established conceptually, rather diverse approaches and vague definitions have been employed in empirical studies. Instead of investigating participation itself, the concept is typically employed to explain other variables, often related to the customer's perspective. As a consequence, very little is known of the ways in which participation manifests itself for the service provider, and how it thereby influences problem solving.

The paper discussed customer participation as the customer's input to the professional service process, focusing on problem solving. The different types of customer induced input that have been suggested in the literature were reviewed. In order to investigate patient induced input in a medical service process, empirical data were gathered in a qualitative study examining physicians' perceptions of patient participation. A total of twenty physicians

were interviewed in the UK and the USA (for interview themes and a list of interviewees, see Appendices 4 and 5). The empirical study investigated physicians' perceptions of the manifestations of patients' contributions in the medical service process, focusing on two different illnesses, osteoporosis and schizophrenia.

Many different manifestations of patient participation were identified in physicians' descriptions of medical service processes (see Figure 11). Patients were reported to prepare for the service encounter e.g. by searching for information. Prescribing decision making was found to depend on the patient's medical condition, and to be influenced by information provided by patients regarding their symptoms and medical history, as well as problem and goal formulation. Physicians also reported that patients have some preconceived notions – opinions, concerns or preferences – regarding different medications, which influence the prescribing decision. Furthermore, the interviewed physicians emphasised the importance of patient participation post the service encounter in terms of implementing the service. A patient's willingness to follow a treatment regimen was found to have a direct influence on the prescribing decision, as physicians reported that they try to prescribe the treatment that the patient would most likely adhere to. This finding is in line with the results presented in Article 3.

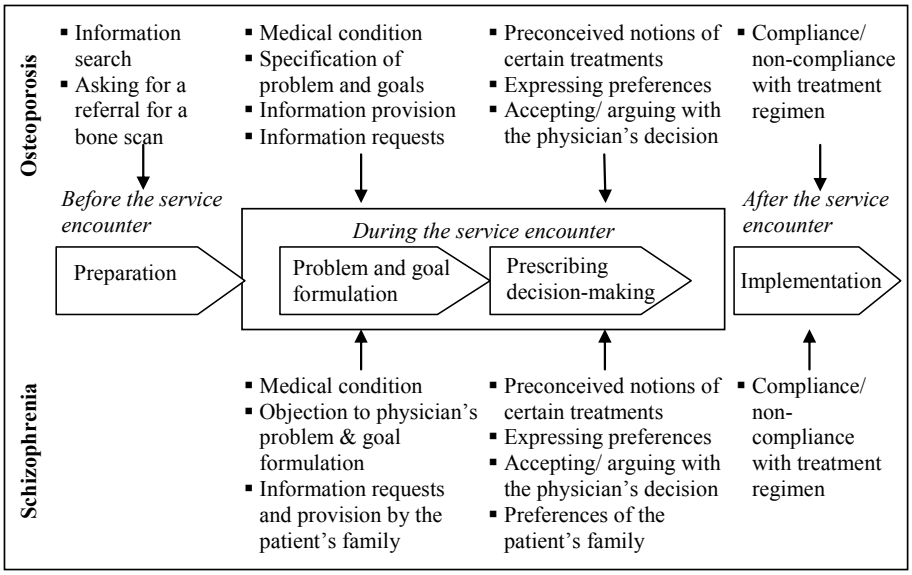

Figure 11 Empirical findings regarding the manifestations of patient participation in the medical service process concerning the treatment of two illnesses

For the overall purpose of the thesis, Article 5 contributes an empirical investigation into the influence of customer participation on problem solving within medical services. Many types of customer induced input to service production that have been suggested in the services marketing literature found support in physicians' descriptions of prescribing decision making. Consistent with the theoretical framework depicted in Figure 8, the study reported in Article 5 identified customer-self (medical condition), information concerning the problem, and preferences regarding its resolution, as customer induced inputs to problem solving. The study also reported customer actions that can be considered influential in problem solving but which were performed before or after the actual problem solving. The findings indicated that a patient's information search prior to consultation may influence their preferences regarding problem solving, and a patient's actions regarding the implementation of the solution, i.e. following the treatment regimen, may have a critical effect on the outcomes of the service. Supporting findings reported in Article 4, physicians' problem solving was found to be influenced by their estimations of the patient's ability and willingness to implement the solution. A customer's potential to implement the solution may thus be considered a part of their input to problem solving. Also the influence of role expectations as customer induced input received support in the study.

Consistent with the findings reported in Article 4, those in Article 5 indicate that patients may contribute to different stages of the problem solving process. Whilst customer-self and typically also information about the problem are supplied as necessary resources for the diagnosis phase, patients may differ in the degree to which they contribute to the later stages of evaluation and choice. The study of schizophrenia patients indicated that despite their apparent inability and even reluctance to participate, they nevertheless influenced the evaluation stage by expressing preferences regarding the range of potential medications.

5 CONCLUSIONS

5.1 Summary of main results

The overall purpose of this study was to increase understanding of professional service production by analysing problem solving within medical services. The point of departure was the notion that problem solving is the essential activity in professional service production and thus the focus of the study. The findings and conclusions of the study thus relate to problem solving as the core activity of professional service production, not the entire service production process. In the field of medical services, the prescribing decision was considered to exemplify the resolution of a customer's problem, and was chosen as the object of inquiry.

The research purpose was specified with three sub-objectives that highlighted questions which, based on extant research, should be answered in order to increase understanding of problem solving within professional services. The first sub-objective was to investigate whether professional services possess distinct characteristics as a purchase decision making context in comparison with organisational and consumer buying. This was achieved via a literature-based analysis that compared the distinct characteristics of purchase decision making in the contexts of professional services and organisational and consumer buying (Article 1). The comparison of three aspects of decision making – namely the actors involved, the purchase decision task, and the nature of the decision making process – suggested that professional services involve a number of characteristics distinct from organisational or consumer buying. An empirical study in the medical context, reported in Article 2, brought support for the proposition that the distributed nature of decision making within professional services makes it inadequate to consider prescribing as physicians' buying behaviour. It was found that physicians' assessment of a new pharmaceutical product is influenced not only by its properties in terms of clinical use, but also to a great extent by the physicians' view of patients' probable opinion of the product and tendency to participate in the prescribing decision making process. Furthermore, it was found that private practice physicians consider also the consequences of recommending a new product to the patient in terms of their service relationship with the patient. Also factors related to the medical profession, particularly colleagues' opinions and experiences, and prevailing norms in

medical practice, were found to be influential in physicians' decision making. In sum, the aspects that were found to distinguish between purchase decision making within professional services and consumer and organisational contexts were found to relate to the dyadic, distributed nature of decision making, the service relationship between the parties, and the professionalism of the service provider.

The second sub-objective for the thesis was to investigate the manifestations of the commonly accepted special features of professional services in problem solving for the customer. It was concluded that according to the professional services marketing literature, problem solving should be influenced by (1) professionals' specialist knowledge, (2) customer participation, (3) collegial control, (4) autonomy, and (5) altruism.

Empirical findings regarding the manifestations of the professional features in physicians' prescribing decision making were reported mainly in Articles 2 and 3. The two studies provided empirical support for the notion that problem solving relies on the specialist knowledge of the professional service provider. Furthermore, physicians' organisational resources were found to be influential in prescribing decision making. Manifestations of customer participation in problem solving were reported in all empirical studies included in this thesis (Articles 2–5). Some influence of collegial control on physicians' problem solving was evident in the empirical studies: The influence of codes of ethics was not reported, but professional and collegial norms regarding accepted clinical practice were found to influence physicians' problem solving.

Some degree of contradiction was found with respect to the presumed autonomy and altruism of professional service providers. Several factors were found to restrict physicians' autonomy; namely governmental and medical authorities, the employing organisation, commercial persuasion, and pressure from patients (Articles 2 and 3). Furthermore, whilst physicians were reported to make many attempts to advance their patients' interests, evidence running contradictory to the assumption of altruism was also found. Articles 2 and 3 provided empirical findings indicating that physicians' prescribing decisions are influenced by personal motives, which may relate to financial, professional, or social rewards, or better working conditions.

The third sub-objective of the thesis was to investigate the influence of customer participation in problem solving within professional services. The influence of patient participation in prescribing decision making became evident in all four empirical studies included in the thesis, but particularly Articles 4 and 5 focused on studying participation. The empirical studies indicated that patient participation influences prescribing decisions in many ways. A prescribing decision obviously depends on the patient's medical condition, and is influenced by patient provided information regarding their

symptoms and medical history. Patients were also reported to have preconceived notions and preferences regarding certain types of medications, which may influence prescribing decision making. The findings indicated that physicians take the likelihood of patient adherence to medication into account in their prescribing decision making.

It was also found that physicians consider patients to differ in terms of their ability and eagerness to participate. Physicians presume that the variance is due to reasons such as patients' education and socioeconomic status, experience of their illness, and the amount of publicity surrounding certain illnesses or medications. The findings (Articles 4 and 5) also indicate that patients may contribute to different phases of the prescribing decision making process.

Figure 12 summarises the empirical results of studies reported in Articles 2–5 regarding factors that influence physicians' prescribing decision making, i.e. problem solving within medical services. As depicted in Figure 12, the potential treatment options to consider are determined by the patient's illness, and information regarding the patient's condition, symptoms and medical history. The findings suggested that physicians' choice among potential drug options is influenced by a number of considerations: 1) aspects related to the pharmaceutical qualities of drug options, such as efficacy and side-effects; 2) the influence that treatment alternatives have on the clinic, for example the monitoring requirements related to a drug; 3) patient-related factors, such as their insurance status and preferences related to the type of drug they are willing to take; and 4) physician factors such as level of training and experience, as well as habits and preferences.

The extent to which the above listed factors are relevant in the individual prescribing decision was found to be influenced by the context in which the physician was working. For example, the role that cost factors played in physicians' decision making seemed to relate to the degree to which their organisation imposed budgetary pressures, and the degree to which physicians were concerned with fulfilling their patients' expectations was at least partly dependent on whether or not patient retention was important for their clinic. Furthermore, patients' preconceived treatment preferences were found to be related to the availability of information and amount of publicity given to certain classes of drugs or illnesses. Ultimately, the influencing factors depend on the governmental and medical authorities who determine the general health care system and the range of available drugs.

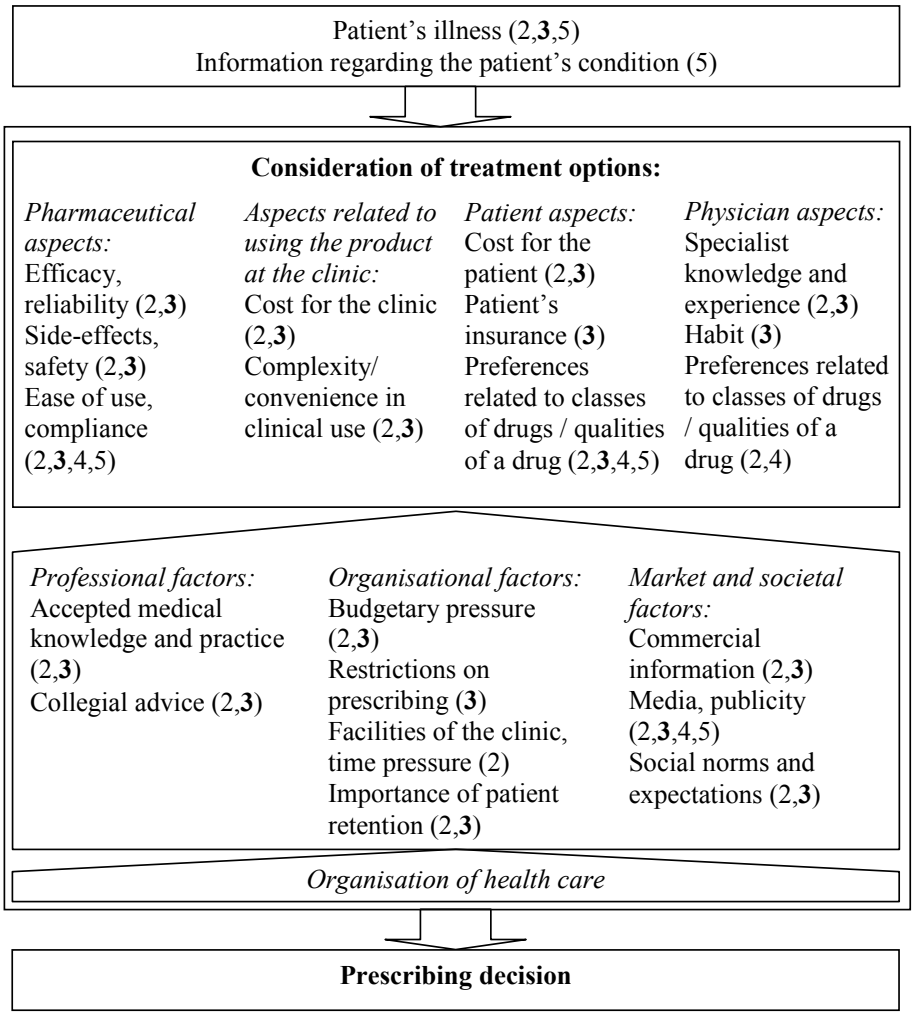

Figure 12 Factors that influence prescribing decisions (based on findings reported in Articles 2–5 as denoted)

Many of the factors included in Figure 12 were found to be influential, in several of the studies included in the thesis. However, conclusions regarding the truthfulness of a factor cannot be drawn on the basis of whether the factor appeared in many studies, since the independent studies had different focuses and methods. However, as the study reported in Article 3 summarised medical research on physicians' prescribing on a meta-analytic level, it can be considered to have produced a fairly good overview of factors that influence prescribing. Figure 12 indicates where the primary data gathered for this thesis have produced similar findings to the meta-analysis.

5.2 Theoretical implications

From a theoretical standpoint, the main contribution of this study was to increase understanding of professional service production as problem solving for the customer. The literature on professional services marketing is based on the notion that professional services can be distinguished from other services on account of their special nature (see e.g., Wilson 1972; Kotler & Bloom 1984; Clemes et al. 2000), but scarce and fragmentary references have been made to the implications that the special nature may have for service production (cf. Gummesson 1978; Schmenner 1986; Lapierre 1997; Cunningham et al. 2004). It was concluded that the essential value-adding activity of professional services that is common to both classic and modern professional services is problem solving for the customer (cf., Gummesson 1978, 93; Ritsema van Eck-van Peet et al. 1992, 25; Alvesson 2001, 865). Hence, in an attempt to redress the identified research gap, a framework of professional service production as problem solving was devised.

In the marketing literature, associations have been made between problem solving and purchase decision making (e.g., Webster 1979, 27; Engel et al. 1990, 27), and many authors have studied professional service provider-mediated decisions, particularly in the medical context, in terms of buying behaviour by service providers (e.g., Hollander & Rassuli 1999; White & Johnson 2001; White & Johnson 2002; Narayanan et al. 2005). It is nevertheless concluded in this study that professional services represent a unique setting for purchase decision making that cannot be considered equivalent to organisational or consumer buying. It was argued that even when the outcome of the service is a purchase decision, the process resulting in the decision is better understood as service production than buying behaviour. A buying behaviour approach was determined inadequate for explaining problem solving within professional services, as it fails to take into account the dyadic, distributed nature of decision making, the service relationship between the parties, and the professionalism of the service provider. This conclusion supports previous arguments put forward about the difficulty of applying the buying behaviour literature to explain physicians' prescribing decisions (Turnbull & Parsons 1993, 30).

In this study, the production of a professional service was conceptualised as a system where customer induced inputs are processed into solutions for customers' problems by the professional service provider, under profession-related control and guidance (see Figure 8). The theory-driven framework was enriched and refined with the results of four empirical studies, three of which were based on primary data, and one on secondary data from medical research. The empirical findings deepened understanding of mainly the input and

control elements of problem solving. Studying the psychological processes related to professional service providers' decision making was beyond the scope of this study; hence, the activity was described at a general level as a basic problem solving process.

As expected, the specialist knowledge of the professional service provider was found to be the central provider induced input to problem solving. This finding is fairly self-evident, as most characterisations of professional services include reference to the specialist knowledge and skills of the provider (cf. e.g., Gummesson 1978; Hill & Neeley 1988; Thakor & Kumar 2000). In terms of different types of knowledge discussed by Løwendahl et al. (2001, 916–917), the influence of fact-based and experience-based knowledge was evident in physicians' prescribing decision making. In the literature, professional knowledge is considered to reside also at a collective level, for example in terms of generally applicable methods, manuals, and shared norms of the organisation (Nonaka et al. 2000, 5; Løwendahl et al. 2001, 917–918; Werr & Stjernberg 2003, 883). However, in this study, organisation induced input to problem solving was evident mainly in the form of constraints on physicians' problem solving autonomy, for example in terms of prescribing restrictions and budgets. The collective knowledge that physicians use as a resource in problem solving seems to reside in the medical profession, i.e. outside the service organisation. In addition to the knowledge-related input suggested in the professional services literature, the study findings indicated that also the role expectations of the professional may be considered an important input to service production.

The findings confirmed that customers may provide different types of input to problem solving. Whist customer participation is commonly acknowledged to be an inherent feature of services, heterogeneous definitions of participation are applied in the literature, and few authors have studied how customer participation actually manifests itself. In this study, the following definition was suggested: *customer participation is the input that customers contribute to service production*. Since the vast majority of the extant empirical research on customer participation has focused on studying its influence on customer satisfaction and perceived service quality (e.g., Cermak & File 1994; Kellogg et al. 1997; Ennew & Binks 1999), or on the customer attribution of service failure (e.g., Hubbert 1995; Bendapudi & Leone 2003; Yen et al. 2004), most study findings concern the customer's perceptions of participation. This study contributes to services marketing research by increasing our understanding of the influence that customer participation has on problem solving, from the perspective of the service provider.

Many types of customer induced input that influence problem solving were identified in this study. First, customers contribute *resources* such as

customer-self (patients' body and symptoms) and information about the problem and preferences for its resolution, which provide the basic "raw material" for problem solving. Second, customer input may include *actions or labour,* for example in terms of patients' efforts in preparing for the consultation, and willingness to implement the treatment regimen. Predictions of the customer's manner of behaviour (in terms of friendliness or courtesy) as customer induced input were not confirmed, although such a form of participation has been suggested in the participation literature (e.g., Kelley et al. 1992; Ennew & Binks 1999). Instead, patients were found to differ in terms of their *role expectations*, which are manifested for example in the degree to which they wish to ask questions and negotiate decisions. Such role preferences can be considered to have at least an indirect influence on problem solving.

The study findings indicate that problem solving within professional services does not necessarily involve such a wide information asymmetry as assumed in the literature, or the information asymmetry is not perceived by customers' as sufficiently grave to hinder them from expressing their view even on the professional matters. It was found that patients may have preconceived notions about medications they should or should not take, which are based on information sources such as the print media, the Internet, and word-of-mouth. These observations support the notion that the traditional assumptions regarding information and power asymmetry at professional service encounters may have to be reconsidered (cf. Hogg et al. 2003; Laing et al. 2005).

The findings also provided some insight into customer contributions to the different phases of the problem solving process. The study suggests that customers may provide input only to the diagnosis stage, or additionally to the evaluation and even the choice stage of problem solving. Also the importance of customer participation in implementing the service was revealed. With regard to medical services, the success of the ultimate service outcome is dependent on the actions of the patient in following the prescribed treatment regimen. In fact, physicians were reported to prefer drugs that are less dependent on patient compliance. It has been acknowledged in previous research that customer participation generates uncertainty in the service process (e.g., Mills et al. 1983a, 123; Larsson & Bowen 1989, 217). The results of this study support this notion by indicating that customer induced uncertainty influences the core activity of professional services, i.e. problem solving for the customer.

In previous research, motivation and ability have been considered to influence the quality and quantity of customer contributions to service production (cf. e.g., Bowen 1986, 378–381; Mills & Morris 1986, 727).

Contrary to expectations, patients' ability and motivation to participate did not vitally determine their influence on prescribing decisions. The findings indicated that even patients with impaired ability and motivation to participate provide input for problem solving, not only in terms of their illness (customer-self), but also in terms of information about their preferences and preconceived notions. Physicians' efforts in encouraging patients to provide such input was attributable to the physicians' willingness to ensure patient adherence to the treatment.

Whilst customer participation is in general considered to have a positive impact on service outcomes (cf. e.g., Cermak & File 1994; Dellande et al. 2004), the findings of this study indicated that an increased amount of customer input does not necessarily contribute to better service outcomes. It was found that in the medical context, patients may overrule professionals' decisions on the basis of potentially mistaken ideas derived from advertising or word-of-mouth. The positive associations made in the services marketing literature between participation and service outcomes may be due to the fact that most such studies have adopted the customer perspective, and focus on functional rather than technical quality of the outcomes. It appears to be essential that professional service providers possess skills related to interacting and negotiating with their customers, so that the required customer contributions are utilised, and customer expectations are met, without having to compromise on the quality of the problem solving from a professional perspective. It has been suggested that in modern society, the relationship between professionals and their customers is evidently changing as consumers take more responsibility for their own welfare (cf. Mills & Moshavi 1999, 55–56). Hence, it seems likely that professional service providers increasingly need to negotiate their decisions with the customers, emphasising the importance of role expectations and adaptability relative to professional knowledge as important provider-induced input.

Predictions concerning the influence of profession-originated control factors, i.e. collegial control, altruism, and autonomy, were partly supported. A central characteristic associated in the literature with professional services is subordination to the constraints of professional traditions and norms of conduct (Wilson 1972, 4; Mills & Moshavi 1999, 54; Løwendahl 2000, 20). However, the findings here provided no evidence of the influence of formal professional control such as ethical codes. Instead, the influence of the advice and opinions of colleagues in a professional network, as well as perceptions of commonly accepted treatment practices, were clearly evident in physicians' problem solving. The fact that physicians did not mention more formal types of professional control, such as ethical codes, as factors that influence their prescribing decisions, does not mean that such control factors are irrelevant.

They may be too general and well internalised by physicians to be mentioned explicitly. It may nevertheless be the case that, in practice, informal contacts within the professional network are more influential than formal guidelines when it comes to problem solving.

Some degree of contradiction was found with respect to the assumed altruism and autonomy of professionals in problem solving. It seems evident that physicians are subject to the conflicting interests of their patients, the employing organisation, pharmaceutical companies and governmental authorities. Furthermore, physicians were found when solving their customers' problems to consider also their own interests in terms of working conditions and financial and social rewards. It may be that the professional services research has overemphasised the ideals of altruism and autonomy as core characteristics. The recognition of social obligations, or a commitment to serve the public, was one of the most fundamental characteristics of traditional professions, prompting those such as law and medicine even to obligate their members to provide *pro bono* services, i.e. free services to the needy (Shafer, Park & Liao 2002, 48). However, the goals and business logic of modern professional industries such as advertising and consulting are considerably different from their early predecessors. Many professional service sectors have developed into highly competitive commercial arenas where market forces and the business goals of the professional organisation have become increasingly important, leaving less space for the traditional professional values. The findings of this study suggest that even in medicine, a traditional professional service offered to consumers, professional autonomy and altruism are challenged by external influences and the values of economic exchange. Whilst problem solving for the benefit of the customer is still considered the core service offered by professionals, the expectation that professional service firms might prioritize the best solution for the customer over what is profitable for the firm seems somewhat unrealistic in the light of the results of this study.

Studying the manifestations of specialist knowledge, autonomy and altruism on the part of the professional, as well as collegial control and customer participation in problem solving, can be considered a step towards validating the often repeated professional service characteristics. As discussed earlier, such characterizations are mainly intuitive and only a few attempts have been made to study their relevance empirically (cf. Clemes et al. 2000; Thakor & Kumar 2000). This study contributed in terms of testing whether such characteristics are manifested in problem solving, a principal activity in professional service production.

Besides the factors proposed in the services marketing literature, a number of others were found to influence problem solving in the medical context. The results of the study indicated that aside from collegial control, also the

professional organisation may impose control and guidance with regard to problem solving. Furthermore, market factors and the institutional environment were found to influence the factors physicians considered relevant in problem solving, and such factors appeared to influence patient participation as well. Whilst service researchers have traditionally concentrated on factors related to the customer and the professional, it is concluded in this study that factors embedded in the broader context of professional service firms are highly relevant for problem solving that occurs during service production. As pointed out by Svensson (2006, 249), research has seldom considered any third-party view involved in service encounters. This study adds to the knowledge of professional service production by highlighting the influence of organisational, market, and institutional level factors on the problem solving that occurs at professional service encounters.

This study developed existing knowledge of service production in a number of ways. Most extant frameworks of service production and delivery describe general elements common to all services, and do not consider the special characteristics of professional services (e.g., Sasser et al. 1978; Eiglier & Langeard 1988; Fisk & Grove 1995). This thesis study serves as a step towards understanding the production of professional services in particular. The theoretical framework for the study denotes the central elements of professional service production as problem solving, enriched with empirical findings from one professional service field.

It seems that the role of the organisationally determined service setting and its physical resources and procedures, which are emphasised in the general frameworks, is less relevant in the production of a professional service, which involves a considerable amount of individual judgment and discretion on the part of the provider. Instead, it seems that factors outside the service organisation, namely profession and context related factors, are more influential in problem solving. Compared to previous models, the new framework explicates also the types and influence of the input provided by individual providers and customers, and the output of the service.

Professional service encounters have mainly been studied from the perspective of customer experience rather than production. Johnston (1994, 57–59) points out that services marketing academics have sometimes ignored the constraints imposed, and opportunities afforded, by operations issues in the delivery of service promises, and urges the scholars to include operations management perspectives in services research (see also Johnston 1999, 113–114). By adopting a systems approach this thesis contributes towards that aim.

5.3 Practical and policy implications

The main practical contribution of this study is to provide an holistic view of factors that influence prescribing decisions. Such information could be utilized by the various stakeholders operating in the medical and pharmaceutical fields. Suggestions and recommendations are made to pharmaceutical companies and managers of health care organizations. In addition, some important messages are sent to policy makers.

Consequent to the distributed nature of decision making concerning pharmaceuticals, companies in the pharmaceuticals business face an important dilemma in defining who their customer really is. When creating their business models, pharmaceutical product marketers and developers should consider the various stakeholders influencing the eventual prescribing decision. It is not only physicians, but also patients, health care organisations, and regulatory bodies that decide on the acquisition of pharmaceutical products.

The influence of patients' ideas and preferences on prescribing decisions became evident in this study. Even in the case of new products, physicians evaluate the drug both in terms of its medical properties and the probability of patient acceptance and demand. Hence, marketers of pharmaceuticals should communicate the key benefits of their products from the perspective of both parties, keeping in mind that there may also be discrepancies in patients' and physicians' perceptions of certain pharmaceuticals and their qualities.

Another point made is that it is not only active, informed patients who influence prescribing decisions. In order to increase adherence to treatments, physicians try to discover the unvoiced notions that patients may have concerning the acceptability of certain medications, or their properties such as dosage frequency or side effects. Hence, input from even the more passive patients may have a considerable effect on prescribing decisions. Pharmaceutical companies should therefore keep themselves informed of the unvoiced agenda of patients and bear in mind that patient participation is not limited to demanding the prescriptions, but continues after the medical consultation in terms of implementing the treatment regimen. Furthermore, marketers of pharmaceuticals should not underestimate the importance of gaining positive publicity and word-of-mouth impact among patients, even in countries where direct-to-consumer prescription drug marketing is not permitted.

Whilst the medical properties of a pharmaceutical product are obviously vital, this study highlighted also the importance of non-medical aspects in the prescribing decision. It may be that especially in high tech markets, sellers are somewhat myopic in not seeing past the technological advantages of their products. It should be noted that besides its medical properties, other benefits

and disadvantages of a drug may also be critical in prescribing decision making, such as the convenience of the product in terms of clinical practice (for example, monitoring requirements) and the cost and reimbursement status of the drug. In the light of this study, understanding the environment in which the product is prescribed is vitally important, as norms, practices, and institutional systems differ considerably in different markets. Contextual factors such as these influence not only the aspects that physicians consider relevant, but also their relative weights in the prescribing decision.

For managers of health care organisations, this study highlighted the variety of factors that influence problem solving by physicians. It was pointed out that some guidance and control of service production derives from a source external to the organisation. In the course of problem solving for the customer, the physician may be more influenced by the conventions and collegial networks of the medical profession or the institutional environment than by the employing organization. This should be taken into account when designing the norms and policies of the organization, in order to avoid unnecessary conflicts between the professionals and their organization.

The findings indicated that patients differ in terms of the input they contribute to problem solving, and in terms of the phases they influence. Such variance is at least partly due to patients' role expectations. Professionals could be encouraged to assess an individual customer's preferences for participation and interaction, and to adapt their approach accordingly. In addition to expertise in their professional area, service providers need competencies related to negotiating with their customer, and responding to customers' potentially unjustified expectations. These skills should be emphasised in physicians' training. The health care organisation should allocate sufficient time for consultation with each patient and provide educational material to help physicians justify their medical decisions to the patient.

The results of this study offer insights also for health care policy makers and third party payers who are concerned with ensuring rational and economic prescribing. They should take into account the fact that prescribing decisions are sometimes significantly influenced by patients, health care organisations and marketers of pharmaceutical products. In fact, physicians may operate amidst conflicting interests and expectations. A degree of controversy is evident, especially over the increasing patient influence on prescribing decisions. Whilst promoters of participation consider patients as "experts with a unique knowledge of their own health and their preferences for treatments" (Say & Thomson 2003, 542), researchers studying physicians' prescribing behaviour tend to regard patient participation as demand for potentially unnecessary prescriptions (cf. Schwartz et al. 1989; Paredes et al. 1996). On

the one hand, physicians are expected to demonstrate sensitivity to patients' preferences (Guadagnoli & Ward 1998, 329; Charles et al. 1999, 780; Department of Health 2001), but on the other, their prescribing decisions are expected to be rational and economic (Schwartz et al. 1989; Bradley 1991).

The increasing need to control prescribing costs and assure quality health care has led to the rise of evidence-based medicine, a practice which stresses the use of formal scientific evidence in diagnosis and treatment choices (cf. Jones & Higgs 2000, 308). However, it seems that in reality physicians have to reconcile such objective reasoning with patients' beliefs, experiences and values. As patients are in most cases in charge of administering the prescribed treatment, the benefits of evidence-based prescribing may not be achieved if a lack of consideration for patients' concerns and ideas leads to non-compliance.

Policy makers should take into consideration the fact that interventions to change prescribing behaviour are insufficient if targeted only at physicians. Interventions should incorporate strategies to convince patients, as well, of the merits of new treatment policies. Furthermore, informing physicians is pointless if professional norms, organisational resources and the cost and reward systems surrounding health care provision do not support the changes. It should be taken into account that what is beneficial for society in the long run may not be the best option for an individual patient or physician.

5.4 Limitations and implications for future research

Two important delimitations were applied to this study. First, the study was delimited to professional services offered to consumers. However, as discussed earlier, many authors define professional services without demarcating between the types of customer to whom the service is offered (cf. Appendix 3). In fact, the literature on professional services gives no reason to suspect that the special features of professional services would differ in terms of the type of customer. Even altruism, which intuitively might be associated with services offered to consumers, is referred to by Løwendahl (2001, 19), who discusses business-to-business services, as a "primary characteristic of a professional service". Hence, the conceptualisations made regarding the influence of professional characteristics on problem solving can be considered to apply to professional services in general.

Another delimitation was to adopt the perspective of the professional service provider. This was considered a natural choice as the research focused on studying the production of the service, rather than customers' experiences as service recipients. However, it is obvious that this focus limits the results to concern only the provider's perspective. Particularly when contemplating

customer induced inputs, one should keep in mind that the study results provide information only about the inputs that providers perceive and consider, not about customers' perceptions, experiences, or intentions concerning participation.

Payne and Williams (2005, 305) remark that the grounds for generalisation in qualitative research depend both on what is being studied and, crucially, on the similarities of the research site to the sites to which generalisation is intended. This study had no ambitions to make claims about the prevalence or incidence of certain variables in professional problem solving, but to discover underlying mechanisms of problem solving within professional services, in order to evaluate and deepen conceptualisations that have been made about it. In other words, generalisation is directed back to theory, rather than to some larger population (cf. Lukka & Kasanen 1995, 77). One could phrase it that the generalisations made here are hypothetical in character: rather than statements that are expected to hold across populations and time, they are working propositions that might be confirmed or refuted through further evidence (Payne & Williams 2005, 297, see also Gummesson 2000, 96).

Generalisation in this study hence relates to the transferability of the concept of prescribing decision making in medical services to other manifestations of the phenomenon, i.e. the degree to which the findings are expected to hold in relation to problem solving in other professional services fields (cf. Hirschman 1986, 245). As medical services can be considered a typical professional service, the results may be transferable and applicable to other professional services with similar characteristics. However, the claims made are limited to concern basic elements of problem solving, so that researchers studying other professional services can be expected to find some similar but not identical results (cf. Payne & Williams 2005, 306).

In terms of the generalisability to other professional fields, potential limitations resulting from the choice of the medical context must also be discussed. The pharmaceutical and medical industries are heavily regulated, which has emphasised the importance of the institutional environment in the findings. In each country, governmental authorities control the availability, reimbursement and cost allocation of pharmaceuticals and determine the nature of the entire health care system in which medical professionals practice. Had the study been conducted in some other professional field, the importance of such contextual factors might have been less obvious. However, many other professional fields are also subject to some form of regulatory environment. For example, an architect's design for a building must adhere to certain safety requirements, and a recruitment firm is bound by laws concerning the acquisition, use and storage of job applicants' personal data. Law firms serve as a good example of a professional service industry where service production

is highly regulated and context-dependent. Aspects such as the licensing or accreditation systems of many professional fields are heavily regulated.

Another potential limitation related to the choice of the medical context is the trend of patient empowerment and consumerisation evident in health services (cf. e.g. Ouschan, Sweeney & Johnson 2000; Laing & Hogg, 2002). Due to these developments, the role of the customer may be emphasised in medical services in comparison with other professional, consumer services. It seems plausible that consumers are more assertive in assuming responsibility for the choice of a prescription drug than, for example, for decisions concerning legal procedures in a juridical matter. However, as the study concerning schizophrenia patients indicated, customer induced input is essential in problem solving even when the customer does not assume an active role. Hence, while the upward trend in patient empowerment was likely to overemphasise the degree to which professional service providers need to persuade customers to accept their professional opinion, it should not distort the findings related to customer induced inputs in general. Furthermore, in the context of business-to-business services, the customers are likely to resemble empowered customers in terms of being knowledgeable and willing to take part actively in problem solving.

In terms of the aims of the thesis, the data collection and analysis methods can be considered to have produced useful data. When interviews in each study focused on certain medical conditions, it was possible to compare physicians' sometimes conflicting views and practices concerning prescribing decisions for the illness, and to seek underlying reasons for such differences. The fact that the empirical studies were conducted in several countries helped in recognising the influence of factors deriving from the institutional context of physicians. The secondary data reviewed in Article 3 enabled triangulation[25] in terms of factors that influence prescribing decisions, and validated and complemented the empirical findings of the qualitative studies that were bound to have a rather narrow focus and small sample. Due to the breadth and heterogeneity of the reviewed empirical studies, the results stemming from Article 3 as a whole gave a reasonably justified view of the factors that influence prescribing decisions. Hence, the results of this thesis study may be more readily generalisable at the level of medical services, and it was considered justifiable to produce practical implications within this industrial context.

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[25] It should be noted that the benefit of triangulation in this study is considered to lie in adding rigour, breath and depth to the investigation, and to illuminate elements of context to ensure an holistic understanding of the phenomenon; rather than to lie in examining the validity of measures (cf. Jick 1979, 603–604; Denzin & Lincoln 1998, 4).

It is nevertheless acknowledged that the choice of the medical conditions studied may involve a weakness in terms of the generalisability of the results to prescribing decision making. All three studies involving primary data focused on conditions that require long term medication. Problem solving in such cases occurs during prolonged physician-patient relationships rather than a single service encounter. Especially schizophrenia, studied in Article 5, involves lengthy and complex diagnostic and treatment processes. Where chronic illnesses are concerned, patients are more likely to have gained experience and knowledge of the condition, which may increase their willingness and ability to participate in prescribing decision making. It seems plausible that compared with a one-time course of antibiotics, patients are willing to contribute more in terms of decision making concerning long-term medication for chronic illnesses (cf. Department of Health 2001, 5). This shortcoming could have been avoided by studying a broader range of illnesses. However, limitations related to the choice of illnesses studied can be partly compensated with the review study reported in Article 3 that included empirical results related to a number of different illnesses. As a whole, the studies encompassed data on problem solving occurring in both short- and long-term service encounters.

In retrospect, the study could also have benefited from data gathered via observation of patient-physician encounters, particularly in terms of understanding patient participation. Patient empowerment and participation in medical decision making has become endorsed in the medical literature as the guiding principle of health care provision (e.g. Guadagnoli & Ward 1998, 329), and it is possible that when queried with respect to these features, physicians overstate their patient orientation because they feel it is expected of them. However, in comparison to interviewing, observing actual medical service encounters would not have garnered a picture of physicians' reasoning and explanations for their prescribing decisions, and many contextual factors may have been left unravelled. Observing medical consultations would also have been problematic in terms of patient confidentiality. The lack of observation data was also compensated by the review study, which reports the findings of studies based on multiple methods, including observation (see Béria, Damiani, des Santos & Lombardi 1998) and the confederate method (see Paredes et al. 1996). The main conclusions drawn with regard to patient participation – namely that patients contribute resources, labour, and role expectations to problem solving, and the amount and influence of such contributions varies – could have been specified, but hardly disproved by investigating patients' perceptions. Future research endeavours could pursue a dyadic view on professional service encounters to elaborate on customer participation in problem solving.

The proposed framework of professional service production as problem solving may inspire further research. Further empirical investigations in different fields are encouraged to determine the validity of the suggested elements. The empirical findings of this study addressed the nature of the input and control elements mainly at a general level, without explicating their meaning within the phases of the problem solving process, i.e. activity. The professional problem solving process could be an area to be elaborated on in subsequent studies. Another part of the framework that received less enrichment in this study was the output of problem solving. Attention directed at the solutions that are the end result of the professional service could generate new insights into the value that is pursued by customers.

The findings of the study gave reason to suspect that the traditional, somewhat idealised descriptions of professional services may not entirely fit the modern professional service industries. Since much of the research on professional services builds on the premise that professional services differ from other services by virtue of their special features, further empirical validation of such features is encouraged in order to strengthen the conceptual foundations of the research domain (cf. Conchar 1998, 253–254; Thakor & Kumar 2000, 65). Furthermore, in order to clarify the scope and applicability of empirical studies conducted on professional services, efforts should be made to determine whether professional services offered to consumers and organisations are conceptually different.

Future research is urged also in the area of customer participation. In their recent article, Sampson and Froehle (2006) argue that customer provided input to service production is what defines services, and distinguishes them from non-services. In other words, the presence of customer input is considered a necessary and sufficient condition to define a process as a service process (ibid. 2006, 331). Such a notion highlights the importance of understanding customer participation from the perspective of service production, and not only in terms of customer experiences. More research is hence needed to study the manifestations and the types of customer input in service production. Research aimed at establishing a more uniform view of customer participation would be invaluable.

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Appendix 1. Number and employment of physicians in Finland

Table 1.1. Physicians in Finland 1900–2003 (The Finnish Medical Association 2004, cited in Aaltonen and Saarinen 2004, p. 163).

Year	*Physicians*	*Specialists (%)*	*Inhabitants/ physician*
1900	373	–	7143
1910	523	–	5875
1920	657	–	4756
1930	1000	–	3463
1940	1394	–	2680
1950	2034	–	2018
1960	2915	41	1573
1970	4965	45	958
1980	9517	48	530
1990	14325	53	364
2000	18925	60	274
2003	20119	62	259

Table 1.2. Employment of physicians in Finland in 2004 (Lääketeollisuus ry)

Number of physicians	*20717*
…total of which in practice	15469
Hospitals	7285
Health centres	3443
Private practitioners	1574
Teaching and research	1043
Occupational health care	840
Others	1284

Appendix 2. The market for pharmaceuticals

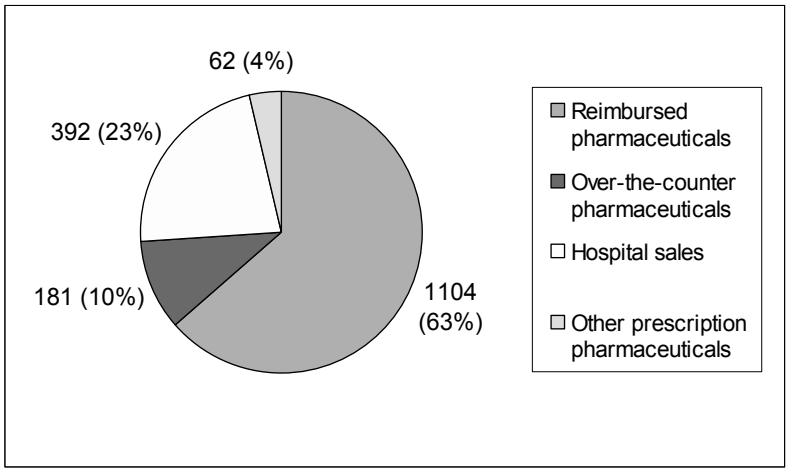

Figure 2.1. Pharmaceutical sales (in wholesale prices) in Finland in 2005, million euros (Lääketeollisuus ry 2006)

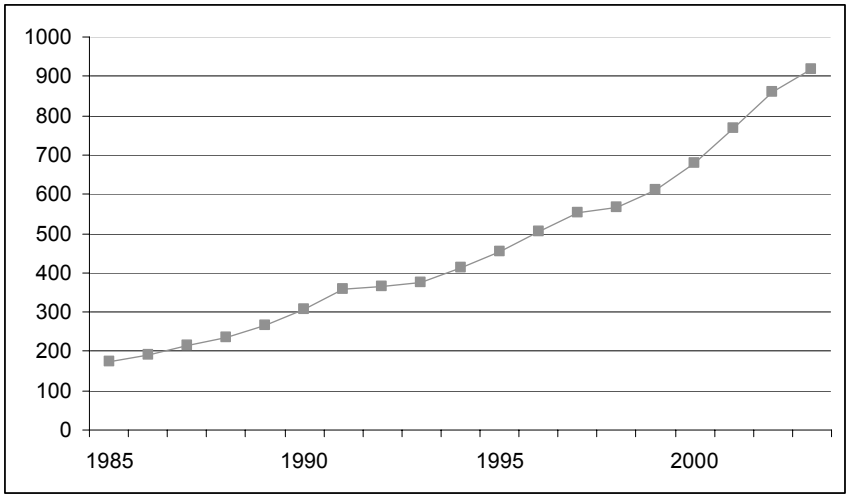

Figure 2.2. National health insurance refunds of medicine expenses in Finland 1982–2003 (million euros) (The Social Insurance Institution 2004, cited in Aaltonen and Saarinen 2004, p. 152).

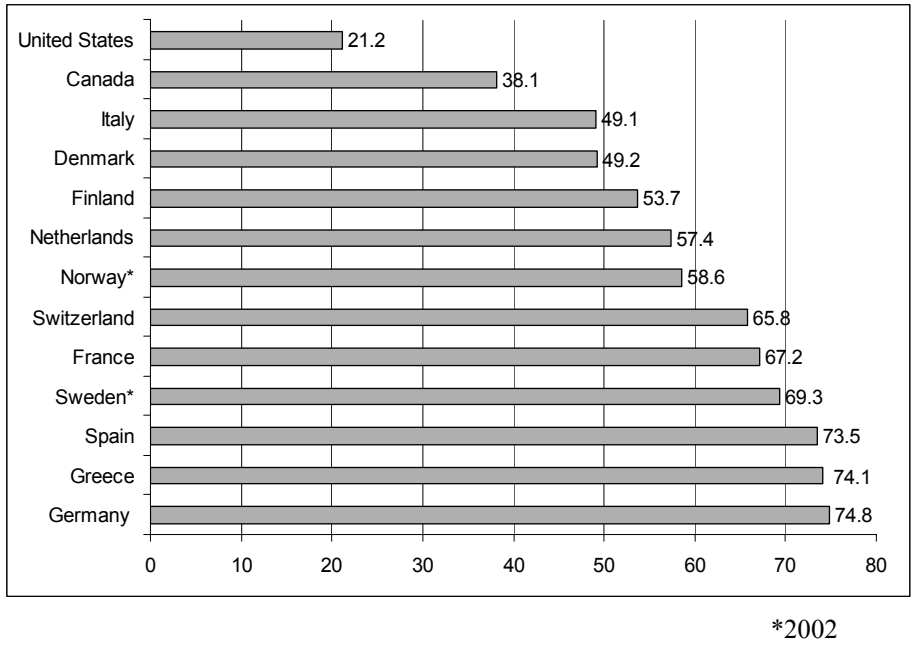

Figure 2.3. Share of public expenses of total expenditure on medicines in some OECD countries in 2003 (%) (OECD Health Data, as cited in Pharma Facts Finland 2006, p. 13)

Appendix 3. Characteristics associated with professional services in services marketing and management literature.

	Services offered to organisations					Services offered to consumers				No distinction or both					
	Wilson (1972)	Gummesson (1978)	Mitchell (1994)	Conchar (1998)	Løwendahl (2000)	Hill & Neeley (1988)	Sharma & Patterson (1999)	Thakor & Kumar (2000)	Hausman (2003)	Mills et al. (1983b)	Ritsema van Eck-van Peet et al. (1992)	Harte & Dale (1995)	Stewart et al. (1998)	Mills & Moshavi (1999)	Lehtinen & Niinimäki (2005)
Specialist knowledge and skills; qualifications; formal education	X	X		X	X	X	X	X	X	X	X		X		X
High level of interaction					X		X		X	X	X	X	X	X	
Collegial control; code of ethics or conduct	X		X		X	X		X		X	X			X	
Advisory nature, focus on problem solving, high degree of personal judgement	X	X			X						X	X	X		X
High level of customisation			X		X	X	X		X		X		X		
Professional identity	X	X		X		X					X	X			
Difficult for the customer to evaluate			X			X	X	X	X				X		X
High level of customer participation / co-production									X	X	X		X	X	X
Autonomy			X							X	X	X	X		
Complexity							X		X		X	X	X		
Intangibility					X		X			X		X	X		X

	Services offered to organisations				Services offered to consumers				No distinction or both						
	Wilson (1972)	Gummesson (1978)	Mitchell (1994)	Conchar (1998)	Løwendahl (2000)	Hill & Neeley (1988)	Sharma & Patterson (1999)	Thakor & Kumar (2000)	Hausman (2003)	Mills et al. (1983b)	Ritsema van Eck-van Peet et al. (1992)	Harte & Dale (1995)	Stewart et al. (1998)	Mills & Moshavi (1999)	Lehtinen & Niinimäki (2005)
Fiduciary responsibility to act in the best interest of the customer	X			X	X								X	X	
High risk for the customer			X			X							X		X
Customers are unclear about their needs	X					X		X					X		
Self-responsibility										X		X		X	
Criticality/importance of the problem			X					X	X						
Authority to make decisions on behalf of the customer										X				X	
Assignment or service agreement from buyer to seller		X		X											
Labour intensive											X		X		
Eschewing marketing				X		X									
Professional assignments serve as a primary source of revenue				X											
Independency from suppliers of other goods and services		X													

Appendix 4. Interview themes

In every study, the interview guide was used to provide the central themes to be discussed with the informant. The interviewees were allowed a great degree of latitude to talk about what was of interest to them, and the order of the themes varied in different interviews.

Article 2

In Article 2, the empirical study focused on investigating the product characteristics that physicians themselves evaluate when assessing the acceptability of a new pharmaceutical product. Physicians in two countries were presented with a new pharmaceutical product concept and were asked to evaluate it. The interviewees could assess the product in their own terms and from their own perspective. It should be noted that as the study was conducted in association with a practical research project commissioned by a pharmaceutical company, the actual medical profile of the product and its specific indication must remain anonymous.

Discussion themes for Article 2:

I A short briefing about the study. Reminding the interviewees that we are interested in the physician's subjective opinions.

II The interviewee's general opinion about treating the illness

- Description of the typical treatment process for the illness?
- Description of the type of patients who are/should be treated with this type of medication?
- What kind of problems are there concerning the treatment of this illness?
- Does the interviewee have experience of this type of drug delivery system?
  …If not, why?
  …If yes, how does the interviewee feel about them?

II Questions specific to the new product format

The interviewee is shown a sample of the product and a one-page description of the medical properties of the product.

- Interviewees' initial reaction to and opinion of the product?
- What are the main advantages of this product?
- What are the main disadvantages of this product?

- Would this type of drug delivery system be suitable for the class of medication and illness in question? Why/ why not?
- If the product were on the market, for what kinds of patient would the interviewee suggest it? Who are the potential users? In which cases would the product not be suitable? What percentage of the interviewee's patients would be suitable candidates?
- In the interviewee's opinion, how would patients feel about this product? Would patients prefer it? Why/ why not?
- Would the interviewee recommend the product to his/her patients? Why/ why not?

Article 4

The study reported in Article 4 aimed to investigate physicians' perceptions of prescribing decision making for hormone replacement therapy (HRT), particularly the patient's influence in the process.

Discussion themes for Article 4:

I The interviewee's experience and general view of treating menopausal and postmenopausal patients

- How many menopausal and postmenopausal patients does the interviewee see on a weekly basis?
- Who should be treated with HRT?
- What kind of patient groups can the interviewee identify?

II Overview of the interviewee's patient relationships

- What is the primary reason why menopausal and postmenopausal women come to see the physician?
- Could you describe the typical patient relationship? Are there a lot of long-term patient relationships?
- Do patients usually come with reference to some specific symptoms, or in order to monitor their health from a longer term perspective? To what extent does the interviewee discuss issues related to the future (e.g. osteoporosis) as opposed to just issues related to the patient's current problems?

II Prescribing decision making

- What determines the choice of medication, i.e. on what basis does the interviewee prescribe a certain drug to a certain patient?
- What are the critical factors affecting the choice of a drug?
- What is the patient's role in the decisions concerning the treatment?

…Are patients active participants? In what way?
…Do patients have opinions about HRT? What kind of opinions?
…Do patients inquire after a certain treatment?
…Do patients know much about the menopause and osteoporosis? Where have they found or from where have they received information?
…What kind of preferences do patients have?
…Is compliance with HRT problematic? Does the physician control for the patient's satisfaction with the treatment?

Article 5

The study reported in Article 5 investigated physicians' perceptions of the manifestations of patient participation in prescribing decision making. The prescribing decisions under discussion were related to the treatment of two conditions, osteoporosis and schizophrenia. The interview themes aimed to produce physicians' descriptions of the treatment process of the illness and the patient's roles in it.

Discussion themes for Article 5 (adapted according to the illness):

I Background information on the interviewee

- Gender, age?
- Specialty?
- Could you describe your professional background?

II Current treatment practices for osteoporosis

- If you think of the current osteoporosis/schizophrenia medications in general, how do you perceive the benefits and disadvantages of these treatments?
- In your own practice, do you have preferences for certain categories of medications? Which, why?
- What are the most prevalent problems in the pharmaceutical treatment of osteoporosis/schizophrenia?
- How is the treatment process usually initiated?
- Are osteoporosis treatments usually started after a fracture has already occurred, or is it common that patients are on medication due to lowered BMD (bone mineral density)? *(osteoporosis only)*
- Where is the average osteoporosis patient treated? When is a specialist consulted? *(osteoporosis only)*
- For how long do patients usually stay on medication? Is it common for a patient to remain on the same medication or do they often switch drugs? Why?

III The interviewee's prescribing decision making
What do you consider the most important choice criteria when you prescribe a medication for an osteoporosis/schizophrenia patient?
Spontaneous answers first, then discuss

- Pharmacological criteria?
  - E.g. side effects, efficacy, dosage aspects?
- Issues related to an individual patient?
  - What kinds of patient characteristics influence the prescribing decision?
  - Do patients influence the choice of the medication? How?
  - What kind of preferences do patients have concerning the choice of medication?
  - Does direct-to-consumer drug advertising influence patients' preferences? In what way?
  - Is the role of the patient becoming more important?

- Compliance?
  - Is compliance problematic in treating osteoporosis/schizophrenia?
  - What do you think are the main factors affecting compliance in treating osteoporosis/schizophrenia?
  - Are some drugs more easily accepted than others, do you consider this when you choose the drug to prescribe?

III Other factors that influence prescribing decisions?

Appendix 5. Primary data

Article 2

Interviews in Finland and the UK:

1. Gynaecologist, Male, Mehiläinen (private clinic), Helsinki, 19.6.2001
2. Gynaecologist, Female, Forumin lääkäriasema (private clinic), Helsinki, 19.6.2001
3. Gynaecologist, Male, Mehiläinen (private clinic), Helsinki, 19.6.2001
4. Gynaecologist, Female, Perhesuunnittelukeskus (family planning centre), Turku, 8.8.2001
5. Gynaecologist, Male, Koskiklinikka (private clinic), Tampere, 8.8.2001
6. Gynaecologist, Male, AVA-Klinikka (private clinic), Tampere, 8.8.2001
7. Gynaecologist, Female, Gyneko (private clinic), Oulu, 16.8.2001
8. Gynaecologist, Male, OYS (Oulu University Hospital), Oulu, 16.8.2001
9. Gynaecologist, Female, OYS (Oulu University Hospital), Oulu, 17.8.2001
10. Gynaecologist, Male, OYS (Oulu University Hospital), Oulu, 17.8.2001
11. Gynaecologist, Female, TYKS (Turku University Hospital), Turku, 21.8.2001
12. Gynaecologist, Male, Keskustornin gynekologit (private clinic), Espoo, 22.8.2001
13. Gynaecologist, Female, Bulevardin gynekologinen lääkärikeskus (private clinic), Helsinki, 22.8.2001
14. Gynaecologist, Female, Aleksin lääkäriasema (private clinic), Helsinki, 22.8.2001
15. Gynaecologist, Female, Bulevardin gynekologinen lääkärikeskus (private clinic), Helsinki, 23.8.2001
16. Gynaecologist, Male, Bulevardin gynekologinen lääkärikeskus (private clinic), Helsinki, 23.8.2001
17. Gynaecologist, Female, Perhesuunnittelukeskus (family planning centre), Turku, 23.8.2001
18. Gynaecologist, Male, Kaupunginsairaala (Turku City Hospital), Turku, 24.8.2001
19. Gynaecologist, Female, Bulevardin gynekologinen lääkärikeskus (private clinic), Helsinki, 29.8.2001
20. Gynaecologist, Female, Pulssi (private clinic), Turku, 4.9.2001
21. GP, Male, Southampton, 22.10.2001
22. GP, Female, Southampton, 22.10.2001
23. Consultant (gynaecologist), Male, Princess Anne Hospital, Southampton, 22.10.2001

24. GP, Female, West End Surgery, Southampton, 22.10.2001
25. GP, Female, Birmingham, 22.10.2001
26. GP, Female, Southampton, 23.10.2001
27. Consultant (gynaecologist), Male, Waterlooville Health Centre, Southampton, 23.10.2001
28. GP, Male, Birmingham, 23.10.2001
29. Consultant (gynaecologist), Female, Birmingham Heartlands Hospital, Birmingham, 23.10.2001
30. Consultant (gynaecologist), Male, Walsall Manor Hospital, Birmingham, 24.10.2001
31. GP, Female, Birmingham, 24.10.2001
32. GP, Male, Skyways Medical Centre, London, 25.10.2001
33. GP, Male, London, 25.10.2001
34. Consultant (gynaecologist), Female, West Middlesex Hospital, London, 25.10.2001
35. GP, Male, London, 25.10.2001
36. GP, Male, Lilyville Surgery, London, 26.10.2001
37. GP, Male, Scardale Clinic, London, 26.10.2001
38. Consultant (gynaecologist), Male, Chelsea and Westminster Hospital, London, 26.10.2001
39. GP, Male, Brunswick Medical Centre, London, 26.10.2001
40. Consultant (gynaecologist), Male, Ealing Hospital, London, 26.10.2001
41. Consultant (gynaecologist), Male, Edinburgh Royal Infirmary, Edinburgh, 29.10.2001
42. GP, Female, Southfield Practice, Edinburgh, 29.10.2001
43. GP, Female, Edinburgh, 29.10.2001
44. Consultant (gynaecologist), Female, Simpson Memorial Hospital, Edinburgh, 29.10.2001
45. GP, Male, Polwarth Surgery, Edinburgh, 30.10.2001

Article 4

Gynaecologist interviews:

1. Female, Gyneko (private clinic), Oulu, 8.6.2000
2. Male, Diakonissalaitos (private clinic), Oulu, 9.6.2000
3. Male, Private clinic, Paris, 28.6.2000
4. Female, Public medical centre, Paris, 29.6.2000
5. Male, Private clinic, Paris, 29.6.2000
6. Female, Private clinic, Paris, 29.6.2000

7. Female, Private clinic, Paris, 30.6.2000
8. Female, Private clinic, Paris, 30.6.2000
9. Female, Private clinic, Paris, 3.7.2000
10. Male, Hammersmith Hospital, London, 3.7.2000
11. Male, Royal Free Hospital, London, 4.7.2000
12. Male, St. George's Hospital, London, 4.7.2000
13. Female, St. Mary's Hospital Trust, London, 4.7.2000
14. Male, Hammersmith Hospital, London, 6.7.2000
15. Male, Ealing Hospital, London, 7.7.2000
16. Male, Whittington Hospital, London, 7.7.2000
17. Male, Clinica Ginecologica dell'Università di Chieti, Rome, 11.7.2000
18. Male, Private clinic, Rome, 17.7.2000
19. Male, Private clinic, Rome, 17.7.2000
20. Male, Clinica Fabia Mater, Rome, 19.7.2000
21. Female, Ospedale Sandro Pertini, Rome, 27.7.2000
22. Female, TYKS (Turku University Hospital), Turku, 2.8.2000
23. Female, TYKS (Turku University Hospital), Turku, 17.8.2000
24. Female, Perhesuunnittelukeskus (family planning centre), Turku, 21.8.2000
25. Female, Lääkärikeskus Aino (private clinic), Valkeakoski, 4.9.2000
26. Female, Tohtoritalo 41400 (private clinic), Turku, 25.9.2000

Interviews in Finland and the UK were conducted by the author. In Italy and France, native speaking interviewees were used. The French and Italian interviewees were acquired through local market research agencies that organized and conducted the interviews according to the author's instructions. Transcriptions of the French and Italian interviews were translated into English. The analysis of the transcripts was conducted by the author.

Article 5

Interviews regarding the treatment of schizophrenia:

1. Professor of Psychiatry, Male, Institute of Psychiatry, King's College London, London UK, 10.9.2002
2. Honorary Consultant Psychiatrist, Female, Charing Cross Hospital, London UK, 11.9.2002
3. Psychiatrist, Male, Broadmoor Hospital Crowthorne, Berkshire UK, 11.9.2002 (excluded from analysis)
4. Consultant Psychiatrist, Male, Priory Hospital North London, London UK, 12.9.2002

5. Honorary Consultant Psychiatrist, Male, Institute of Psychiatry, King's College London, London UK, 13.9.2002
6. Psychiatrist, Male, Mount Sinai Hospital, New York USA, 4.11.2002
7. Psychiatrist, Female, Mount Sinai Hospital, New York USA, 5.11.2002
8. Psychiatrist, Male, McLean Hospital, Boston USA, 6.11.2002
9. Psychiatrist, Male, Massachusetts General Hospital, Boston USA, 6.11.2002
10. Psychiatrist, Male, McLean Hospital, Boston USA, 8.11.2002

Interviews regarding the treatment of osteoporosis:

1. Consultant Rheumatologist, Female, University College London – Centre for Rheumatology, London UK, 9.9.2002
2. Consultant in Obstetrics & Gynaecology, Male, Lister Hospital, London UK, 11.9.2002
3. Consultant Physician/Endocrinologist, Male, Royal Free Hospital, London UK, 12.9.2002
4. Director of Osteoporosis Unit, Male, Guy's Hospital, London UK, 13.9.2002
5. Honorary Consultant Rheumatologist, Male, The Royal National Orthopaedic Hospital, London UK, 13.9.2002
6. Gynaecologist, Female, Stanford University Medical Center, Stanford USA, 30.10.2002
7. Endocrinologist, Male, Osteoporosis Clinic, UCSF Medical Center, San Francisco USA, 30.10.2002
8. Endocrinologist, Female, Columbia-Presbyterian Medical Center, New York USA, 5.11.2002
9. Endocrinologist, Female, Mount Sinai School of Medicine, New York USA, 5.11.2002
10. Geriatrist, Male, Beth Israel Deaconess Medical Center, Boston USA, 7.11.2002

Appendix 6. Details of the individual articles

Article 1.	***Purchase decision making in professional services: Organisational or consumer buying behaviour?***
Publication	Marketing Theory
Author	Elina Jaakkola
Purpose	To analyse purchase decision making in the context of professional consumer services.
Methods and research conducted	Conceptual paper: A literature-based analysis of the distinct characteristics of purchase decision making within professional services, in comparison to organisational and consumer buying.
Main contribution	Concludes that professional services represent a unique context for purchase decision making that cannot be considered equivalent to the organisational or consumer buying. Identifies the distinct features of purchase decision making within professional services. Proposes a theoretical framework of purchase decision making within professional services.
Article 2.	***Critical innovation characteristics influencing the acceptability of a new pharmaceutical product format***
Publication	Journal of Marketing Management
Authors	Elina Jaakkola and Maija Renko*
Purpose	To investigate the product related characteristics that physicians themselves evaluate when assessing the acceptability of a new pharmaceutical product format.
Methods and research conducted	An empirical study: 45 face-to-face, one-to-one interviews with physicians (specialists and GPs) in the UK (25) and Finland (20) were conducted in 2001. Interviews focused on the factors affecting the acceptability of a new pharmaceutical product.
Main contribution	Discusses the distributed nature of prescription drug decision making. Identifies factors that influence physicians' acceptance of a new pharmaceutical product. Concludes that a physicians' consider not only the medical properties of a pharmaceutical product, but they also estimate patient preferences. Physicians' evaluations were found to be influenced also by factors deriving from their organisational, regulative and societal context.
Contribution of individual authors	Research idea and study construction by E. Jaakkola. Literature review and interviews conducted jointly. Data analysis and results by E. Jaakkola. Conclusions and implications made jointly.
Article 3.	***Problem solving within professional services: evidence from the medical field***
Publication	International Journal of Service Industry Management
Authors	Elina Jaakkola and Aino Halinen*
Purpose	To test the validity of the presumed characteristics of professional services by studying their manifestation in the problem solving that occurs in service production.

Methods and research conducted	A systematic review of empirical studies concerning physicians' prescribing decision was conducted. Medical research was used as secondary data to study the existence of associations between the presumed characteristics of professional services and problem solving in the medical context.
Main contribution	First, brings empirical support for the often repeated professional service characteristics. The influence of specialist knowledge of the professional, customer participation, and the collegial community was evident in prescribing decision making, but some degree of contradiction was found with respect to the presumed professional autonomy and altruism. Second, outlines the factors that potentially influence problem solving within professional services. Professional service providers' decision making was found to be influenced not only by factors related to the customer's problem, the service encounter and the profession, but also by factors embedded in their respective organisational, market and institutional environments.
Contribution of individual authors	Research idea and literature review by E. Jaakkola. Review and analysis of empirical studies by E. Jaakkola. Composition into journal article, refinement of theoretical considerations and conclusions made jointly.
Article 4.	***Changes in professional service management: Do physicians meet the needs of the modern patient?***
Publication	Proceedings of the EMAC Conference 2001
Authors	Elina Jaakkola and Malin Brännback*
Purpose	To discuss the effect that increasing consumer empowerment has on the interaction between the physician and patient in the medical service encounter.
Methods and research conducted	An empirical study: 26 qualitative interviews with gynaecologists in four European countries were conducted in 2000. The aim was to investigate physicians' perceptions of prescribing decision making for hormone replacement therapy, particularly patients' influence in the process.
Main contribution	Suggests that patients may differ in their ability and willingness to participate in prescribing decision making, and many patients have strong preconceived notions and preferences towards HRT. Concludes that physicians differ in terms of the decision making model they prefer and practice and postulates that the outcome of the professional service encounter is affected by how well the physicians' and patients' perceptions regarding decision making roles and specific treatments match.
Contribution of individual authors	Research idea, literature review and study construction by E. Jaakkola. Access to interviewees by M. Brännback. Data analysis and conclusions by E. Jaakkola.

Article 5.	***Customer participation in medical services: Service providers' perceptions***
Publication	A revised version of papers published in the Proceedings of AMA SERVSIG Conference 2003 and the Proceedings of the EMAC Conference 2005[26]. Both of the original papers were authored by E. Jaakkola alone.
Author	Elina Jaakkola
Purpose	To investigate providers' perceptions of the manifestations of customer participation in the professional service process
Methods and research conducted	An empirical study: 20 face-to-face interviews with physicians in the UK (10) and the USA (10) were conducted in 2002. The study investigated physicians' perceptions of the manifestations of patients' contributions to service production, and the influence of such manifestations on prescribing decision making concerning two different indications (osteoporosis and schizophrenia).
Main contribution	Describes the manifestations of patient participation in various stages of the medical problem solving process as perceived by physicians. Identifies different types of customer inputs to the service production.

*Co-authors have with their signatures confirmed the described division of work.

[26] The title of the paper published in the EMAC 2005 Proceedings was "Clients as co-producers in medical services: impact on professional decision-making". An industry-oriented version of the paper is forthcoming in 2007 in *Health Services Management Research* with the title "Physicians' views on the influence of patient participation on treatment decisions – an explorative study".

ARTICLE 1

Elina Jaakkola (2007) Purchase decision making in professional services: Organisational or consumer buying behaviour? *Marketing Theory*, Vol. 7, No. 1, (a proof copy, article forthcoming).

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articles

Purchase decision-making within professional consumer services

Organizational or consumer buying behaviour?

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Abstract. *This article analyses purchase decision-making for products and services that are acquired and used by consumers, but chosen by professional service providers. This is done by comparing the distinct characteristics of purchase decision-making in the contexts of professional consumer services and organizational and consumer buying. Three aspects are elaborated on: the actors involved, the purchase-decision task, and the nature of the decision-making process. It is concluded that professional consumer services represents a unique setting for purchase decision-making and cannot be considered equivalent to the organizational or consumer setting. The article proposes a theoretical framework incorporating the typical characteristics of professional services as a decision-making context, specified in a set of propositions regarding the relative influence of the parties on the purchase decision. Practical and research implications are also presented.* ***Key Words*** ● *buying behaviour* ● *professional services* ● *purchase decision-making*

Introduction

Professional service providers possess expertise developed through formal higher education and exercise expert judgement to tackle their client's often complex problems (Hill and Neeley, 1988; Ritsema van Eck-van Peet et al., 1992). Given the nature of their work, professional service providers typically influence or even dominate their clients' decisions to choose and acquire certain products or services (White and Johnson, 1998). Accountants, lawyers, architects, medical doctors and financial advisors all make recommendations and decisions about the use of their clients' money. The professional service provider makes or facilitates the purchase decision, but it is the client who pays for the product and consumes it. Therefore, it is conceptually harder to define the customer is such transactions (Gönül et al., 2001).

Consumer and organizational decision-making concerning the selection and use of products and services is one of the key issues in marketing research. Despite professional service providers' influence on the purchase decisions for many products and services, this aspect of their work has been given very little consideration in literature. Research on buying behaviour in the context of services has mainly focused on the use or selection of service providers (Ettenson and Turner, 1997; Farrell and Schroder, 1999; Gallouj, 1996; Hill and Neeley, 1988). An exception is made by authors who have contributed to the 'surrogacy' literature (e.g. Aggarwal and Cha, 1997; Hollander, 1971; Hollander and Rassuli, 1999; Solomon, 1986). 'Surrogate shoppers' are defined as commercial enterprises who are consciously engaged and paid by the consumer or other party to make or facilitate selection decisions on behalf of the consumer (Hollander and Rassuli, 1999). Such surrogates are typically service providers, for example personal shoppers, financial advisors, or wedding planners. Although Hollander and Rassuli (1999), as well as Aggarwal and Cha (1997) postulate that surrogate buyers are experts in a particular product category and act as professional advisors to their clients, Solomon (1986) and Forsythe et al. (1990) discuss surrogate usage in situations in which consumers would be equipped to make the purchase decision, but lack the time or the motivation. While similarities between professional service providers and surrogate shoppers are considerable, surrogate shoppers are not necessarily professional service providers, and the characteristics of professional services are not considered in surrogacy frameworks. Furthermore, the surrogacy research seems to be more concerned with the antecedents and process of consumer surrogate usage, than the actual purchase decision-making within the provider-customer dyad (see for example Forsythe et al., 1990; Hollander, 1971; Solomon, 1986; Stern et al., 1992; Stinerock et al., 1991).

A few empirical studies take into account the purchase-mediator role of service providers. Studies by White and Johnson (2002; 2001) investigated the antecedents of, and consensus regarding clients' influence on professional decisions in two contexts, architecture and medicine. Gönül et al. (2001), Mellor and Green (2002) and Turnbull and Parsons (1993) studied physicians' prescribing decision-making. They all point out the distributed nature of prescribing decision-making, and emphasize the importance of taking the intermediary role of the professional into account. Furthermore, studies by Forsythe et al. (1990); Stern et al. (1992) and Stinerock et al. (1991) investigated the antecedents of consumer usage of personal shoppers and financial planners.

Besides these contributions, our knowledge of the buying behaviour that is facilitated by services providers is severely limited. The findings of the above mentioned empirical studies give a reason to believe that the purchase decision-making within professional services has some distinct characteristics, but they have not been comprehensively analysed. This article attempts to give an informed answer to the question posed in the title of the article: is the purchase decision-making that takes place within professional services comparable to organizational or consumer buying? If not, how does it distinguish itself?

The purpose of this article is to analyse purchase decision-making in the context

of professional consumer services. The distinct characteristics of purchase decision-making in this setting, and in the context of organizational and consumer buying are compared, and a theoretical framework for purchase decision-making within professional services is proposed. The term purchase decision is used with reference to decisions concerning the choice and acquisition of products and services in both consumer and organizational contexts.

Theoretically, purchase decision-making in organizational and consumer contexts has been treated separately, although many authors have pointed out that the differences between the two are more relative than absolute (Coviello and Brodie, 2001; Fern and Brown, 1984; Wilson, 2000; Wilson and Woodside, 2001). Nevertheless, research on organizational and consumer buying behaviour has developed around somewhat different theoretical assumptions on the nature of decision-making processes, especially in terms of their rationality, individuality, and idiosyncrasy (Wilson, 2000). This article elaborates on three aspects of purchase decision-making: the actors involved (who make the decisions), the purchase-decision task (what kind of decisions are made), and the nature of the decision-making process (how the decisions are made).

The remainder of the article is organized as follows. The characteristics of purchase decision-making in organizational, consumer, and professional-service contexts are compared in the following sections. The discussion concludes with a proposed theoretical framework for purchase decision-making within professional consumer services, incorporating the typical characteristics identified in the comparison, and specified in a set of propositions. Finally, implications for researchers and practitioners are presented.

The actors involved in purchase decision-making

A fundamental distinction between purchase decisions in organizational, consumer, and professional-service contexts can be made by simply asking *whose interests, objectives, and needs the purchase serves*. Generally, organizations and consumers act in their own interests, whereas professional service providers are commissioned to decide for others. Industrial buyers purchase products mainly to meet organizational objectives, i.e. reselling to make a profit, whereas consumers buy for personal consumption or to meet the collective needs of the household unit (Walters and Bergiel, 1989). On the contrary, consumers hire professional service providers to serve their own and not the provider's or the professional organization's interests: there is a belief in the notion that the service provider can be counted upon to advance the client's best interests, rather than self-seeking interests such as profits or status (Løwendahl, 2000: 18; Mills et al., 1983).

The seller of the product or service and the buyer are in a direct relationship in settings involving organizational and consumer purchasing, whereas in the professional-service context the provider acts as an intermediary between the parties. However, the professional's interests might not always match those of their customers (Gönül et al., 2001). According to Mills (1990), the provider may

be tempted to oversupply the service and undersupply effort when the client is unable to determine which actions are appropriate, and when the quantity and quality of the service effort are difficult to verify, which is often the case in professional services. If the professional's interests conflict with those of the customer, he or she might engage in opportunistic behaviour (Sharma, 1997). It should be pointed out that also organizational decisions may be influenced by both the decision maker's own and the organizational objectives (Smith and Taylor, 1985). However, individuals involved in organizational buying decisions are members of the organization and are likely to benefit from decisions made in its best interests, whereas a professional service provider and his/her client are two separate parties.

In consumer and organizational buying, the *costs* of purchases are borne within one financial entity. Consumers pay for their purchases out of their own limited financial resources, and in collective units such as households or organizations, the actions of individual members of the group affect others as they generally share a common budget and bargain and negotiate over the use of it (Hansen, 1972). Within professional services, the actors involved in decision-making are financially separate.

The *number of actors involved* in purchase decision-making is typically assumed to distinguish organizational and consumer-buying contexts (Wilson, 2000). Most models of consumer buying behaviour focus on one individual, although the literature also covers situations such as household buying behaviour and gift giving, in which the decision-maker is not the end-user of the product, or when two or more people are involved in the decision (e.g. Arndt, 1986; Horton, 1984; Parsons, 2002). In the context of organizational buying, purchase decisions are typically regarded as multiperson and multiobjective processes involving complex decision-making units or buying centres (e.g. Johnston and Lewin, 1996). As far as services are concerned, the inseparability of production and consumption makes customers an integral part of the service production and delivery process (e.g. Rodie and Kleine, 2000). Customer participation is considered prominent particularly in professional services which principally involve extended and intimate exchange between the provider and the client (Hausman, 2003). According to Larsson and Bowen (1989), the need for the customer to provide information to facilitate adequate problem solving throughout the service production leads to a high disposition to client influence. Hence, purchase decision-making within professional services is at least to some degree a joint process.

Collective decision-making units such as organizations and households typically accord members of the group differential authority and responsibility for making specific types of decisions (Horton, 1984). The outcome of a group decision is, in general, determined by the group members' individual preferences and their relative influence over other members (Corfman and Lehmann, 1987). The *power and relative influence* of a group member may be derived from various sources. A source of power that seems to be relevant in consumer, organizational, and professional contexts alike is a member's experience, expertise, and knowledge concerning the matter to be decided (Farrell and Schroder, 1999; Horton, 1984; White and Johnson, 1998).

An additional source of power and influence that is common to all three contexts is the member's recognized position or status in the unit (Horton, 1984; Mills and Moshavi, 1999; Walters and Bergiel, 1989). This legitimate power is based on the more formal authority assumed by professional service providers and members of organizations than is found in the family context. Traditionally, our culture perpetuates notions that certain professionals, due to the status accorded to the profession, are in a superior power position relative to the client (Hausman, 2003). Mills and Moshavi (1999) refer to the gap of formality between the provider and the customer as social distance, which they suggest is an important structural mechanism through which the provider's authority can be exercised. Some professionals are granted power to make decisions not only by consumers, but also by societal mandate, which is the case with physicians, for example: consumers cannot make the decision to choose and buy prescription drugs by themselves, but they need a prescription produced by a medical doctor (Hollander and Rassuli, 1999).

The organizational and consumer contexts share some additional similarities that are not apparent in the professional service context. The influence of members of organizational and consumer decision-making groups may also derive from referent or reinforcement power or control over income or other resources (Corfman and Lehmann, 1987; Farrell and Schroder, 1999). It seems plausible that referent power, i.e. making inspirational or personal appeals to the target's values or aspirations, or feelings of loyalty or friendship, is more likely to emerge in organizations and families in which the members have long-term relationships with each other than in professional service encounters. Similarly, the power to reinforce rewards or punishments, and control over income or other resources may be used by members of families and organizations, but they seem less likely sources of power in a service relationship, in which the parties are more independent of each other.

What is unique to professional services is the provider's paradoxical relationship with the client: on one hand, the client is dependent on the knowledge and skills of the professional, but on the other hand, the professional is dependent on the client as his or her principal (Ritsema van Eck-van Peet et al., 1992). Architects, doctors, lawyers, and financial advisors are not only professionals, but also enterprises striving for customer satisfaction. When decisions are discussed and negotiated at the professional service encounter, the provider's need to please the client may be a source of power for the client. In other words, clients of a professional service may be empowered in the decision-making unit on account of their customer role.

The purchase-decision task

The second aspect of purchase decision-making to be elaborated on concerns the *tasks* faced by organizations, consumers, and professional service providers together with their client. The characteristics of the task are significant for buyer

behaviour, as they are considered to affect the heuristics and criteria used by decision-makers, and the time and effort they invest in decision-making (e.g. Creyer and Kozup, 2003; Klein and Yadav, 1989; Robinson et al. 1967).

A classical taxonomy of organizations' purchase tasks consists of three basic categories of buying situations: new task, modified rebuy, and straight rebuy (Robinson et. al., 1967). It is considered that buyer behaviour varies according to the newness of the problem, the amount of information required for making the decision, and the extent to which alternatives are considered. In their review covering 25 years of conceptual and empirical research conducted on organizational buying behaviour, Johnston and Lewin (1996) found that much of the variation in such behaviour appears to be related to the levels of risk associated with a given purchase task, which is in most cases a function of the importance and complexity of the purchase task, the uncertainty of the outcome, and time pressure. These task characteristics are evident in many other typologies and characterisations of buying tasks or situations in both organizational and consumer buying behaviour literature (e.g. Beach & Mitchell, 1978; Hansen, 1972; Punj and Stewart, 1983; Sinha, 1994). For example, consumers are assumed to engage in routinized problem solving when choosing convenience goods, in limited problem solving with shopping goods, and in extensive problem solving with specialty goods (e.g. Fern and Brown, 1984). These tasks differ in terms of the degree of risk, frequency of purchase, consumer involvement and familiarity with the product class, and the amount of time and search given to purchase (e.g. Solomon, 1992: 243).

The above discussed classifications suggest that both organizations and consumers face purchase-decision tasks ranging from routine and simple to novel and complex. Some differences between the purchase tasks of organizations and consumers have nevertheless been suggested: organizational purchases in general are assumed to have strategic implications, and be more complex, significant, and larger in buying volume (Webster, 1979: 16; Wilson, 1999: 14–15). All in all, one can agree with the argument by Fern and Brown (1984) that buying-situation typologies seem more useful in explaining differences in decision-making within each sector, i.e. industrial and consumer markets, than between them. This notion emphasizes the relevance of decision-task characteristics as determinants of buying behaviour.

Decision tasks faced within professional services seem to have more distinctive characteristics. The problems dealt with within professional services are typically characterized as complex and heterogeneous (Hausman, 2003; Ritsema van Eck-van Peet et al., 1992; Sharma, 1997). Presumably, the decision tasks are complex for consumers who hire a professional service provider to solve problems that require specialist task-related knowledge and expertise they do not have (Rouse, 1991). From the provider's viewpoint, the complexity of the decision is increased by the fact that professional services typically involve high levels of customization and client participation (Ettenson and Turner, 1997; Hausman, 2003). Customers are usually required to provide information about their tastes, budget, goals and objectives, or problem areas before a purchase decision can be made (Mills et al.,

1983). There are no standardized, ready-made solutions, but each client situation may entail unique solutions (Hill and Neeley, 1988). The wider the range of unique customer demands and problems, the greater the specific information not possessed by the organization before the actual service encounter, and thereby, the higher the input uncertainty faced with the organization (Larsson and Bowen, 1989). Furthermore, the decisions made within professional services can be considered significant as they are associated with a high level of risk for clients, who may place their physical, emotional, or financial well-being in the hands of a provider whose performance and competence they may be unable to judge accurately (Rouse, 1991; Sharma and Patterson, 1999). The outcome of the purchase decision may be uncertain even though its consequences are serious, and decisions may involve a degree of irreversibility in that a 're-do' may not be possible or desirable (Hill and Neeley, 1988).

The nature of the purchase-decision-making process

Professionalism is a factor that is often put forward to distinguish organizational buying from consumer buying (Wilson, 2000). Participants in organizational purchase-decision processes are generally expected to possess expertise in the respective product category, and especially in larger organizations, the buying group (centre) may comprize professionals from various departments in order to maximize the level of experience and expertise in making major purchase decisions (Johnston and Lewin, 1996; McNally, 2002). In the context of professional services, decision-making involves both an expert and a layperson. Professional service providers are, by definition, professionals in a certain area and possess specialist knowledge of the product category in which the purchase decision is made, developed through formal training and experience (e.g. Hausman, 2003; Hill and Neeley, 1988). By contrast, their clients are typically novices (Hogg et al., 2003).

Consumers are not expected to possess any specialist knowledge as purchase decision-makers. However, Wilson (2000) argues that there is a degree of professionalism involved in consumer buying, mainly deriving form experience: many consumers' knowledge of the prices, quality and source-reliability of the products they frequently purchase makes them very professional shoppers. There is nevertheless a difference in the formality of qualifications. Professional service providers have usually been through formal higher education and have passed rigorous tests to demonstrate sufficient mastery in their area of specialty before being allowed to practise (Hausman, 2003; Hill and Neeley, 1988). The training of organizational buyers is often facilitated by detailed, written order routines of the type that household consumers are rarely exposed to: their training is more informal and one-to-one, as from parent to child (Wilson and Woodside, 2001).

Theoretical approaches to buying behaviour are often distinguished in terms of their perspective, implicit or explicit, on rationality (Arndt, 1986; Horton, 1984; Smith and Taylor, 1985). Many marketing texts tend to assume that buying

behaviour in organizations is protracted, logical and rational, and that it is more typically prompt, idiosyncratic and intuitive in consumer contexts (Smith and Taylor, 1985; Wilson, 2000). Research on decision-making refers to rationality of choice as behaviour directed at maximizing the decision-maker's expected utility or value (Hindess, 1988). Rational decision-making would require that the potential outcomes and alternatives, their probabilities and value to the decision maker, as well as the decision maker's future preferences, are exogenous, stable and known precisely enough to make the decisions unambiguous (Hastie and Dawes, 2001; March, 1988). Economists and psychologists have shown that expected utility theory is not a valid description of how people behave in reality: it can rather be used as a normative theory for improving the quality of decision-making (Hastie and Dawes, 2001). The assumed rationalism of organizational buying may derive from early research aiming at building normative models to specify what decision makers should do, given certain conditions (Smith and Taylor, 1985).

It seems reasonable to assume that, in reality, rationality of decision-making does not clearly demarcate between professional and consumer buying. Although leisurely, recreational and inspirational buying is usually associated with consumers, Wilson (2001) and Smith and Taylor (1985) suggest that organizations also sometimes engage in such buying behaviour. Nevertheless, rationality seems to distinguish between different purchasing contexts in the degree to which it is considered a norm for appropriate decision-making procedures.

In the contexts of organizations and professional services, there is typically a regulatory environment, whether external or internal, to suggest or impose certain norms or codes of conduct (Thakor and Kumar, 2000; Wilson, 2001). Many organizations have written, formalized rules for selecting suppliers or making orders (Johnston and Lewin, 1996). Furthermore, purchase decisions are typically subject to audits and documentation requirements, leading to a formalization that is rarely present in consumer decisions (Wilson and Woodside, 2001). Also professional services providers should adhere to some external regulations in their decision-making (Ritsema van Eck-van Peet et al., 1992). Because their work demands a high degree of skill and expertise, it is assumed that only the profession and other professionals can accurately assess performance (Mills et al., 1983). Therefore, professionals are typically subject to collegial control: professional associations take charge of peer reviews, licensing, and the sanctioning of inappropriate behaviour (Hall, 1968; Løwendahl, 2000: 36). Besides these regulations, professional service providers are assumed to be autonomous in the sense that they generate solutions without pressure from customers, non-members of the profession, or the employing organization (Hall, 1968).

When decisions are subjected to a degree of scrutiny, and there are rules or guidelines concerning the heuristics or procedures to follow, purchasing is less likely to involve idiosyncrasy or leisurely overtones. While the existence of decision-making rules does not guarantee that organizations and professional service providers make rational decisions, it seems plausible to assume that rationality is more likely to be endorsed as a goal in these contexts than in consumer settings.

The above discussion of some of the essential aspects characterizing decision-making in organizational, consumer, and professional service contexts was instituted in order to answer the question posed in the title of the article. The key characteristics are summarized in Table 1.

Table 1

A comparison of purchase decision-making characteristics in organisational, consumer, and professional service contexts

	Organisational context	Consumer context	Professional-service context
Motive for the purchase	Purposes of the organisation	Purposes of the consumer/household	Purposes of the client (Personal motives of the provider)
Cost bearing	Joint (within organisation)	Joint (within household)	Separate
Actors involved in decision-making	Typically a group	Typically individual	Typically a dyad
Sources of power and influence for actors involved in decision-making	Expertise and information Formal status Referent power Reinforcement power Control over resources	Expertise and information Informal status Referent power Reinforcement power Control over resources	Professional: Expertise and information Formal status Societal mandate Client: Experience and information Provider's aspiration to customer satisfaction
Characteristics of decision tasks	From complex and significant to routine and insignificant	From complex and significant to routine and insignificant	Typically complex and ambiguous Require task-specific knowledge Highly customised Significant and risky Irreversible
Professionalism of decision-making	Decision-maker(s) expected to possess expertise	Decision-maker(s) not expected to possess expertise	Decision-making involves an expert and a novice
Nature of decision-making process	Rationality often endorsed as a goal May involve formal decision guidelines Usually subject to some regulation	Rationality not necessarily endorsed as a goal No formal decision guidelines No regulations	Rationality often endorsed as a goal May involve formal decision guidelines Usually subject to some regulation Collegial control

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A purchase decision-making framework for professional consumer services

The comparison revealed that while the three purchase contexts studied share some similar characteristics, professional services are distinct in some important respects. Hence, the paradigms that are relevant to consumer or organizational buying behaviour may be of limited use in the services context. Based on the distinct features discussed in the previous sections of this article, a theoretical framework for describing professional services as a purchase decision-making context is proposed (Figure 1).

As Figure 1 illustrates, the decision tasks to be resolved are related to the needs and objectives of the individual customer. Despite the uniqueness of each customer's situation, the decision tasks exhibit certain common features. It is suggested that the tasks are typically significant, complex and risky for the client, that they are unique and require customization, and that the decision may involve a degree of irreversibility (Hausman, 2003; Hill and Neeley, 1988). In some cases, professional service providers may determine the needs and objectives, as the client may lack the ability to do so (Thakor and Kumar, 2000).

Furthermore, it is postulated in Figure 1 that professional decision-making has certain distinct features. Decision-making by professionals is based on their use of specialist knowledge (compare with Hill and Neeley, 1988). Professionals are autonomous in their decision-making in the sense that they are free of the influence of non-members of the profession (Hall, 1968). Decisions are nevertheless guided by rules, norms and regulations of varying compulsion, typically set and shared by the profession (compare with Ritsema van Eck-van Peet et al., 1992). Despite their fiduciary responsibility to advance consumer interests, it is possible that their personal motives also influence their decision-making (Sharma, 1997).

Figure 1 indicates that purchase decisions are made during the professional service process in interaction between the provider and the customer (compare with White and Johnson, 1998). Presumably, the relative influence of the parties on decisions varies considerably across services and situations. The distributed nature of the decision-making is perhaps the feature that most clearly distinguishes between professional services and the traditional buying contexts. Hence, this aspect is elaborated on by specifying the framework in a set of propositions regarding the relative influence of the parties on the purchase decision.

Consumers seek the services of a professional mostly because they lack the expertize or ability to decide by themselves, or because they wish to enhance their chances of making the right decision on a significant matter (Hollander and Rassuli, 1999). Consequently, professional service providers' influence on decisions is presumed to derive mainly from their expertize in the area of the client's problem. While consumers may lack the specialist knowledge to evaluate the validity of a professional's advice, they can nonetheless assess his or her perceived competence based on apparent knowledge, credentials and experience (Hausman, 2003). These evaluations may also be useful in assessing the goodness of the deci-

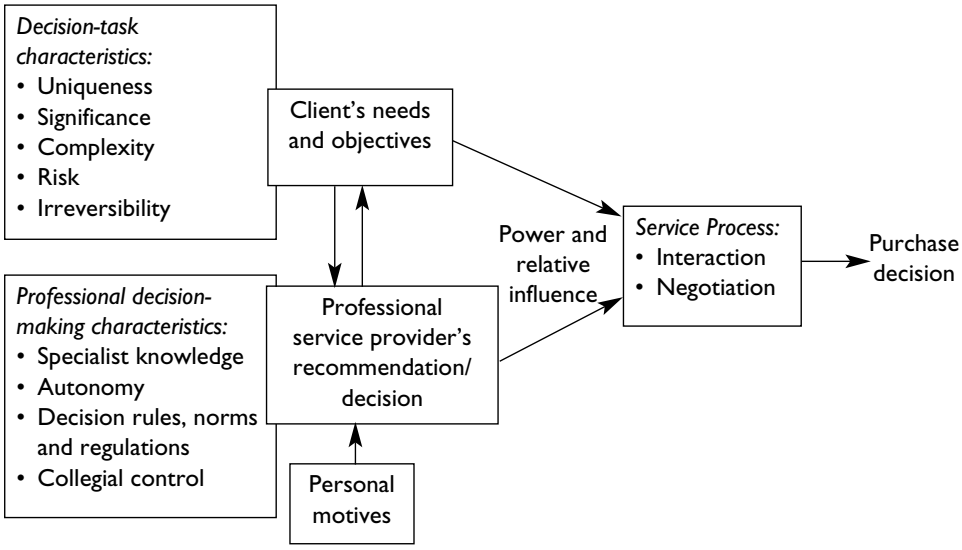

Figure 1

A purchase decision-making framework for the professional service context.

sions or recommendations. Consequently, it is suggested that the more competent a client considers a provider to be, the more likely he/she is to follow the provider's recommendations. Furthermore, when the decision is complex and involves a high degree of risk and irreversibility, clients are presumably likely to rely more on professional advice. The following propositions are suggested:

P1: The professional service provider's relative influence on the purchase decision is positively related to the client's perception of the provider's expertize and competence.

P2: The professional service provider's relative influence on the purchase decision is positively related to the client's perception of the complexity and risk associated with it.

As discussed earlier, experience and information may function as a source of power also for consumers. As White and Johnson (1998) postulate, the 'expertize gap' will become somewhat narrower when consumers are more knowledgeable regarding the situation under discussion in the professional service encounter. The knowledge, skills, and motivation of customers with respect to the service vary, based on their innate abilities and learning (Canziani, 1997). Some clients may have either gathered information or gained experience related to the decision beforehand (Jaakkola, 2005; White and Johnson, 2002). It is postulated that the less information asymmetry there is between the client and the provider, the more relative influence the client has. Furthermore, the possibility of the provider's opportunistic behaviour is considered to stem from the client's inability to assess

the appropriateness of the service (Mills, 1990; Sharma 1997). Hence, it seems likely that when clients are more knowledgeable, the professional service provider's personal motives have less influence in decision making. Based on this discussion, two further propositions are defined:

P3: The client's relative influence on the purchase decision is positively related to his/her experience and/or knowledge of the matter to be decided on.

P4: The influence of the professional service provider's personal motives on the purchase decision is negatively related to the amount of information the client possesses on the matter to be decided on.

The final proposition reiterates the previous suggestion that clients are empowered by their customer role. It seems reasonable to assume that, in order to increase customer satisfaction, professional service providers sometimes conform to their client's preferences instead of imposing their professional judgement. For example, Stevenson et al. (1999) found that physicians sometimes prescribe a drug in order to maintain a good relationship with the patient when they believe a prescription is expected, even if it is not medically necessary. Furthermore, service providers who concern themselves with customer satisfaction may give their clients more opportunities to express preferences, and thereby increase customer influence on decision-making. However, increasing customer satisfaction and loyalty may be of less importance for some service providers, such as legal-aid counsels or doctors in public hospitals with long patient queues, who do not aim for customer retention. These arguments lead to the fifth proposition:

P5: The client's relative influence on the purchase decision is positively related to the importance the professional service provider places on customer satisfaction.

Implications for research and practice

This article offers an attempt to frame the distinct characteristics of purchase decision-making within professional services. Based on a comparison of the characteristics of purchase decision-making in the contexts of professional services and organizational and consumer buying, we can conclude that professional services is a unique setting for purchase decision-making that cannot be considered equivalent to organizational or consumer contexts. Hence, this article emphasizes that the distinct characteristics of professional services should not be disregarded when studying decision-making in this context. While the literature addressing surrogate shoppers has obvious links to the professional service context, it does not consider the above discussed professional attributes, nor the interaction between the parties. Besides studying why and how consumers delegate their buying tasks to external parties, further research on the factors influencing the actual purchase decisions is encouraged. The theoretical framework illustrated in Figure 1 could be used to generate a research agenda incorporating both interests.

Furthermore, the comparison of the consumer, organizational and professional-service contexts supports the notion put forward by many authors (e.g.,

Coviello and Brodie, 2001; Wilson, 2000) that the organizational-consumer buying-behaviour dichotomy may not be relevant in describing and analyzing purchase decision-making. This article suggests that the characteristics of the decision makers involved, the decision task, and the decision-making process offer a fuller description of purchase decision-making.

This initial analysis of professional services as a purchase decision-making context needs follow-up in the form of empirical research. In addition to testing the specific propositions made, the proposed framework has a number of research implications. The relevance of its various components has to be verified across a number of service industries. Several types of professional services would be suitable for research: for example, health, legal, financial and architectural services all involve decision-making as described in this article.

From the practitioner's viewpoint, the conceptual analysis of professional services as a purchase decision-making context presented in this article highlights the multifaceted determinants of demand. In several industries, products are sold based on the result of negotiation between a professional service provider and his/her client. Manufacturers and sellers of such products should consider the processes through which the purchase decisions are made in order to fully understand the various stakeholders constituting their customer. Moreover, the influential parties may vary in their preferences, which should be taken into consideration in marketing and new product development.

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ARTICLE 2

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Elina Jaakkola[1] and Maija Renko[2]

Critical Innovation Characteristics Influencing the Acceptability of a New Pharmaceutical Product Format

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This paper investigates the critical innovation characteristics that influence the acceptability of a new pharmaceutical product format as perceived by medical service providers. Professional service providers act as "surrogate adopters" as they decide about the adoption of a product intended for their clients' use. We employ a qualitative research approach to explore which product related characteristics physicians evaluate when assessing the acceptability of a new product format in the pharmaceutical market. The main results concern (1) the distinct nature of a distributed adoption decision-making, (2) the refinement of relevant innovation attributes in a medical service context, and (3) the contextuality of innovation adoption. The research results show that innovation characteristics cannot be feasibly studied without taking into account the adoption context, here the medical service encounter and its institutional environment. Managerial implications of these findings are discussed.

Keywords: innovation adoption, innovation characteristics, pharmaceuticals, physicians, adoptions context

Introduction

New product development in the pharmaceutical industry is a lengthy and costly endeavour. On average, developing a new pharmaceutical product takes about ten years and involves a high degree of risk and uncertainty: only about one in 60 000 compounds synthesised in pharmaceutical

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laboratories can be regarded as "highly successful" (Schweitzer 1997). The fully capitalised cost to develop a new drug, including post-approval research, averages USD 897 million per drug, according to an analysis released in May 2003 by the Tufts Center for the Study of Drug Development. It has been estimated that the development process of a new drug takes about ten years off its active patent life (Bogner 1996), which means that pharmaceutical companies typically have only 7-10 years of efficient patent time on the market to recover the formidable investments (Ballance et al. 1993). Consequently, a new product should be introduced to the markets in such a way that in addition to early adopters, also the mainstream market accepts the new product as soon as possible and revenues start to flow to the company before the limited patent life of the product reaches its end phase. Understanding the factors influencing new product adoption is hence critical for the pharmaceutical industry.

The prescription drug market has indeed been the context of many innovation studies. One of the landmark diffusion studies was *Medical Innovation* by Coleman, Katz and Menzel (1966), which analysed the adoption of antibiotic tetracycline among physicians, followed by numerous industry studies. Several such studies have concentrated on examining the demographic characteristics of a physician (Steffensen et al. 1999), his sources of information about new drugs (Hull and Marshal 1987; Jones et al. 2001), and variables related to the physician's contact with the medical community, such as activity in exchanging views with other practitioners or having a solo or a group practice (Ryan and Murray 1977; Steffensen et al. 1999). Surprisingly, the characteristics of the new product itself seem to have attracted less attention: few studies systematically address the characteristics of new pharmaceutical products as perceived by potential adopters (for exceptions, see Buban et al. 2001; Wieringa et al. 2001).

In innovation research, the dominant theoretical framework for analysing the perceived attributes of an innovation has been Rogers' (1962, 1995) five innovation characteristics; with subsequent studies also including additional dimensions (see e.g. Ostlund 1974; Moore and Benbasat 1991; Black et al. 2001). This research analysing perceived innovation characteristics has largely been conducted in the context of the consumer adoption of tangible products (Black et al. 2001). However, the adoption of a new prescription drug takes place in the context of the medical service process, where the decision-maker concerning adoption is not the end-user of the product. Research concerning innovations in the services context has often focused on new service development (see e.g. Edgett 1994; Kelly and Storey 2000), or consumers' adoption of new types of services (e.g. Warren et al. 1989; Black et al. 2001; Vrechopoulos et al. 2001), but service providers' new product adoption has seldom been the focus of researchers' interest. The objective of

this study is to address this gap by investigating the critical innovation characteristics influencing the acceptability of a new product in a multi-stakeholder service context. More specifically, we focus on a pharmaceutical product format as perceived by medical service providers, the physicians.

The remainder of the article is organised as follows. First, we discuss the unique, distributed nature of prescription drug decision-making. The second part of the article reviews current research literature addressing innovation characteristics and their influence on adoption. Then, our empirical setting and methodology are presented. This is followed by the results of the data analysis and a discussion regarding the influence of contextual factors on doctors' perceptions of innovation characteristics. The final sections of the article provide our conclusions, their implications, and suggestions for future research.

Physicians as "Surrogate Adopters"

Plouffe, Vandenbosch, and Hulland (2001) argue that virtually all adoption research has made the implicit assumption that there is a single adopting group, usually the end-user. Another major assumption of adoption research is that the end-user is also the decision-maker for adopting the innovation. The role of external influencers, such as opinion leaders, is recognised in adoption models, but existing research ignores those situations in consumer markets where end-user is not the decision-maker (Aggarwal and Cha 1997). In the case of prescription drugs, end-users are neither the single adopters nor sole deciders. Before a prescription drug is purchased and consumed, both a physician and a patient must decide to adopt it. It is also misleading to assume that doctors alone make drug choice decisions: within recent decades, the focus on preventive health care and self care coupled with the public's improved access to health care information via e.g. the Internet has pushed patient empowerment to the forefront, emphasising the patient's role in treatment decision-making (Ouschan et al. 2000). Direct-to-consumer prescription drug marketing, allowed in the USA since 1997, has for its part boosted patients' activity in participating drug choice (Wilkes et al. 2000).

In the case of prescription drugs, the physician has the ultimate responsibility for choosing which drug to prescribe, whereas it is the patient who takes the drug and in some cases also pays for the chosen product (Gönül et al. 2001). A physician is not a customer in the sense of actually buying the product, nor is he the consumer of the prescribed drug (Turnbull and Parsons 1993). Solomon (1986) calls these kinds of third party decision-makers *surrogate consumers,* who can dominate the end-user's decision-making process to a varying degree, and points out that the purchase decision is often a joint process over which the end-consumer does not

necessarily retain primary control. Hollander and Rassuli (1999) prefer the term "surrogate shopper" because these third parties do not consume products. They extend Solomon's (1986) concept in the sense that some surrogates may be granted power to make decisions not only by consumers, but also by societal mandate, which is the case with physicians (Hollander and Rassuli 1999). Mellor and Green (2002) describe this phenomenon as *a distributed decision-making process.*

In traditional adoption models, the adopter is assumed also to be the buyer, and hence the focus of the suppliers' marketing activities (Aggarwal and Cha 1997). In our model of distributed adoption decision, two levels of adoption must take place before the new pharmaceutical product is purchased and consumed (Figure 1). The new product must be adopted first by the physician before it can be adopted by the end-customer, the patient. Surrogate adopters, the physicians, thus act as gatekeepers by selectively choosing which innovation to adopt, and as facilitators in diffusing the new product among the end-customer population (Aggarwal and Cha 1997). A pharmaceutical company may target its marketing activities to some extent directly to end-users as well, especially in countries like the USA where direct-to-consumer prescription drug marketing is allowed (Wilkes et al. 2000).

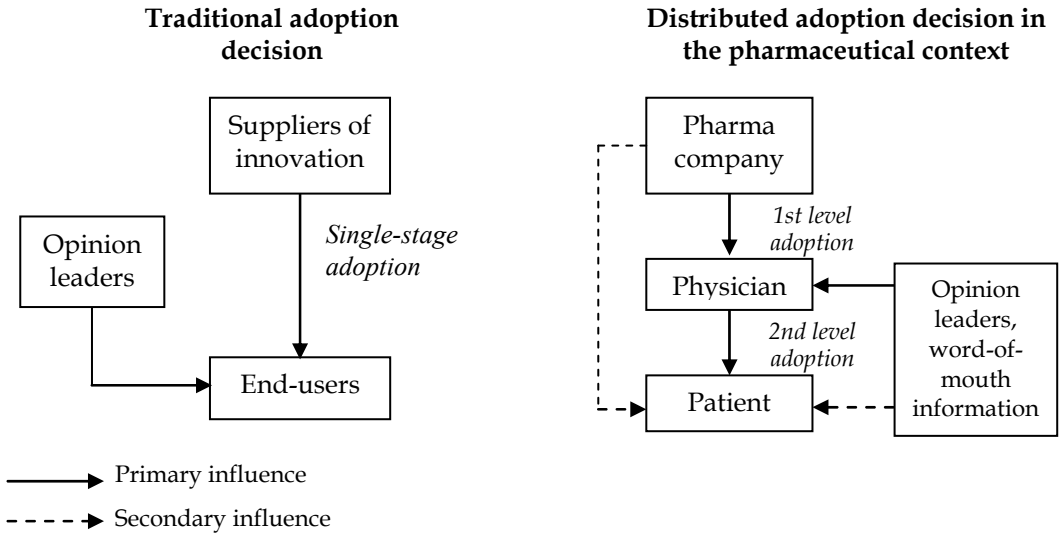

Figure 1. **Traditional Adoption Decision vs. Distributed Adoption Decision in the Context of Pharmaceuticals** (modified from Aggarwal and Cha 1997, pp. 393)**.**

As Aggarwal and Cha (1997) point out, it is important to distinguish surrogate buyers from opinion leaders. Compared with opinion leaders, surrogate buyers have a more formal, occupation-related status and role in the purchase decision and they get paid for their services (for a summary of major differences between opinion leaders and surrogate buyers, see Aggarwal and Cha 1997, pp. 394). Opinion leaders have been found to have a great influence on new drug adoption in the medical community (Groves et al. 2002), as denoted in Figure 1. According to a study by Jones, Greenfield, and Bradley (2001), many general practitioners follow specialists' example on using new drugs: a new product is acceptable if specialists adopt it. We assume that the second level adopters, the patients, are also to some extent influenced by external opinion leaders or information passed by word-of-mouth, even though those influencers are likely to be more informal and based rather on social relationships than expertise. According to Aggarwal and Cha (1997), the degree of influence of friends, peers, and opinion leaders on the end-user's decision process decreases sharply when surrogate adopters are involved. In other words, people value a surrogate buyer's professional opinion more than a friend's advice. For this reason, the influence of opinion leaders and word-of mouth information is denoted as "secondary" in Figure 1.

It should be noted that adoption at the first level does not guarantee that adoption takes place also at the second level: a patient can leave a doctor's office with a prescription he will never fill, or even if he purchased the medication, he will not necessarily consume it. In other words, the second level adoption is critical for the success of the treatment, the main purpose for the innovation's existence. In medical literature, the terms *adherence* or *compliance* refer to "the extent to which a person's behaviour (in terms of e.g. taking medications) coincides with medical or health advice" (Cameron 1996, pp. 244). Lack of patient adherence or compliance is a serious concern in treating many illnesses: it has been estimated that 90% of all non-institutionalised patients make mistakes in taking their medication and that poor compliance accounts for 30-50% of the cases where drugs fail to achieve therapeutic goals (National Council 1995).

Physicians undoubtedly try to prescribe medications that would cause as little compliance problems as possible. Hence, it is likely that physicians' adoption decision (first level adoption) is influenced by their perceptions of the acceptability of the new product from their patients' point of view (likelihood of second level adoption). Thus, it is likely that in the context of prescription pharmaceuticals, potential first-level adopters are not assessing the innovation characteristics only from their own medical perspective, but they also try to estimate their patients' preferences. This assumption is supported by a study by Prosser, Almond, and Walley (2003) who found that patient acceptability is likely to influence general practitioners' (GPs') new drug uptake.

Review of Literature Addressing Innovation Characteristics

Perceived characteristics of an innovation are the main focus of interest in this research. An increasing body of research demonstrates the importance of certain perceived innovation characteristics as strong predictors of adoption rate (Black et al. 2001). According to Veryzer (1998), factors such as technology, innovativeness, uniqueness, "customness", quality, ergonomics, design, market size, market growth rate, competition, relative price, customer loyalty, customer familiarity with the product class, and frequency of purchase have been found to be correlated with product success. On a more general level, the most commonly recognised scheme for evaluating the characteristics of an innovation is Rogers' (1962) five constructs: relative advantage, compatibility, trialability, observability, and complexity.

Relative advantage is the degree to which an innovation is perceived superior to ideas that it supersedes (Rogers 1962). Consequently, relative advantage relates to comparing an innovation with products / services currently available (see e.g. Olshavsky and Spreng 1996). According to Rogers (1962, 1995), relative advantage can be broken down into two types: *economic* and *social advantage.* Economic advantage can be equated to profitability, and it has been further divided into *capital cost of the innovation* and *perceived savings* (Völlink et al. 2002). Social advantage reflects the social prestige or status of the innovation to its adopter. Dearing, Meyer, and Kazmierczak (1994) identified three aspects of relative advantage: *economic advantage, effectiveness*, and *reliability.* The characteristics of effectiveness and reliability seem to be particularly applicable to an industrial market setting. Effectiveness is the degree to which an innovation is communicated as being relatively more capable in achieving an ideal end state. Reliability is the degree to which an innovation is communicated as being consistent in its results (Dearing et al. 1994).

Compatibility refers to an innovation's consistency with the existing values and past experiences of the adopters. An idea that is not compatible with the cultural norms of a social system is likely to face a slow adoption. An innovation may be compatible not only with cultural values but also with previously adopted ideas; compatibility of a new innovation with a preceding idea that has been evaluated unfavourably may retard its rate of adoption (Rogers 1962). Like relative advantage, compatibility is an attribute subjectively assessed by potential adopters. Compatibility is influenced by established practices, values, traditions, and expectations (Weiss and Dale 1998).

Complexity is the degree to which an innovation is relatively difficult to understand and use (Rogers 1962). Especially in the case of high technology

products, the complexity of an innovation is one of the main reasons for a slow adoption or a total lack of adoption of the innovation in the mainstream markets (Chiasson and Lovato 2001). Weiss and Dale (1998) use the term "operational novelty" as a contraction of Rogers' complexity and compatibility, or rather as its inverse, i.e. incompatibility. Relative advantage and operational novelty are claimed to independently influence adoption of a new technology (Weiss and Dale 1998).

According to Tabak and Barr (1998), there is consistent and significant support for the three characteristics of relative advantage, compatibility, and complexity and their effect on adoption of an innovation. The contexts where support for the effect of these characteristics on adoption of innovations has been found include farming, educators, and consumer markets (Tabak and Barr 1998), and lately also decision support system software (Chiasson and Lovato 2001), consumers' electronic grocery shopping (Verhoef and Langerak 2001), and energy conservation interventions among utility companies (Völlink et al. 2002).

Less empirical support has been found for Rogers' characteristics trialability and communicability. *Trialability*, i.e. *divisibility*, is the degree to which an innovation may be tried on a limited basis. Some innovations are more difficult than others to divide for trial (Rogers 1962, 1995). The issue of divisibility is closely related to perceived risks involved in purchasing products. *Observability*, i.e. *communicability*, is the degree to which the results of an innovation are visible to others. Innovations that are visible are easily communicated and thus quickly adopted and legitimised by endorsers (Rogers 1962, 1995). Moore and Benbasat (1991), who report the development of an overall instrument to measure perceptions of adopting an information technology innovation, argue that observability is too broad a construct for use in many technology adoption contexts. They split the construct to two dimensions: *visibility* of the actual innovation, and the tangibility of the results of using the innovation, labelled *result demonstrability* (Moore and Benbasat 1991).

In addition to the characteristics of innovations presented by Rogers (1962, 1995) and later on adapted in a large number of innovation studies, a substantial number of studies have also employed the concept of *perceived risk* (Tabak and Barr 1998), first introduced by Bauer (1960). A negative association between perceived risk and new product purchase (innovative behaviour) has been supported by e.g. Cox and Rich (1964), Bauer and Wortzel (1966), Ostlund (1974), Shimp and Bearden (1982), and Black et al. (2001). Grewal, Gotlieb, and Marmostein (1994) distinguish between *performance* and *financial risk;* performance risk is the possibility that the product will fail to deliver the desired benefits, whereas financial risk includes the risks associated with the initial purchase price as well as the

subsequent maintenance costs. Dowling and Staelin (1994), on the other hand, suggest that perceived risk consists of two subcategories of *product-category risk,* and *product-specific risk*. In particular new, breakthrough innovations that define new product categories are often associated not only with a high product-specific risk but also with a high product-category risk (Aggarwal et al. 1998). Boyd and Mason (1999) refer to *product category attractiveness*, the characteristics of a product category, as "*extrabrand" attributes*. This concept is very similar to the product-category risk; however, the negative notion of risk is replaced with a construct that includes both negative and positive aspects of a product category. The results of Boyd and Mason (1999) indicate that consumers use these extrabrand attributes to assess the attractiveness of innovations.

On a general level the characteristics – and especially the three characteristics of relative advantage, compatibility, and complexity – introduced by Rogers have proven their applicability. The strength and at the same time the weakness of Rogers' characteristics is in their general nature. Depending on the context, the characteristics have to be further specified, modified, and regrouped to provide more concrete information on the nature of characteristics affecting the adoption of an innovation. Lately, this has been done particularly actively in the information technology context. Figure 2 illustrates the various innovation characteristics and their linkages addressed in the above discussed literature.

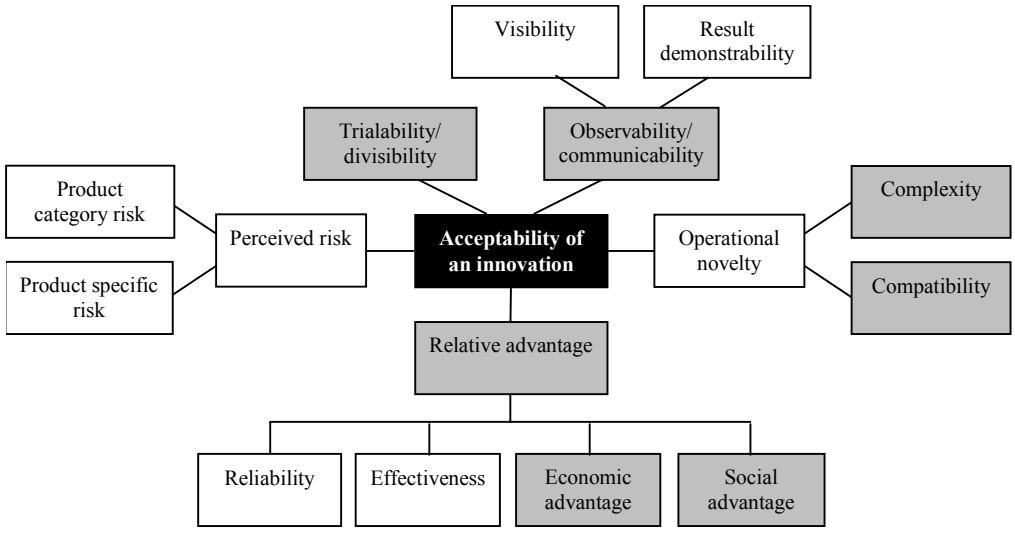

Figure 2. Selected Innovation Characteristics and their Interrelationships (the original characteristics of Rogers' (1962, 1995) model are highlighted**).**

Next, we present an outline and results of the empirical study investigating critical innovation characteristics in prescription pharmaceutical markets.

Research Strategy and Analysis

The purpose of the empirical study was to investigate which product-related characteristics physicians themselves evaluate when assessing the acceptability of a new pharmaceutical product format. This was done by applying a qualitative research method. Several studies have developed and used quantitative instruments to measure adopters' perceptions of predetermined innovation attribute taxonomies (see e.g. Moore and Benbasat 1991; Johnson et al. 1998; Plouffe et al. 2001; Verhoef and Langerak 2001). Humanism as an inquiry approach allowed us to explore the arguments physicians themselves used in assessing the acceptability of a new product format (see Hirschman 1986). This was considered essential given the exploratory stage of research concerning surrogate adoption: we did not start with a strict *a priori* model consisting of discrete variables embedded in a causal network, but our goal was to comprehend and interpret the focal phenomenon of this study in its own terms (Hirschman 1986). Thus, instead of directly addressing certain innovation characteristics and their relevance, we wanted to let the informants themselves construct their approach to evaluating the proposed innovation.

Data Collection Method

Data was collected by interviewing potential first-level adopters, i.e. physicians, who were asked to evaluate a new, innovative prescription drug product format. It was considered important for the product format to be medically believable with realistic product features. The product format also had to be new to practitioners so that differences in actual user experience would not distract the informants' evaluations of the product format. Obviously, the informants' evaluations were consequently based on their perceptions rather than experience in actually using the product, but this assumption is inherent to Rogers' (1962, 1995) definitions of innovation characteristics as well (Moore and Benbasat 1991).

The product format was composed by medical and R&D experts, ensuring its credibility in medical sense. The interviewers informed the interviewed doctors that they were university researchers and not employees of a pharmaceutical company. During the interviews, the doctors were shown a sample of the new product and a one page description of its medical properties. After the doctor had taken his time to read the product

information and study the sample instrument, he/she was asked to evaluate and comment on the product with emphasis on questions concerning its advantages and disadvantages. In order to achieve a meaningful interaction with the interviewees, both of the two researchers who conducted the interviews studied medical literature concerning the indication in question.

Selection of Interviewees

Altogether 45 face-to-face, one-to-one medical doctor interviews were conducted in the UK (25) and Finland (20) during the year 2001. A purposeful sampling approach was considered suitable: the sample selection was based on the informants' knowledge and experience in treating the indication in question, as well as on their willingness to co-operate (Wallace 1984). Because the indication of the new product format was related to female health, the interviewed doctors were mainly gynaecologists in specialisation. In the UK, general practitioners also commonly deal with this indication and they were thus included in the sample. In other words, informants for this study were the most likely adopters of the product, should it be introduced to the market.

The pharmaceutical and health care industries are heavily regulated. Governmental authorities such as FDA in the USA and the Medicines and Healthcare Products Regulatory Agency in the UK control the range of drugs on the markets as well as their approved indications. These regulations vary from country to country; not all pharmaceutical innovations are available for doctors to adopt even if they perceive them positively. What is more, in most countries local authorities influence individual doctors' prescription decisions by issuing treatment recommendations of a varying degree of compulsion. For example, British National Health Services (NHS) assesses most licensed drugs and devices, to determine whether local hospitals and primary care organisations can use them. In addition, the National Institute for Clinical Excellence (NICE) provides national guidance on treatments and care for people using the NHS in England and Wales. Once NICE guidance is published, health professionals are expected to take it fully into account when making prescribing decisions (NICE 2004).

The empirical study did not directly address the influence of the regulative environment on doctors' assessment of the product format. However, the interviewees were a heterogeneous group, and the two countries included in the study differ in how the health care system is organised. In both countries, interviews were conducted in several geographical locations with both female and male doctors, who worked in clinics of varying size and type. As our research method let the interviewees assess the proposed innovation in their own terms, they evaluated the innovation characteristics from the viewpoint of their own context, providing

us with a richer data set. Thus, issues related to the influence of different contexts of the interviewees could rise out of the data.

Data Analysis

Data analysis begun by transcribing the tape-recorded interviews. First, the transcripts were coded, that is, divided into analysable units by creating categories with and from the data in order to characterize what each stretch of the interview was about in terms of general thematic content (Coffey and Atkinson 1996). These more general categories or themes were compared and linked together in order to identify similarities, deviances and recurring themes. The categories used were partly based on characteristics identified in previous studies (Bauer 1960; Rogers 1962, 1995; Dearing et al. 1994; Grewal 1994; Weiss and Dale 1998). However, they were not imposed upon the data arbitrarily; the categories adopted reflected the data (Dey 1993). This way we were sensitive to new categories and themes emerging from the data. The analysis process led to the identification of a set of general themes that were subsequently compared to existing concepts and theories (Miles and Huberman 1994). Finally, different groups of doctors (specialists / GPs, Finnish / UK physicians) were contrasted in order to find out if certain opinions and arguments were more prevalent in some groups of doctors than others, thus being potentially interpretable by differences in the interviewees' contexts. As the proposed product format was a non-existing product, issues such as recommendations by the UK and Finnish authorities regarding this particular product did not influence interviewees' perceptions.

Findings: Perceived Critical Innovation Characteristics

Relative Advantage

Three types of relative advantage emerged from the interviewed doctors' assessments of the new product format. Consistent with literature, doctors discussed whether the new product format had an effectiveness or economic advantage compared to existing medications. In addition, a new category, effort advantage, was identified.

Effectiveness, i.e. the degree to which a new product is more capable of achieving an ideal end state, refers to the medical advantages of the product. The perceived effectiveness advantage of a pharmaceutical product is dependent upon the efficacy of available alternative medications, which may vary from country to country. All the interviewed doctors compared the new product format with existing products and pointed out medical advantages and disadvantages. Many interviewees stated that they are less willing to adopt new products for the focal indication in this study, as there is a range of existing products available: "What we already have work quite well, so I

would not rush into using this". Some of the interviewees' comments implied that patients' perceptions of advantages of a pharmaceutical product sometimes differ from those of doctors'. *Reliability* was discussed as a part of a product's effectiveness: if a drug is not producing a stable, consistent pharmaceutical effect, it is not ideal in its efficacy. Many British doctors pointed out an existing, competing product available in the UK that is not considered very reliable, and regarded this as a source of relative advantage for the new product format.

The *economic advantage* of the product was related to its cost and savings and / or the earnings it would produce. The product format in this study was indicated for long-term treatment and was assumed to have a higher upfront cost than the existing products. Many UK interviewees, particularly general practitioners, considered a higher cost to be an important disadvantage for a new product, as it puts a strain on their prescription budgets. Some of them indicated that they would not offer patients expensive medications if cheaper alternatives exist. In Finland, where prescription medications are not included in the clinics' budgets but are paid for by patients and health insurance, doctors discussed the cost of the product only in reference to patient acceptance of the product. Perceived monetary savings and earnings were mentioned only by UK interviewees. A new product was considered to have an advantage if it enabled cost savings or could function as a source of income: many GPs mentioned that they would be more willing to accept the new product if they could charge a fee for administering it.

Effort advantage is used here to refer to the degree to which an innovation saves time or other resources unrelated to the product's price. Especially British doctors assessed the effect the new product would have on e.g. their appointment schedule and workload: "If less follow up is needed, then great. GPs would accept this if there was a long run incentive". In our study, other than monetary savings are especially relevant for those adopters whose monetary cost remains constant no matter which product they choose. This is true for patients in the UK who pay a fixed price per prescription. The same is also true for the Finnish physicians, whose prescription decisions are not affected by available budgets of their clinics. Those affected by the monetary cost of the drug evaluate its effort advantage together with the economic advantage.

Complexity

The new product format was described to differ from existing products in the sense that it would require new skills and routines from doctors who wished to include it in their prescription repertoire. The interviewees were told that adopting the new product format would require some training.

These requirements were carefully explained to the doctors so that they would have enough information to assess the product's complexity.

Based on our data, doctors assess the complexity of a new product both from their own and their patients' perspective. There was a clear discrepancy between the interviewed specialists' and general practitioners' perceptions of the *complexity of the product in clinical use*. Unlike specialists, many GPs considered the complexity of the new product format as an obstacle to adoption. Specialists' main concern regarding complexity was their patients' reaction to the product. Perceived complexity was related to doctors' previous experience; many GPs mentioned that if the product was similar to some products they already prescribe, they would be willing to adopt it. Some doctors pointed out that the complexity of the product in clinical use depends on the facilities of the clinic. *Efforts and skills required* from the doctor were considered as a reason for rejecting the product by several interviewed GPs, who made comments such as "GPs are not skilled enough", "This is too complicated for GPs" and "Need for training is a big disincentive for GPs". Many doctors pointed out that they do not have time for training sessions. It seems that time is a critical determinant of complexity: especially GPs, who have a tight schedule, resist any time consuming changes in their practices.

Both specialists and GPs also discussed whether their patients would accept the complexity of the product. The interviewed doctors were of the opinion that, due to its novelty and innovative nature, the new product concept would be considered complex by their patients. Some doctors segmented their patients according to patients' social and financial status, and considered a complex product more suitable for informed, well-educated patients from a higher social class. In both countries, the interviewed doctors emphasised that it is important to gain patients' acceptance for the treatment decision in order to increase their compliance to medication.

Compatibility

The interviewed doctors' comments indicate that compatibility of a new product with current medical practices, and the prescriber's or his/her colleagues' experiences are crucial for the product's acceptance. Compatibility with patients' experiences and norms is also relevant.

A large number of the interviewed doctors were sceptical about the medical profile of the new product format, as some aspects of this information confronted with their *previous medical knowledge and current practice*. If a new product is incompatible with conventional practices, it has to have very solid research data to support its claims. UK doctors, in particular, seemed hesitant to change their practice even if there were evidence to support a new practice. It should be pointed out that medical

practices may vary from country to country as they are guided by local authorities.

Experiences with similar product formats were found to be a strong predictor of doctors' positive/negative attitude towards the new product. Many GPs based their unfavourable attitude to the proposed product format on their own or their colleagues' negative experiences of a similar product format available in the market, and they explicitly used these experiences in estimating the new product format. It seems that the acceptability of a new product declines if it is compatible with preceding innovations that have been evaluated unfavourably. This finding supports previous research on the importance of extrabrand attributes in assessing the attractiveness of innovations (Boyd and Mason 1999). Finally, some of the interviewed doctors mentioned that the new product format should be compatible with *patients' experiences and norms* as well. British interviewees in particular considered this a cultural issue: many used expressions like "British women are not used to these kinds of products" or "British women would not like this".

Perceived Risk

Three types of risk considerations emerged from the interview data: 1) risk associated with the product's performance, 2) financial risk for the doctor / patient, and 3) relational risk for the service provider.

The interviewed doctors' comments related to the *performance risk* of the new product mainly concerned the possibility of it delivering unwanted effects such as side effects or other medical problems. Several doctors, mostly in the UK, also discussed safety issues from the viewpoint of patients failing to comply with the treatment regime. It seems that products requiring only minor input from the patient are easier to accept, as they are considered less risky. Some GPs tend to avoid risks by letting others try new pharmaceuticals first: "I probably would not use it right away, but wait and see what other people say about it". Furthermore, some of the interviewed UK doctors mentioned that GPs often follow specialists in their new product adoption. A new product may be considered less risky by general practitioners if specialists have accepted it; specialists thus act as opinion leaders for GPs.

The financial risk of adopting the new product falls on the doctor or the patient, depending on who pays for it. The product format in this study was indicated for long-term treatment and was assumed to have a high upfront cost. In the UK, the risk would be borne by the clinics, where as in Finland the product would be paid at least partially by the patient. Many Finnish gynaecologists mentioned that patients would face a financial risk by purchasing an expensive new product that they could not fully utilise if the treatment had to be halted due to side effects. The patient's financial risk

leads to a *relational risk* for the doctor: if the patient loses money because of a product recommended by her doctor, the doctor-patient relationship could be damaged. One gynaecologist explicitly stated: "It is a risk to recommend it to the patient, because if she is not happy with it, she will be angry at the doctor and not to the producers of the product". Only Finnish gynaecologists discussed issues concerning relational risk, which may be due to the fact that many of them work in private practices and are thus more worried about client retention.

Communicability Among Patients

Our data indicates that doctors' assessment of a product's acceptability is influenced by their expectations of patient demand and acceptance, which, in turn, is influenced by the communicability of the medication among consumers. A product's communicability is enhanced by positive *word-of-mouth* among users, and *publicity* in the lay press and other media. Some pharmaceuticals can also be marketed directly to consumers, depending on the legislation of the country. Many of the interviewed doctors emphasised that women often base their opinions regarding different treatments on their friends' experiences and recommendations: "The doctor explains the options and the women choose according to what their friends recommend or not". If a new product belongs to a product category often visible in women's magazines, doctors may more easily adopt it as they expect patient demand: "People would talk about it and read about it, so then people would come and ask about it". This supports our distributed adoption decision model (Figure 1) in that patients, the second level adopters, are also influenced by external opinion leaders or word of mouth information.

Finally, Figure 3 summarises the innovation characteristics adopters themselves mentioned when assessing the acceptability of a new pharmaceutical product.

As our results indicate, British and Finnish doctors as well as GPs and specialists differ in some of their arguments concerning innovation characteristics of the same product. To some extent, these differences can be attributable to the specific features in their working environments. Next, the influence of contextual factors on doctors' perceptions is discussed.

The Influence of Context

As is evident from the above discussion, the perceptions of different groups of doctors (Finnish and British and/or specialists and GPs) regarding certain innovation characteristics differ clearly. This suggests that the influence of contextual factors on doctors' assessment of the innovation was in some cases critical. Context seems to influence doctors' evaluation of innovation

characteristics in two ways. First, contextual factors influence *the very*

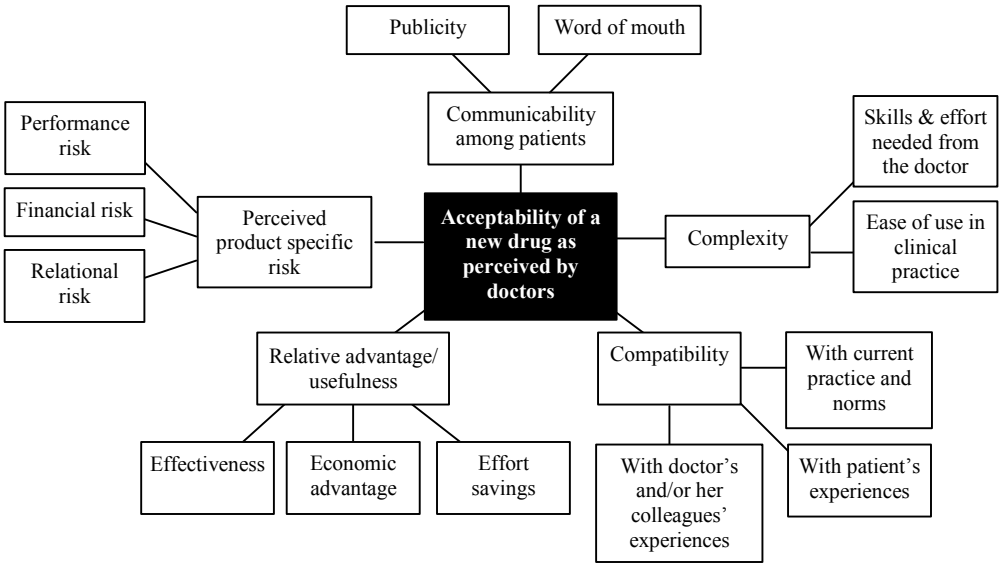

Figure 3. Critical Innovation Characteristics Influencing the Acceptability of a New Pharmaceutical Product as Perceived by Doctors.

characteristics that doctors pay attention to. For example, comments related to the economic advantage and financial risk of the product for the doctor were made only by British doctors who, unlike Finnish doctors, bear the cost of prescribed medication in their prescription budgets. Second, contextual factors influence *doctors' assessment of characteristics*. Most of the interviewed doctors discussed complexity of the product in clinical use, but whereas many GPs perceived the complexity and training requirements associated with product as obstacles to adopting the product, most specialists were only concerned about having to explain the new product to their patients. Doctors' differences in their attitude to complexity and willingness to learn new skills are likely to be partly due to their personal characteristics, but also to the organisational context of the doctors: most specialists had hospital facilities and nursing staff in their use.

Our proposition is that contextual factors influence doctors' perceptions on multiple levels. For a physician, the first stage adopter of a medical product, external environmental characteristics and organisational characteristics constitute the contextual factors that determine which innovation characteristics he / she evaluates. Furthermore, they also shape the individual's perception of the characteristics (Figure 4).

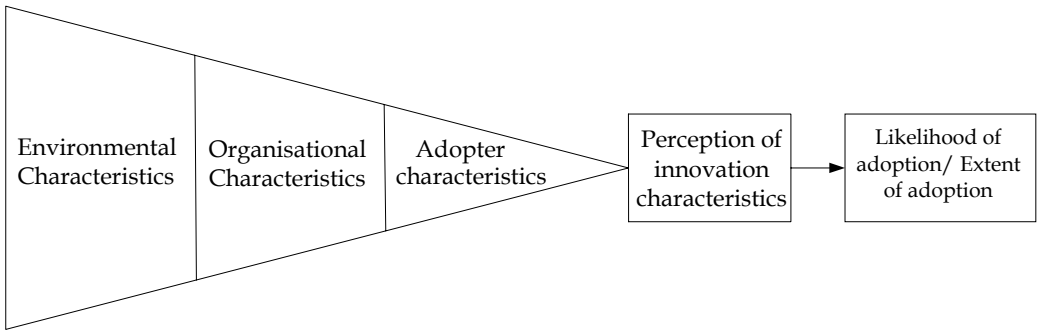

Figure 4. A Framework for Factors Influencing the Perception of Innovation Characteristics.

Context, i.e. environmental and organizational characteristics, influences both "what" and "how" a medical doctor assesses when evaluating the characteristics of a new innovation. Furthermore, our data suggests that doctors may reject a new product concept based on one single innovation characteristic. For example, if the interviewee considered the product too complex in clinical use, he/she did not bother to assess its other qualities. An individual's overall perception of the acceptability of an innovation is likely to be a result of a stepwise process (see also Völlink et al. 2002).

Conclusions and Implications

The research reported in this paper explores the product characteristics adopters themselves evaluate when assessing the acceptability of an innovation in the pharmaceutical market. Our research results add to the theory on innovation adoption in three ways. Firstly, we provided support for the proposition that distributed decision-making context has a number of distinctive features, which call for redefinition of traditional adoption models. Second, we introduced refinements to the traditional innovation characteristics considered in existing literature. Third, our research results showed that innovation characteristics cannot be feasibly studied without taking into account the adoption context, here the medical service encounter and its institutional environment.

Our study supports the concept put forward by Aggarwal and Cha (1997), that surrogate adopters act as gatekeepers selecting which innovation to adopt, thus facilitating or hindering the innovation's diffusion among its end-users. Surrogate adopters and end-users may differ in their perceptions of some innovation characteristics, and when surrogate adopters evaluate an innovation's acceptability, they may use criteria unrelated to the end-users'

perspective to reject an innovation. For example, if adopting a new pharmaceutical requires uncompensated training and extended appointment times, many doctors are not interested in suggesting it to their patients even if it offered benefits for the users. Our study nevertheless indicates that end-users (patients) influence surrogate adopters' (doctors') assessment of the acceptability of an innovation despite the professionals' gatekeeper power. Doctors' eagerness to adopt a new drug is influenced by their estimations of characteristics of the new product from their patients' viewpoint. In addition, innovations in product categories likely to gain publicity and positive word-of-mouth among end-users are more likely to be accepted by surrogate adopters as they would expect more demand and better acceptance among end-users.

Consistent with theory, we found that willingness to adopt is influenced by certain characteristics of the innovation. Our findings support previous findings that an innovation's relative advantage, complexity, compatibility, and perceived risk are significant characteristics influencing its acceptability. More specifically, we suggest two new subcategories, effort advantage and relational risk, to the set of innovation characteristics. Effort advantage is relevant especially in a distributed decision-making context like medical services, where the adopter is not always the payer; hence, relative advantage may be based more on effort advantage than economic advantage of the product. Perceived relational risk is likely to be found in a number of professional service contexts. Clients trust professional service providers with power to make decisions on their behalf (cf. Hollander and Rassuli, 1999). By adopting an innovation to be used by the client, a professional risks losing a customer in case of unfavourable outcomes for the client.

Our qualitative research method let the interviewees evaluate the innovation in their own terms, which revealed the contextual influences on their perceptions. An overall conclusion from our data is that innovation characteristics cannot be feasibly studied without taking into account the adoption context, here the medical service encounter and its institutional environment. According to Rogers (1995), from 49 to 87 percent of the variance in rate of adoption is explained by the original five characteristics relative advantage, compatibility, complexity, trialability, and observability. Although it is emphasised that subjective evaluations of an innovation, derived from individuals' personal experiences and conveyed by interpersonal networks, drive the diffusion process, Rogers (1995) remains rather vague about the issues influencing the relative importance of each attribute. Much of the research on innovation characteristics seems to ignore the influence of context. Our study suggests that the context of potential adopters influences not only which characteristics are relevant to them, but also the way they perceive each characteristic. All potential adopters do not

consider the same set of characteristics before making an adoption decision, and a decision to reject an innovation may be based on one single characteristic without any consideration to others. As contextual factors may determine such critical characteristics, the influence of, for example, the cultural, regulative, and professional environment of adoption decision-making is worth further research.

Since the study reported in this paper was exploratory in nature, the results require further empirical verification. A limitation for this study was focusing only on the first stage adopters' – i.e. the doctors' – views, even though we have emphasised that drug adoption is a two-stage process. Future research addressing both parties of the dyad is needed to investigate the end-users and surrogate adopters' perceptions on issues influencing innovation acceptability, and the relative influence of each party on adoption decision-making.

This study draws attention to innovation adoption in a service context, where service providers make or influence decisions to adopt new products to be used by another party, their client. Besides the medical context, such surrogate adopters can be found in many other services as well: for example, investment advisors, architects, interior decorators, and personal shoppers are involved in a significant portion of consumer decisions (Hollander and Rassuli 1999). Our study suggests that to fully comprehend product adoption in such contexts, the distributed nature of decision-making must be taken into account. We urge more research in the area of distributed decision-making in services context to gain more insight into the dynamics and determinants of such processes.

For practitioners, this study highlights the importance of understanding the distributed nature of adoption decision in the context of pharmaceuticals, and taking into account all relevant agents influencing adoption. As physicians evaluate the product's acceptability from their patients' viewpoint as well as their own, marketers of new products should communicate the key benefits of an innovation for both parties.

Effort advantage introduced in this study highlights the importance of communicating benefits beyond medical effectiveness of the product or its financial advantage to prescribing physicians. Complexity in a medical service context is an issue evaluated both by physicians as well as patients, and reducing the perceived complexity is likely to influence adoption positively. As far as compatibility is concerned, current practices and norms as well as earlier, unsuccessful product introductions that can be associated with the new product should be studied and utilised in the positioning of the new product. In addition, the adoption threshold could be lowered by diminishing the medical, financial, and relational risks perceived by doctors, e.g. by compensating unsuccessful trials, and providing material and other

aids for end-user education. Furthermore, marketers of new pharmaceuticals should not underestimate the importance of gaining publicity and positive word-of-mouth among patients even in countries where direct to consumer prescription drug marketing is not allowed.

Communicating new product advantages should be adapted to the needs of different social systems, here patients and doctors, as there may be discrepancies in their perceptions of product's advantages, and its compatibility with their past experiences and norms. Especially in high-tech markets, sellers may be somewhat myopic in the sense of failing to see past their technologically advanced products and their first-stage adopters. However, our study indicates that new product acceptability in the pharmaceutical market may be strongly influenced by lay consumers, and that perceived complexity may overrule performance advantages even among professionals.

Our findings about the importance of context factors, for example the national health care system, regulations and characteristics of the potential adopters' organisations, are particularly relevant for developers of new pharmaceuticals. Even before the completion of a risky and expensive drug development process, the marketer should have extensive knowledge of the adoption environment, including its norms and practices. We suggest that the national, institutional, and organizational environment of prescribing physicians provides a good basis for market segmentation. The context of potential adopters, here medical doctors, influences the innovation characteristics relevant to them as well as their relative weights in adoption decision making. Finally, we suggest that collecting qualitative market intelligence beyond issues related to technical product features facilitates more accurate estimations of innovations' acceptability in the pharmaceutical market.

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ARTICLE 3

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Problem solving within professional services: evidence from the medical field

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Abstract

Purpose – To test the validity of the presumed characteristics of professional services by studying their manifestation in the problem solving that occurs in service production.

Design/methodology/approach – The paper uses medical research as secondary data to study the existence of associations between the presumed characteristics of professional services and problem solving in the medical context. A systematic review of empirical studies concerning physicians' prescribing decisions is conducted.

Findings – Supporting assumptions presented in the literature, specialist knowledge of professional and customer participation was found to influence prescribing decisions. The assumption regarding collegial control was partially supported. Some degree of contradiction was found with respect to the presumed professional autonomy and altruism. Whilst the professional services literature emphasises factors related to the client's problem, the service encounter and the profession, we conclude that problem solving is influenced also by factors embedded in the related organisational, market and institutional environments.

Research limitations/implications – Further empirical validation of the presumed professional characteristics is needed. The results indicate that professional services research should pay more attention to the role of the wider context in professional problem solving. Medical researchers might also benefit from a broader perspective on patient participation.

Practical implications – An holistic view of factors that influence physicians' prescribing decisions is of use to managers of health care organisations, marketers of pharmaceuticals, and policy makers and third-party payers.

Originality/value – By using an interdisciplinary approach, the paper contributes to professional services research by providing empirical support for the often repeated characteristics of professional services and outlining factors that potentially influence problem solving within professional services.

Keywords Professional services, Problem solving, Health services, Medical practice

Paper type Research paper

Introduction

Professional services are commonly portrayed as a subcategory within the service industry. They represent the most intangible services, where service production involves extensive customer contact and a high degree of individual judgment on the part of the service provider (Lovelock, 1983; Schmenner, 1986; Clemes *et al.*, 2000; Verma, 2000). A commonly accepted definition of professional services does not seem to exist (Conchar, 1998). Instead, it is typical that researchers list some special features of professional services to distinguish them from other services (Brown and Swartz, 1989; Ettenson and Turner, 1997; Sharma and Patterson, 1999). Professional services are commonly associated with characteristics such as specialist knowledge, autonomy, altruism, self-regulation and a high degree of customer participation and customisation (Hill and Neeley, 1988; Løwendahl, 2000, pp. 19-20; Hausman, 2003).

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Apart from a few recent exceptions (Thakor and Kumar, 2000; Cunningham *et al.*, 2004), such characterisations are mostly based on intuitive thinking or practical experience, rather than any empirical justification. The whole body of professional services research is nevertheless based on the assumption that professional services differ from other services in some important respects, and that these special features carry implications for the marketing and management of professional services (Wilson, 1972; Gummesson, 1978; Ettenson and Turner, 1997; Løwendahl, 2000; Verma, 2000). As Thakor and Kumar (2000) put it, testing the validity of these characterisations is essential, since they constitute the foundation on which much of the empirical research in the field has been, and will continue to be, based. For this purpose, Thakor and Kumar (2000) studied consumer perceptions of the professionalism of selected services and the characteristics consumers associated with professionalism. In this paper, we suggest another way of testing the validity of the presumed characteristics of professional services. We will investigate whether the characteristics are manifested in the core of professional services provision, i.e. in solving the client's problem, by using secondary empirical data from one profession.

Professional services provision principally involves problem solving for the customer (Gummesson, 1978; Ritsema Van Eck-van Peet *et al.*, 1992; Wilson, 1972). The service provider uses his/her professional knowledge to make a diagnosis of the problem and suggest a solution (Gummesson, 1978). The core service offering is intangible; it may be advice, a professional opinion, or information that contributes to the resolution of the client's problem (Løwendahl, 2000, pp. 16). For instance, management consultants, accountants, financial advisors, architects, lawyers and medical doctors make purchasing and investment decisions, financial recommendations, design choices or treatment determinations (White and Johnson, 1998). The problem resolution may also have tangible outcomes, such as blueprints, plans, reports, prescriptions for pharmaceuticals, or surgical procedures (Gummesson, 1978; Ritsema Van Eck-van Peet *et al.*, 1992).

Following the general logic of professional services research, we argue that the special features of professional services should carry implications for the problem solving that forms the core of the professional services provision. Our purpose is thus to test the validity of the presumed characteristics of professional services by studying their manifestation in the problem solving that occurs in service production. This will be achieved by investigating the factors that influence problem solving in one professional service sector and by comparing these factors with the commonly accepted characteristics of professional services. Through this comparison we are able to provide empirical support for the validity of the presumed characteristics and also to identify other factors that influence problem solving but have thus far received less attention in the professional services research.

The field of professional services is heterogeneous as it covers various professions and businesses. Each profession is based on its own discipline, which offers opportunities for interdisciplinary research. One evident – though rarely used – option is to exploit studies from each particular discipline as secondary data in order to advance theory development in the research domain of professional services. In this study, we use medical research as secondary data to investigate which factors have been found to influence problem solving in medical service encounters. The medical services context is well suited to the study, since medicine can be considered

an archetypal professional service (Hogg *et al.*, 2003). Several authors have used physicians as an example of a typical professional service provider (Brown and Swartz, 1989; Ettenson and Turner, 1997; Løwendahl, 2000, p. 18; Hausman, 2003), and intuitively the service fits well with the most commonly accepted characteristics of professional services. In the medical service context, a physician's choice of prescription pharmaceuticals can be used to exemplify the resolution of a client's problem. The vast body of empirical research available on drug prescribing is used as secondary data in this study.

The study contributes to the professional services research conducted in the fields of services marketing and management. On the one hand, it provides empirical support for the often repeated characteristics of professional services and, on the other, it also identifies other factors that potentially influence problem solving within the professional service context. Furthermore, the research offers the medical field a systematic review of empirical studies that have investigated the factors that affect prescribing decisions.

The paper is organised as follows. First, we review the professional service features that are considered central in literature addressing professional services, principally the services marketing and management literature, and discuss the implications of these features for problem solving for the customer. Secondly, we describe the methodology used in reviewing the empirical medical studies. Then, the results of the review, the factors that influence prescribing decisions, are presented and compared with the presumed characteristics of professional services. We draw conclusions for professional services research and propose a number of topics to be studied in the future. Some implications for practitioners in the medical field are also presented.

Implications of professional service characteristics to problem solving

The key characteristic considered to distinguish professional services from other services is that their provision requires specialist knowledge and skills developed through lengthy, formal higher education (Gummesson, 1978; Hill and Neeley, 1988; Ritsema Van Eck-van Peet *et al.*, 1992; Hausman, 2003). This knowledge affords professionals the right to isolate problems and determine the means for their solution (Mills *et al.*, 1983). Professionals are approached by potential clients to obtain benefit from this knowledge that cannot be easily learned by themselves (Conchar, 1998). Professional knowledge may also be based on experience which in many professional fields is regarded as a major determinant of ability (Hausman, 2003). In sum, one can assume that professionals base their problem solving on their specialist knowledge, skills and experience.

As a consequence, of the provider's specialist knowledge, there is an information asymmetry between the provider and the inexpert client, leading to an in-built power imbalance in the professional service encounter (Hogg *et al.*, 2003). It is considered typical of professional services that clients are not clear about their own needs with respect to the service (Stewart *et al.*, 1998; Thakor and Kumar, 2000), and may be unable to evaluate the service even after purchase and consumption (Mills and Moshavi, 1999; Sharma and Patterson, 1999). For example, when a client of a financial advisor loses money, the client cannot know for sure if it was due to a lack of skill or effort on the service provider's part, or if the advisor provided the best possible estimate of unstable markets and in fact minimized the client's losses. As clients must depend on the service

provider, some level of trust is necessary for exchange to occur at all in professional services (Halinen, 1996). One could say that the foundation of professional services is the belief in the provider's benevolent intent, and in the notion that the service provider can be counted upon to advance the client's interests, rather than self-seeking interests such as profits or status (Mills *et al.*, 1983; Løwendahl, 2000, p. 18). In other words, a degree of altruism is associated with professional services (Sharma, 1997; Laing and Hogg, 2002). By serving the client, professionals are simultaneously assumed to serve the interests of society at large.

This trust is supported by another proposed professional attribute, namely self-regulation (Hall, 1968; Hill and Neeley, 1988). Because the work demands a high degree of skill and expertise, only other professionals can accurately judge the quality of a professional's work (Mills *et al.*, 1983). This is why society accepts professional associations taking charge of peer reviews, licensing, and the sanctioning of inappropriate behaviour (Løwendahl, 2000, p. 36). The profession defines and shares certain rules of conduct, traditions, or a code of ethics (Ritsema Van Eck-van Peet *et al.*, 1992; Mills and Moshavi, 1999), which can be considered as manifestations of self-regulation. Particularly the existence of ethical codes is associated with professional services; according to Abbott (1983, p. 857), "nearly all professions have some kind of formal ethical code" (Wilson, 1972; Thakor and Kumar, 2000). Hence, one can assume that problem solving within professional services is influenced by collegial control, typically manifested in codes of ethics defined and shared by the profession.

Another professional feature is the autonomous status that professionals attach to their work (Harte and Dale, 1995). Autonomy refers to professionals' freedom to exercise individual judgement to define problems and the means for their resolution without external pressures from clients, non-members of the professions, or the employing organisation (Hall, 1968; Ritsema Van Eck-van Peet *et al.*, 1992; Harte and Dale, 1995). Autonomy can also be considered as a requirement of objectivity; according to Gummesson (1978), professional service providers are expected to be independent of suppliers of other goods and services. Often the autonomy and objectivity of the professional is the very reason why the client acquires the service; and it may even be required by law. For example, corporations must use independent auditors to approve annual accounts. In sum, professionals are expected to solve problems autonomously, free from the influence of non-members of the profession.

A high degree of customer participation is another commonly accepted characteristic of professional services (Larsson and Bowen, 1989; Hausman, 2003). Customer participation is often defined in the literature as the input provided by the client for the service production and/or delivery; customers contribute the required "raw material" to the work flow of the service organisation (Mills *et al.*, 1983). The client's input may include their body, mind or some physical possessions to be served; it may be information provision, actions or effort, or a manner of behaviour (Larsson and Bowen, 1989; Bitner *et al.*, 1997; Ennew and Binks, 1999). Some authors have emphasised the importance of customer participation outside the service encounter (Dellande *et al.*, 2004). For example, customers who comply with the prescribed diet regimen at a weigh-loss clinic are more likely to attain their goals (Bitner *et al.*, 1997; Dellande *et al.*, 2004).

Dependency on customer-provided input may have contributed to the conception that professional services are complex and heterogeneous (Ritsema Van Eck-van Peet *et al.*, 1992; Stewart *et al.*, 1998; Hausman, 2003). Hill and Neeley (1988) state that in professional services, the range of possible causes of a problem, as well as alternative solutions, is much greater than for other service types. As clients contribute a significant input to the service process, there are no standardised, ready-made solutions, but an evident need to customise solutions for each individual client (Larsson and Bowen, 1989, Hill and Neeley, 1988). In sum, it is presumed that problem solving within professional services is determined by the client's input.

Method

In order to see whether the conceptions laid out in the services marketing and management literature regarding the characteristics of professional services receive support from empirical studies conducted in the medical field, we conducted a systematic review of factors that have been found to influence problem solving in medical encounters, i.e. drug prescribing decisions. The prescribing decision is considered to exemplify the resolution of a patient's problem: the physician produces a diagnosis of the patient's condition, assesses the intervention options, and makes a decision regarding the treatment to prescribe (Thomas *et al.*, 1991, pp. 5-6). Obviously, a prescription for medical treatment is only one example of solutions to problems addressed at medical service encounters; other solutions could be, for example, a referral to diagnostic tests or surgery, the use of over-the-counter medicines, or guidance for a special diet. This review focuses on prescribing decisions because of the wealth of empirical studies available concerning physician's prescribing behaviour.

The objective of the review was twofold: first, to extract, collate and consolidate existing empirically grounded knowledge regarding the factors that influence prescribing decisions and, secondly, to enable comparisons with the presumed characteristics of professional services.

Four criteria were set for a study to be eligible for inclusion. It had to:

(1) be empirical in nature, based on the collection and analysis of primary and/or secondary data;

(2) focus on identifying factors that influence physicians' prescribing decisions;

(3) present the methodology the findings were based on; and

(4) be published during 1980–2005 (April) in English in a medical journal.

The literature source used was the PubMed database[1]. All articles found with the search word combinations "prescribing and decision*" "prescribing and behaviour/behavior" "prescribing and influence" "physician* and decision*" "doctor* and decision*" "drug* and choice*" "pharmaceutical* and choice*" and "prescribing and criteria" in the title were included, if they met the eligibility criteria[2]. The search with multiple search words returned altogether 877 articles[3], 29 of which met the eligibility criteria. Articles that focused exclusively on clinical factors (such as the patient's physical condition, or symptoms, or the qualities of certain pharmaceutical agents) or reported the effectiveness of different kinds of decision support system and intervention were dismissed.

Table I provides an overview of the empirical studies included in the analysis. Most of the studies used quantitative methods and physicians as informants. Three studies investigated physician–patient pairs. Most studies were conducted in the USA and the UK. The vast majority addressed prescribing decisions by general practitioners (GPs) or family physicians. Most studies focused on prescribing decisions regarding specific illnesses or classes of pharmaceuticals.

Using empirical findings from another discipline as secondary data emphasises the role of the researcher as the main research instrument. How well the researcher is able to interpret results from a different and potentially unfamiliar discipline is therefore critical to the analysis, as is defining the correspondence between the results of the reviewed studies and the issues addressed in the focal study. In our case the challenge was to interpret medical findings, and to connect them to the professional service characteristics we assumed to be influential in problem solving.

The analysis advanced in three phases. We first analysed the studies to extract factors that were reported to influence prescribing decisions. The empirical studies were highly heterogeneous in their approaches. Some investigated the influence of a specific factor on prescribing decisions, whereas others studied the order of influence of a bundle of potential factors. Some measured physicians' perceptions of influencing factors or their intentions to prescribe in hypothetical situations, while others studied physicians' actual behaviour. Several classes of pharmaceuticals and illnesses were studied, using both quantitative and qualitative methods. Such heterogeneity meant it was not possible to count only those factors that were reported as statistically significant. We instead took in those that appeared significant according to the methodology used in each study. The original authors' conclusions were also used in interpreting the results.

Secondly, in order to gain a general understanding of the influential factors, they were classified into eight groups that emerged inductively from the studies reviewed (Table II). Finally, these factors were interpreted in the light of the presumed professional service characteristics, in order to define the correspondence between the empirical data and professional characteristics (Appendix).

The heterogeneity of the reviewed studies confers both benefits and disadvantages. Clearly each study had its limitations in terms of the factors included and type of methods and data employed. We nevertheless assume that due to the heterogeneity, the results as a whole give a reasonably justified view of the factors that influence prescribing decisions. Biases that may be caused by focusing on a certain method of inquiry, geographical location, group of physicians, or class of pharmaceuticals are avoided. Many of the influencing factors found confirmatory evidence from several studies, which adds to the robustness of the results. It is worth noting that a review method such as this also provides a basis for inductive reasoning, in the sense that information beyond the predetermined object of inquiry will emerge. In this study, the empirical findings relate not only to the professional service features in focus, but also to other influencing factors.

The heterogeneity of the medical studies also has its downsides. Researchers may have defined the studied factors somewhat differently, but when used as secondary data, nuances are lost. The method produces relatively crude data that simply show that an association between certain factors has been found, but say little about the assumptions behind such findings, or about factors that were studied but not found influential. The main shortcoming of our method is, however, related to the fact

No.	Authors and publication year	Methods	No. of participants[a]	Country	Decision making[b]	Illnesses/drugs investigated
1	Hamann *et al.* (2004)	Quantitative	100	Germany	Actual	Schizophrenia
2	Schumock *et al.* (2004)	Quantitative	50	USA	Hypothetic	NA
3	Shen *et al.* (2004)	Quantitative	601	USA	Hypothetic	Arthritis
4	Hassell *et al.* (2003)	Qualitative	79	UK, Italy	Hypothetic	NA
5	Robertson *et al.* (2003)	Qualitative	35	Australia	Hypothetic	NA
6	Denig *et al.* (2002)	Qualitative	61	The Netherlands	Hypothetic	Urinary track infection, stomach complaints
7	Kasje *et al.* (2002)	Qualitative	21	The Netherlands	Hypothetic	Hypertension, hay fever, dyspepsia, HRT
8	Mintzes *et al.* (2002)	Quantitative	78	USA, Canada	Hypothetic	NA
9	Schröder-Bernhardi and Dietlein (2002)	Quantitative	NA	Germany	Actual	Lipid-lowering therapy
10	Huttin and Andral (2000)	Qualitative	29	France	Hypothetic	Hypertension, hay fever, dyspepsia, HRT
11	Steinke *et al.* (2000)	Quantitative	NA	UK	Actual	Antibiotics
12	Egberts *et al.* (1999)	Quantitative	NA	Netherlands	Actual	Antidepressants
13	Mangione-Smith *et al.* (1999)	Quantitative	10 + 306[c]	USA	Actual	Antimicrobial prescribing
14	Stevenson *et al.* (1999)	Qualitative	21	UK	Hypothetic	NA
15	Béria *et al.* (1998)	Both	Multiple	Brazil	Actual	Childhood diarrhea, antibiotics
16	Sclar *et al.* (1998)	Quantitative	NA	USA	Actual	Antidepressants
17	Britten and Ukoumunne (1997)	Quantitative	15 + 544[d]	UK	Actual	NA
18	Cockburn and Pit (1997)	Quantitative	22 + 336[e]	Australia	Actual	NA
19	Hart *et al.* (1997)	Quantitative	60	Israel	Hypothetic	Urinary track infection
20	Paredes *et al.* (1996)	Qualitative	40	Peru	Actual	Childhood diarrhea
21	Freeman *et al.* (1993)	Quantitative	353	USA	Hypothetic	Panic disorder
22	Lessler and Avins (1992)	Quantitative	148	USA	Hypothetic	Thrombolytic therapy
23	Safavi and Hayward (1992)	Quantitative	263	USA	Hypothetic	Classes of similar drugs
24	Shorr and Bauwens (1990)	Quantitative	NA	USA	Actual	Benzodiazepine hypnotic drugs
25	Segal and Hepler (1985)	Both	40	USA	Both	Diabetes, hypertension
26	Epstein *et al.* (1984)	Quantitative	30	USA	Both	Anti-inflammatory drugs
27	Avorn *et al.* (1982)	Quantitative	85	USA	Hypothetic	Vasodilators, analgesics
28	Segal and Hepler (1982)	Both	12 + 46[f]	USA	Hypothetic	Hypertension
29	Zelnio (1982)	Quantitative	118	USA	Hypothetic	NA

Notes: NA – not applicable, [a]physicians, [b]decision-making was considered "actual" when real prescriptions or patient consultations were investigated, other studies were marked as "hypothetic"; [c]10 physicians and 306 patients; [d]15 physicians and 544 patients; [e]22 physicians and 336 patients; [f]12 qualitative interviews and 46 survey respondents (physicians)

Table I.
Summary of empirical studies addressing factors that influence prescribing decisions

Factors that influence prescribing decisions	Studies (refer to numbering in Table I)
Drug-related factors	
Efficacy, control of disease, reliability	2, 6, 21, 25, 28, 29
Ease of use, compliance	2, 7, 23, 25, 28
Side effects, contraindications, safety	2, 6, 21, 25, 28, 29
Mechanism of action	6
Placebo effect	26
Personal experience with the drug	2, 6, 21
Monitoring requirements	2
FDA approved indications	2
Patient's condition (e.g. symptoms, age)	4, 7, 12, 16, 21
Physician characteristics	
Physician's age	1
Physician's level of training	11, 24
Length of practice, experience	20, 27
Patient preference factors	
Perceived or voiced patient demand/preferences	4, 6, 7, 8, 10, 13, 14, 15, 17, 18, 20, 23, 27
Physician's aim for patient retention	4, 7, 14, 15, 20
Cost factors	
Cost of the drug	2, 4, 10, 19, 22, 23, 26, 28
Reimbursement	7, 10
Patient's insurance	3, 10, 16, 22
Availability of free drugs for indigent patients	2
Information and guidance factors	
Commercial information	27
Scientific information	27
Advise from/opinions of/practices of other professionals	5, 7, 9, 23, 27
Prescribing guidelines	2, 10
Organizational/administrative factors	
Budget issues	4
Restrictions on prescribing	2
Practice setting	22
Convention factors	
Habit	1, 6, 20, 24
Social norms and expectations	20
Regional differences	12

Table II.
Factors that influence prescribing decisions according to reviewed studies

that the empirical findings are bound to reflect the agenda of the investigators: the results give an idea of only those factors that medical researchers in these particular studies have chosen to investigate. We assume that the data nevertheless provide a representative overview of those factors medical researchers consider important.

Findings from the medical field

The review of the empirical studies revealed that a number of different types of factors have been found to influence the prescribing decision. A wealth of studies has indicated the influence of different drug-related factors, particularly the effectiveness and safety of a drug, as well as its positive effect on patient compliance. Treatment decisions obviously depend on the physical condition of the patient, encompassing factors such as age and symptoms (e.g. Freeman *et al.*, 1993). Physician characteristics,

such as level of training, have also been found to influence physicians' prescribing behaviour (e.g. Shorr and Bauwens, 1990). Furthermore, many studies have reported the influence of patient preferences on physicians' decision-making (e.g. Cockburn and Pit, 1997).

The influence of cost factors on a prescribing decision has been addressed by a number of studies. Several authors have found that the price of the pharmaceutical product together with its reimbursement status and the patient's insurance coverage influence prescribing decisions (e.g., Lessler and Avins, 1992; Kasje *et al.*, 2002). Some studies have addressed the influence of different information sources and guidance factors. Both commercial and scientific information sources have been regarded as influential factors (Avorn *et al.*, 1982). Physicians also consider the advice of their colleagues, and prescribing guidelines, when making prescribing decisions (Safavi and Hayward, 1992; Schumock *et al.*, 2004). In addition, organisational and administrative factors, such as budget issues and restrictions on prescribing, influence decisions (Hassell *et al.*, 2003; Schumock *et al.*, 2004). Finally, prescribing decisions are influenced by conventions, at many levels, from the physician's personal habits to social and collegial norms, expectations and practices (e.g. Paredes *et al.*, 1996). A summary of the factors that have been reported to influence prescribing decisions is presented in Table II.

Some of the influencing factors were found to be relevant only under certain conditions. In particular, the influence of the cost of the product, and of patient demand, seem to depend on third factors. Huttin and Andral (2000) found that physicians considered the cost of pharmaceuticals only when a patient demanded cheaper or better-reimbursed drugs, when a patient was poorly insured, or when cost containment was required by mandatory prescribing guidelines. Furthermore, Hassell *et al.* (2003) compared physicians' prescribing decisions in the UK and Italy, and concluded that the relevance of cost was influenced by differences in reimbursement systems. The severity of the patient's condition also has a role to play: Kasje *et al.* (2002) found that the extent to which physicians tried to avoid patient co-payment (i.e. only partial reimbursement) was increased by diseases that were perceived as more severe, and by the perceived necessity of the treatment.

The influence of patient demand on prescribing decisions seems to be driven by the physicians' desire not to lose clients to other providers but maintain a good relationship with the patient (Stevenson *et al.*, 1999). According to Hassell *et al.* (2003), the relevance of client retention is associated with the general health care payment system: they found that in Italy, where GPs are paid on a capitation basis and there is a large number of GPs who do not reach the maximum number of patients allowed, competition works as an incentive to prescribe according to patient demand. Moreover, since national prescribing budgets do not exist for physicians in Italy, there is no limitation on physicians to prescribe.

The findings imply that the correct professional solution to a medical problem is not dictated by certain independent prescribing criteria, but that their relevance may depend on other factors in the decision-making context.

Findings compared to the presumed characteristics of professional services

Empirical findings regarding the factors that have been found to influence prescribing decisions were compared with the presumed characteristics of professional services in

order to see whether the characteristics are manifested in problem solving within medical services. Appendix clarifies how interpretations from the medical findings were made.

Based on commonly accepted conceptions regarding professional services, we assumed that professionals base their problem solving on their specialist knowledge, skills and experience. The empirical findings in the medical field support this assumption. Several studies emphasise the importance of different pharmaceutical factors, such as efficacy and safety, and the patient's condition. Assessing the patient's symptoms and the suitability of a pharmaceutical product can be considered a skill related to the specialist knowledge of doctors in medicine. Also the degree of education seems to influence problem solving: Shorr and Bauwens (1990) and Steinke *et al.*(2000) found that the physicians' level of training predicts their preference for certain drug categories. Furthermore, many authors reported that personal experience with a certain drug, or the level of clinical experience in general, influences prescribing decisions (Avorn *et al.*, 1982; Schumock *et al.*, 2004). Experience may also be related to habitual decision-making; for example, in a study by Hamann *et al.* (2004) the age of physician was the only variable that predicted the prescription of a particular type of pharmaceutical, suggesting that physicians may stick with the drugs they know best or have became accustomed to prescribing.

The belief that professional services providers first and foremost advance the best interests of the client was partly supported and partly contradicted by research findings regarding physicians' prescribing decisions. On the one hand, physicians seem to go to great lengths in advancing their clients' interests by trying to consider not only their primary health interests, but also their economic conditions. Studies conducted in the UK, Italy, The Netherlands and France showed that GPs use various strategies to reduce the cost of medicines to the patient, especially the less affluent patients (Huttin and Andral, 2000; Kasje *et al.*, 2002; Hassell *et al.*, 2003).

On the other hand, the findings of Hassell *et al.* (2003) suggest that there is an association between the basis on which physicians' income is generated and their prescribing decisions, implying that physicians' personal gain influences decisions at least to some extent. Furthermore, Paredes *et al.* (1996) found that physicians might compromise the medical quality of their prescribing decisions because they wanted to maintain their prestige as skilful and powerful physicians in a community that appreciated aggressive prescribing. In other words, physicians' prescribing decisions were influenced by their expectations of professional, social and economic rewards. Hence, it may be unrealistic to assume that in cases of conflicts of interest between what is profitable to the provider and the best solution for the client, the latter is chosen (Løwendahl, 2000, p. 19). At the least one can expect professionals to vary regarding their attitude to the expectations of altruism. Furthermore, some of the empirical findings suggest that advancing their patients' interest may be contradictory to advancing the interests of the society at large; for example, prescribing an expensive drug for an individual patient burdens the health care system (Hassell *et al.*, 2003).

The notion of the self regulation of a profession led us to assume that problem solving within professional services is influenced by collegial control, typically manifested in codes of ethics shared by the profession. Although the medical profession has its ethical codes, none of the reviewed studies reported their influence on prescribing decisions. Ethical codes are perhaps too general and well internalised by

physicians to be mentioned explicitly. Instead, physicians are reported to consider the advice, opinions and practices of their colleagues when making prescribing decisions (Avorn *et al.*, 1982; Schröder-Bernhardi and Dietlein, 2002). For example, Robertson *et al.* (2003) found that GPs followed the prescribing practices and advice of specialists, which influenced GPs decisions especially regarding less common and complex conditions, and patients that are difficult to manage. It seems that informal contacts within the professional network may be more influential than formal guidelines.

Professional service providers are expected to solve problems autonomously, free from the influence of non-members of the profession. Empirical findings in the medical context run somewhat contradictory to this assumption, as several factors seem to restrict physicians' autonomy. First, governmental and medical authorities influence prescribing choices by controlling the availability of pharmaceuticals and their reimbursement, and by issuing prescribing policies. For example, Huttin and Andral (2000) state that the institutional environment in France, involving, e.g. mandatory clinical guidelines introduced by the authorities, pressures physicians to consider costs when prescribing. Secondly, the professional organisation, the hospital, may influence physicians' decision making through administrative interventions such as prescribing restrictions (Schumock *et al.*, 2004). Thirdly, commercial sources of drug information, i.e. promotions by pharmaceutical companies, have been reported to influence physicians' prescribing decisions (Avorn *et al.*, 1982). Fourthly, perceived pressure from patients together with physicians' willingness to retain their clientele seems to result in inappropriate prescribing in some cases (Kasje *et al.*, 2002; Béria *et al.*, 1998). Physicians are willing to compromise the autonomy and objectivity of their decisions because they wish to maintain a good relationship with the patient (Stevenson *et al.*, 1999). In sum, it seems clear that physicians are acting under the pressure of conflicting interests, trying to maintain their autonomy in medical decisions.

Based on the literature, we also assumed that problem solving within professional services is determined by the client's input. The presumed need for customisation is readily supported by the findings in the medical context; the prescribing decision is obviously dependent on the characteristics of the patient and their symptoms and physical condition (Freeman *et al.*, 1993; Sclar *et al.*, 1998). In other words, the client's condition determines the characteristics of the problem to be solved. It is worth noting that many studies reported the user friendliness of the medicine as an important factor in prescribing decisions, since it supports patient compliance (Kasje *et al.*, 2002). Patients contribute significantly to the success of the medical service by being in charge of its implementation;, i.e. taking the prescribed medicine or following the advice given. The professional cannot solve the problem without the customer's co-operation, and this seems to be taken into account by physicians who try to choose a medication that is easy for the patient to take.

Furthermore, a wealth of studies report that patient preferences for treatment choices have a strong influence on prescribing decisions. In fact, studies have shown that physicians modify their prescribing decisions not only according to demands voiced by the patient, but also according to their own perception of the patient's potential preferences. For example, Cockburn and Pit (1997) found that when a GP thought a prescription was expected, the patient was ten times more likely to receive one than when the GP thought it was not.

Besides, the characteristics proposed in the professional services literature, a number of other factors were found to influence problem solving in the medical context. The above discussion already revealed commercial information, organisational restrictions, and governmental policies as examples of these factors. We have shown in Figure 1 all the factors that have been found to influence prescribing decisions (Table II). They are grouped into six general categories, relating to the problem, service encounter, profession, organisation, market, and institutional environment, which are potentially valid for other professional services, too. The categories are depicted as layers within each other to denote that the influencing factors are not necessarily independent but often interrelated.

The factors in the problem and provider–client encounter layers are at the heart of the service provision. Problem solving is fundamentally tailored according to the characteristics of the problem under consideration and its available solutions, as shown in the importance of the patient's condition and the pharmaceutical qualities of a drug as influencing factors in prescribing decisions. Professionals use their specialist knowledge, skills, and experience to solve the client's problem, but co-operation from the client is often paramount. Clients may also influence service provision by bringing expectations regarding preferred outcomes, voiced or unvoiced, to the service encounter. This received ample evidence from the drug prescription studies.

Other layers of factors related to the organisation, profession, and market also influence problem solving. For example, the problem solving seems to be subject to the influences of the employing organisation, its norms, and systems of cost and reward allocation. Furthermore, the professional community provides its conventions and collegial control to regulate individual professional's service production and delivery. Besides, these factors, prescribing decisions are influenced by commercial persuasion deriving from the pharmaceutical companies and targeted at physicians and patients to the extent allowed by the regulatory environment.

Finally, the institutional environment of professional services sets the operating framework for the market, profession, organisations, service providers and their clients; the arrow in Figure 1 shows that factors from the outer layers may influence the factors in the inner layers. The institutional environment encompasses the regulations, authorities, norms and the whole social system in which the professional practices.

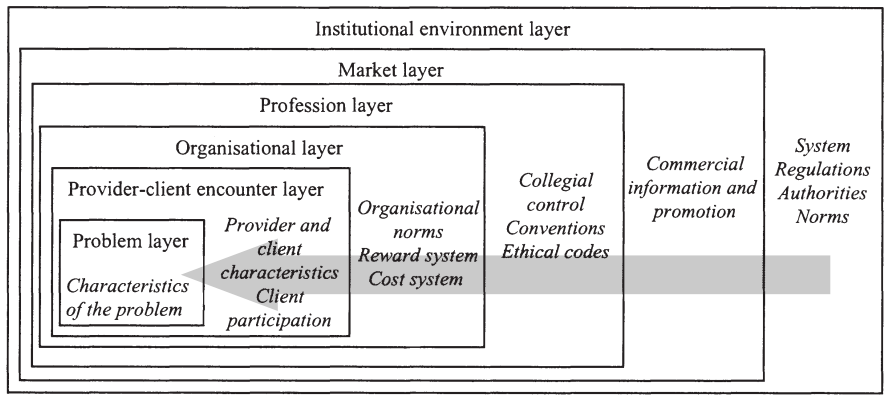

Figure 1.
Layers of factors that influence problem solving within the professional services context

In medical services, this wider institutional environment seems to have an indirect influence on prescribing decisions: for example, medical authorities such as the FDA determine the available set of pharmaceuticals that a physician can consider for the treatment of a particular condition, and the influence of cost on decisions depends on the reimbursement system. Pharmaceutical and medical markets are highly regulated, which has emphasised the importance of the regulatory environment in our findings. However, many other professional fields are also subject to some regulatory environment; for example, an architect's design for a building must adhere to certain material and safety requirements. At least the licensing or accrediting system of many professional fields is to some extent regulated.

Conclusions

By comparing the presumed characteristics of professional services with empirical evidence from the medical field, we found empirical support for many of the often repeated conceptual presumptions relative to professional services, but also some contradiction.

The professional's specialist knowledge and the clients' input found support as significant influencing factors in prescribing decisions. The assumption regarding the influence of collegial control on problem solving was partially supported: the influence of ethical codes found no support, but that of other professionals as collegial advisors became evident, although their influence seemed more informal than expected.

Some degree of contradiction was evident with respect to the presumed altruism and autonomy of professionals. It seems as if the research domain of professional services had leaned too much on ideas of altruism and autonomy, originating from sociology, and overemphasised them as core characteristics of professional services and their provision. Many professional service sectors have during the past decades developed into highly competitive businesses where market forces, promotional factors and the business goals of the professional organisation have become increasingly influential, leaving less space for the traditional values of the profession. It may be that many Western societies allow the professions less freedom, and in reality, problem solving is conducted under the pressure of conflicting interests rather than autonomously, and altruism is subordinated to the values of economic exchange. A loss of autonomy may also limit the degree to which professionals are in fact able to advance the best interests of their clients; for example, prescribing budgets for physicians may restrain them from offering the best possible cure for the patient.

The fact that client input influences prescribing decisions was also considered to threaten physicians' autonomy. While the findings demonstrated that customer contributions are necessary and important in terms of defining the most suitable treatment and implementing it, the patient preferences that were manifested in demand for prescriptions were mainly regarded as negative and were considered to cause medically unjustified prescribing decisions. Laing and Hogg (2002) reported in their study that physicians' resistance to the development of patient-focused service provision was partly due to the perceived challenge to physicians' autonomy and expertise arising from patient empowerment. The challenge in coupling expectations of autonomy with customer focus is that professionals should use their judgement to advance the clients' best interests even against the client's preferences (Mills and Moshavi, 1999). For example, a physician should decline to prescribe unnecessary or harmful substances to patients even if they request it.

It seems that in modern society, consumerism is evidently changing the relationship between the professional and the client, as clients take more responsibility for their own welfare (Mills and Moshavi, 1999). Changes in public policy towards consumer rights, increasing education and availability of information, as well as declining social barriers, decrease the information and power asymmetry between consumers and professionals (Hogg *et al.*, 2003). In effect, professional autonomy may need to be redefined.

The professional services literature has focused on service characteristics related to the problem, the service encounter and the profession. In fact, the assumption regarding autonomy suggests that these should be the only layers of factors influencing problem solving for the client. Other influencing factors, embedded in the broader context of professional services, nevertheless emerged from the medical data (Figure 1). It seems that professional services researchers have not paid enough attention to the influence of organisational and market factors on professional problem solving, and that they have underestimated the role of the institutional environment of many professional businesses.

Our findings are based on evidence from one profession, the medical field, and thereby from problem solving in professional consumer services. As medical services are commonly regarded as typical professional services and no clear demarcation has been drawn between business-to-business and consumer service characterisations, we believe that our findings bring valuable insights to professional services research in general.

Implications for research and practice

Our findings give reason to suspect that the traditional, somewhat idealised descriptions of professional services may not entirely fit the modern professional service industries. We encourage further testing of the validity of the presumed professional characteristics be made in other professional service sectors, as this would inarguably strengthen the conceptual foundations of the research domain (Conchar, 1998; Thakor and Kumar, 2000). As many professions offer opportunities for interdisciplinary research, and empirical evidence of the factors that affect problem solving is readily available, we urge researchers to use this data.

The proposed framework for the factors that influence problem solving denotes the layers of environment into which professional services are embedded (Figure 1). It is not to be taken as a model for statistical testing, rather a heuristic framework proposed to generate further research on factors that have not previously attracted attention in the professional services field. Although similar layers of environment have been identified in industrial buying behaviour research (Webster and Wind, 1972; Sheth, 1973; Möller and Laaksonen, 1986), few if any attempts have been made to study the influence of such factors on problem solving within professional services. Much of the research conducted in professional service contexts is focused on the problem, encounter, and profession layers. Yet our data indicate this is not sufficient for analysing professional problem solving, since factors from the outer layers essentially influence service provision. The interrelationships and networks of actors operating in the institutional, market, organisation and profession layers, and their mutual influence and interdependence, deserve more attention. One interesting research question would be, for instance, the extent to which market level actors are able to shape the conventions and norms of professions. The potential influence of actors in the inner layers on the outer layer factors

should also be addressed; for example, the influence that professional associations may have on the institutional layer, e.g. legislation.

Our study holds important lessons for medical research, too. While patient participation is a widely researched topic within health care research, the studies addressing prescribing decision making tend to simplify patient participation as only patient demand for a prescription. Medical researchers could utilise the rich marketing and management literature on customer participation and study the effects of different forms of participation on physician's prescribing decisions, and ultimately on the success of the medical service outcome. A particularly interesting question to ponder is how to increase the quality of the service by co-opting client contributions and appreciating clients' judgement regarding their own needs, without jeopardising the autonomy and objectivity of the physician in professional matters. Overall, the question of the autonomy of the medical profession deserves more attention, as the development of increasing customer focus coupled with increasing pressure from third-party payers to monitor health care costs can be seen as fundamentally challenging to professional autonomy (Laing and Hogg, 2002; Hassell *et al.*, 2003).

With regard to practical implications, prescribing decisions are of interest to several stakeholders. For the managers of health care organisations, this paper highlights the multiple layers of factors that affect physicians' decision making. A physician may be influenced more by the conventions and collegial networks of the medical profession or the institutional environment than by the employing organisation. This should be taken into account when designing the norms and policies of the organisation in order to avoid unnecessary conflicts between the professionals and their organisation.

Marketers of pharmaceutical products and devices could benefit from analysing their market from a broader perspective. Not only physicians, but also patients, health care organisations, and regulatory bodies decide on the acquisition of their products.

Our results also offer insights for health care policy makers and third-party payers who are concerned with ensuring economic and appropriate prescribing. They should take into account the fact that prescribing decisions are sometimes significantly influenced by patients, health care organisations and marketers of pharmaceutical products. Interventions to change prescribing behaviour are not sufficient if they are targeted only at physicians; rather, they should incorporate strategies to convince patients as well of the merits of new treatment policies (Paredes *et al.*, 1996). Furthermore, informing physicians may be pointless if organisational norms do not support the changes.

Notes

1. PubMed, a service of the United States National Library of Medicine, includes over 15 million citations for biomedical articles. These citations are from the MEDLINE database and additional life science journals.
2. The symbol * refers to truncated words.
3. The true number was lower as the same article may have appeared with different search words.

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Appendix. Interpretations made from the medical findings

Assumptions regarding professional services	Factors that influence prescribing decisions[a]	Interpretation
Service providers solve problems based on their specialist knowledge, skills and experience	Pharmaceutical factors such as a drug's efficacy and safety (2, 6, 21, 25, 26, 28, 29) Patient's condition (4, 7, 12, 16, 21) Physicians' level of training, length of practice and experience (11, 20, 24, 27) Physicians' experience with a certain drug (2, 6, 21) Scientific information regarding pharmaceuticals (27)	Assessing pharmaceutical factors, patient's condition and scientific information indicates the use of specialist knowledge and skills. Level of training also indicates specialist knowledge and skills. In addition, a physician's experience in general and with a specific drug has been found to be influential. *Conclusion: the assumption is supported*

(*continued*)

Table AI.

Assumptions regarding professional services	Factors that influence prescribing decisions[a]	Interpretation
Service providers advance their clients' interests rather than self-seeking interests	Patient's condition and pharmaceutical factors (2, 4, 6, 7, 12, 16, 21, 25, 26, 28, 29) User friendliness of the drug (2, 7, 23, 25, 28) Cost for the patient (4, 7, 10, 23, 28) Availability of free drugs for indigent patients (2) Cost for the physician or their clinic (3, 4, 22) Physicians' willingness to maintain their prestige (20)	Considering patient's condition and pharmaceutical factors indicates advancing patients' medical interests. Considering the user friendliness of the drug indicates advancing patients' interests. Considering the cost for the patient and availability of free drugs indicates advancing patients' financial interests. However, considering the cost brought to the clinic or the physician, and the physician's prestige, indicates advancing self-seeking interests. *Conclusion: the assumption is partially supported and partially contradicted*
Problem solving is influenced by collegial control, typically codes of ethics	Advice from, opinions of and practices of other physicians (5, 7, 9, 23, 27)	Codes of ethics were not mentioned. However, considering other physicians' advice, opinions and practices indicates collegial influence. *Conclusion: the assumption is partially supported*
Service providers solve problems autonomously	Prescribing policies issued by governmental authorities (10) Administrative interventions (e.g. prescribing restrictions) by the clinic (2, 4) Promotion by pharmaceutical companies (27) Acquiescing with patients' preferences to retain clientele (4, 7, 14, 15, 20)	Several factors have been found to restrict physicians' autonomy in prescribing decision-making. *Conclusion: the assumption is contradicted*
Client's input determines problem solving	Patient's condition (4, 7, 12, 16, 21) User friendliness of a drug (effect on compliance) (2, 7, 23, 25, 28) Patient preferences (4, 6, 7, 8, 10, 13, 14, 15, 17, 18, 20, 23, 27)	Considering patient's condition indicates customising problem solving according to client input. Considering patient's willingness to implement the treatment indicates the influence of patient co-operation. Also patient preferences have been found to be influential. *Conclusion: the assumption is supported*

Table AI.

Note: [a]Findings are reported in studies indicated by numbers and listed in Table I

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ARTICLE 4

Jaakkola, Elina – Brännback, Malin (2001) Changes in professional services management: Do physicians meet the needs of the modern patient? *Proceedings of the EMAC Conference* (CD-ROM). Norwegian School of Economics and Business Administration. May 2001, Bergen, Norway.

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Changes in Professional Services Management: Do Physicians Meet the Needs of the Modern Patient?

Track: Rethinking Services

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Changes in Professional Services Management: Do Physicians Meet the Needs of the Modern Patient?

Abstract:
In this paper, the effect of consumer empowerment on the interaction between medical service provider and customer is discussed. Our empirical study suggests that European gynaecologists have very variable perceptions of the patients' ability and willingness to participate. It seems that paternalistic, informed and shared decision-making styles are all practised today. Also patients vary in how much they wish to gain information and participate in medical decision-making. We suggest that the outcome of professional service encounter is affected by how well the parties' perceptions match. Doctors should rethink their interaction style as a means of responding to the individual customer's service needs.

Keywords: medical services; professional services; interaction styles; HRT

Purpose of the paper

The purpose of this paper is to discuss the challenges the ongoing development towards consumer empowerment creates for medical service providers. First, we discuss how consumer empowerment has changed the doctor-patient relationship. Second, we present the empirical study. Third, two key questions under debate in medical services, information and decision-making, are elaborated on. Fourth, we discuss through practical European examples the new situation physicians face due to the changing role of the patient. Empirical data is used to illustrate and complete the theoretical literature.

The evolution of doctor-patient relationship

The traditional concept of doctor-patient relationship places the patient in a passive, compliant role, where the patient is only expected to seek competent help and co-operate with the physician (Brody, 1980). However, during the past decades this authoritarian setting has been challenged by both doctors and patients. The reasons for this have been sought from the rise of consumerism,

and the notion on consumer sovereignty in health-care decision making as well as the passage of legislation focusing on patients rights (Charles et al., 1999). There are also economic reasons for engaging people to take a larger responsibility on their own care: by increasing the general health awareness and tendency to self-care and disease prevention, health costs can be reduced. It has been realised that not only the clinical outcomes matter in medical services, but also *service quality* in medical context has been recently discussed in both marketing and medical literature (see e.g. Lee et al., 2000; Kenagy et al., 1999). Our interest lies in the effect that the increasing consumer empowerment has on the interaction between the professional service provider (doctor) and the customer (patient) in the service encounter.

According to the PriceWaterhouseCoopers HealthCast 2010, the new empowered role of patients is one of the three major forces of chance in the global health care industry in the next decade. Also significant amount of research literature supports the value of training patients to be more active and effective participants in the medical encounter. Still, the medical world has not demonstrated readiness to fully embrace their recommendations (Lang, 2000).

An illustrative example: HRT prescribing in gynaecologist-patient relationship

We have been investigating the medical decision-making process concerning a certain drug category in a corresponding doctor-patient relationship. A meaningful relationship from the theoretical point of view is the gynaecologist-patient relationship. Most women have experience of being a patient of a gynaecologist, many on a very regular basis, and they share similar health concerns. We decided to focus on the decision-making concerning hormone replacement therapy (HRT) for postmenopausal women. HRT is a very common medication that has been discussed much in ladies' magazines and other media. It is not a life-saving treatment, but one which may contribute to considerable health cost savings through e.g. osteoporosis prevention. On the other hand, long-term HRT use seems to cause an increase of breast cancer risk. On a personal level it makes the decision of whether to take it or not an individual assessment of both health benefits and risks it brings.

Empirical data was gathered by interviewing 26 gynaecologists in four European countries. (Finland: 7 interviews, the United Kingdom:7 interviews, France: 7 interviews, and Italy: 5 interviews). Due to the qualitative nature of the study and the limited number of interviewees, the sample was non-randomised and consisted of professionals who have a long-time experience of treating postmenopausal women. Interviews were conducted within the time period of 1.6.-25.9.2000. Issues discussed with the interviewees concerned for

example their management of postmenopausal patient flow, decision-making concerning the treatment and opinions about HRT.

Information and decision-making

Internet has accelerated the development towards patient empowerment by placing medical information within easy reach for almost anyone. Doctors no longer have a monopoly on information access (Lemaire, 2000). However, medical information on the Internet is of varying quality and it is difficult for consumers to find trustworthy Web sites. Information asymmetry is both one of the greatest problems in the patient-physician relationship, not least because it prohibits equal and efficient communication between the parties, as well as a source of value perception. As in any other professional service, patients come to the physician because they lack the expertise to deal with the problem by themselves. However, doctors should be able to pass on the relevant information tailored to fit the patient's information needs. According to a recent study (Cegala et al., 2000), well informed patients are more compliant with medications, behavioural treatment, and follow-up treatments.

Information is closely related to the question of who should make the medical decisions. Charles et al. (1999) discuss three different models of decision making: (i) in the paternalistic model, the patient passively acquiesces to professional authority by agreeing to the doctors choice of treatment, (ii) in the shared model, there is a two way exchange of information and the patient and the doctor decide together, and (iii) in the informed model, the patient decides after the doctor has explained the options (Charles et al., 1999). In practise, these decision-making models are hardly something consciously followed by physicians. Instead, we suppose that every physician has developed a certain way of interacting with the patient and managing the service encounter, which in essence reflects the basic assumptions of these decision-making models. They have developed certain *interaction styles*.

The three decision-making models suggested by Charles et al. (1999) were well applicable to the interviewed physicians, even though all doctors stated that the patient's role is important in decision-making. Doctors were categorised based on their opinions on the patient's role in decision-making. The most common way of decision-making seems to be the shared model, where the doctor explains the options, discusses the pros and cons and then together with the patient decides whether it is useful to start the medication or not. 13 out of 26 interviewed doctors applied the shared model. According to Strull et al. (1984), many patients do not want to make medical decisions on their own. Nevertheless, they want to be involved in it. Quite a few doctors pointed out the same thing: although many patients asked the doctor to do the final decision, they wanted to be informed about the available choices and

consequences of choosing one or another. It seems that although some patients have already made up their mind about wanting the hormonal treatment or not, most women still want to discuss it thoroughly.

Eight doctors seemed to have quite a paternalistic way of dealing with the patient: they felt that patients are not knowledgeable enough to decide whether to start HRT or not but need to be persuaded by the doctor. Those doctors stated that patients are allowed to make choices about *practical aspects* of the treatment: by letting the patient choose the route of delivery (i.e. tablets, patches, gels), she is given an opportunity to participate. However, seven doctors explicitly emphasised that they can never command the patient without loosing their compliance to the treatment. The minority of the interviewed doctors, 5 out of 26, seemed to practise the informed model. These doctors give the patients all facts and figures and then tell them to decide without taking a stand. For example, a British doctor stated: "Very often, when they are uncertain about something, I tell them to get literature or surf the net to read about it and come back when they have made their decision".

The limited number of interviewees inhibits us from making conclusions about the effect of culture on decision-making styles. However, our sample suggests some cultural differences: the paternalistic style was most common in France, whereas in Finland, doctors practised either shared or informed decision-making style. In the UK, all decision-making styles were equally observable.

As such, one interaction style is not better than another. We argue that the key to improving the medical service management is the ability to meet the *patient's unique interaction needs*. As John (1996) points out, patients differ in the extent of desired control and participation in the service encounter. The medical professionals should accommodate to the patient's orientation to control and participation so as to approach the patient encounter keeping this in mind. According to a study by Brown and Swartz (1989), interactions with the physician have the greatest single impact on the patient's overall service evaluation.

Meeting the patient's changing needs

The interviewed doctors seemed to put patients into two groups: the informed, active patients and the less-informed, passive patients. Doctors tend to evaluate a patient's will and ability to participate based on how informed, educated and affluent she is. Especially in the UK, where the population is multicultural, doctors felt that their patients' knowledge and eagerness to participate vary considerably. Some patients bring articles and Internet prints to the appointment, some have very little knowledge on menopause-related

matters. Some doctors mentioned that they modify their interaction style depending on the patient. An Italian gynaecologist said: “It depends on the degree of education. With those of a medium-high degree, I discuss the therapy with them; a medium-low degree trusts the doctor”.

In addition to patient’s orientation to control and participation, also her values and attitudes affect the service encounter. Menopause and hormonal treatment are emotional issues and women have quite varying opinions about them. Also doctors’ opinions are diversified: even though medical doctors could be expected to be objective and base their opinions on clear clinical judgement, there is still reasonable amount of variation in how HRT is prescribed. For example, doctors do not agree on the contra-indications for HRT use. However, the variation is much more significant among patients. The interviewed doctors agreed that it is common for women to have a strong opinion about HRT already before they have talked to a doctor: some absolutely want it, others oppose it. The majority is willing to discuss it. However, all women have received some information and have formed some kind of an opinion.

What happens, when these groups meet? Are doctors ready to meet the empowered patients? In the old paternalistic expert-novice service setting, this problem did not exist. In Figure 1, some suggestions of the outcomes of doctor-patient interactions are made. When both parties have a very positive attitude towards the medication and the doctor thinks it has few contraindications, the result of interaction is probably consensus. Both parties agree and the patient feels she has received good service and maybe becomes a loyal customer. Also, when the patient is absolutely certain of not wanting hormones, consensus can be reached with a doctor who has a reserved attitude towards HRT. According to a Finnish doctor, some patients come to her because she has a reputation of being a doctor who does not push HRT to reluctant patients.

DOCTOR \ PATIENT	positive	neutral	negative
positive	Consensus Trust Commitment	Doctor-dominated choice	Potential problem area
neutral	Patient-dominated choice		Patient-dominated choice
negative	Potential problem area	Doctor-dominated choice	Consensus Trust Commitment

Figure 1 Suggestions for patient-doctor interaction outcomes when different attitudes meet.

Problems may arise when two opposite perceptions meet. Especially if the patient is reluctant, the service provider, the doctor, should be able to modify his or her behaviour. A customer, who is very afraid of the cancer risk, wants to grow old naturally or who considers hormones a taboo, will not come back to a doctors who is insensitive to the patient's needs and tells her to take HRT. In this situation, if the doctor and patient do not share even the same idea of the decision-making style, the result may be a very confused, non-compliant patient and a frustrated doctor. When either party has a neutral attitude, the decision is likely to be dominated by the one with a strong attitude. Also, combining attitudes with decision-making styles reveals a multitude of different interaction settings. It should be noted that not all medications are as emotionally charged as HRT is.

Conclusion and implications

In this paper, we have emphasised the need for understanding those changes that patient empowerment will bring, and already has brought, to managing the medical service encounter, i.e. professional services. Patients have become customers and doctors professional service providers. The empowered patients have varying attitudes, values and information needs and they differ in how and to what extent they wish to participate in decision-making. Hence the service providers should rethink their interaction style as a means of responding to the individual customer's service needs. A skilful doctor is able to assess the patient's ability and needs as the service process proceeds and adapts his or her interaction style accordingly. We suggest that by training physicians to be more perceptive to patients interaction needs, the perceived service quality, patient's compliance, and also health outcomes could be improved. This study focused merely on the doctors' side of the relationship

and further research is needed in order to elaborate on the patients' perceptions. Also, it should be investigated if and how patients' interaction needs differ according to the severity of his or her condition. The cultural differences also need further elaboration.

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ARTICLE 5

Jaakkola, Elina (2006) Customer participation in medical services: Service providers' perceptions

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Customer participation in medical services: Service providers' perceptions

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Abstract:
Whilst the relevance of customer participation to service production and delivery is well established conceptually, empirical studies investigating the actual manifestations of participation in service production are scarce. This paper reports the findings of a qualitative, inductive study investigating physicians' perceptions of the manifestations of patients' contributions to the production and delivery of the medical service, and the influence of such manifestations on prescribing decision-making. Patient contributions to different stages of the professional services process are identified. Providing support for suggestions made in the services marketing and management literature, it is concluded that the input patients may contribute to medical service production may involve resources, actions, and interactions. Implications to research and practice are discussed.

Keywords: Professional services, Customer participation, Medical services, Physicians, Prescribing decisions

Introduction

One of the unique characteristics of services is simultaneous production and consumption, making customers an integral part of the production and delivery process of many services (Rodie & Kleine 2000). A vast body of literature concerning services marketing and services management has recognized the importance of customer participation (Mills et al. 1983b; Kelley et al. 1990; Bitner et al. 1997). It is considered that customer participation enhances the productivity of service firms, as it allows them to take advantage of customers' skills, abilities and labour (Fitzsimmons 1985; Bowen & Jones 1986). Customer participation could have a significant effect on the service firm's competitive quality (Lengnick-Hall 1996; Bitner et al. 1997; Prahalad & Ramaswamy 2000). In addition, a number of researchers

have found positive associations between participation and customers' quality perceptions and satisfaction (e.g., Kellogg et al. 1997; Ennew & Binks 1999; Lengnick-Hall et al. 2000; Dellande et al. 2004). Consequently, the importance of studying customer participation has been emphasized by many researchers.

However, whilst the relevance of customer participation is well established conceptually, rather diverse approaches and vague definitions of participation are employed in empirical studies. Moreover, definitions of participation are not empirically grounded: a systematic review of empirical studies addressing customer participation in service production and delivery revealed that extant research has by and large omitted to investigate participation itself, i.e. its actual manifestations in the service process. Instead, participation is used as a predefined concept to explain other variables, often customer satisfaction and perceived quality (Cermak & File 1994; Kellogg et al. 1997; Ennew & Binks 1999; Broderick & Vachirapornpuk 2002) or consumers' attributions of service failure (Hubbert 1995; Bendapudi & Leone 2003; Yen et al. 2004). Furthermore, the vast majority of empirical studies focus on clients' perceptions of participation, and only a few studies take the perspective of the provider (see Boström 1995; Lachman 2000; Hsieh et al. 2004). Hence, we have a limited understanding of the ways in which customer participation actually manifests itself for the service provider, and how it influences service production and delivery.

This paper attempts to redress this gap in the services marketing literature by *investigating physicians' perceptions of the manifestations of patient participation in the medical service production and delivery process.* The aim is to comprehend and interpret participation on its own terms, rather than to test some pre-conceptualized variables (cf. Hirschman 1986). An inductive, qualitative research approach is therefore applied.

Professional services – which medical services well represent (e.g. Hogg et al. 2003) – is a meaningful context for the study as customer participation is assumed to be prominent in professional services in particular (e.g., Goodwin & Radford 1993; Hausman 2003). Furthermore, customer participation is a relevant topic particularly in the field of medical services. Within recent decades, the traditional paternalistic model of medical decision-making, in which doctors make decisions on behalf of their patients, has increasingly come to be seen as outdated, and shared decision making is advocated as an ideal model (Frosch & Kaplan 1999; Stevenson et al. 2000). Increased patient empowerment is a result of various socio-political changes, such as increasing consumer education and availability and accessibility of health-care information, declining social barriers between professionals and their clients,

as well as changes in public policy towards consumer rights (Cahill 1998; Department of Health 2001; Hogg et al. 2003). Supporting this development are data reporting that active patient participation may produce a number of positive outcomes, such as increased patient satisfaction (Gattellari et al. 2001; Golin et al. 2002), improved medical outcomes (Rachmani et al. 2002; Ward et al. 2003), better adherence to treatments (Golin et al. 2002; Adams et al. 2005), and even a higher perceived quality of life (Street & Voigt 1997).

Studies on patient participation have mainly focused on decision making. Researchers have investigated the extent to which patients wish to participate in decisions concerning their care (Guadagnoli & Ward 1998; Keating et al. 2002), patient characteristics that influence their desire to participate (Thompson et al. 1992; Street et al. 2005), and potential means of increasing participation (Butow et al. 1994; Brown et al. 2001; Kidd et al. 2004). However, a degree of controversy over increasing patient influence on prescribing decisions is evident in the medical literature. Whilst promoters of participation consider patients as "experts with a unique knowledge of their own health and their preferences for treatments" (Say & Thomson 2003), researchers studying doctors' prescribing behaviour tend to regard patient participation as demand for potentially unnecessary prescriptions (Schwartz et al. 1989; Paredes et al. 1996; Mangione-Smith et al. 1999; Stevenson et al. 1999). Such approaches put physicians in the pressures of conflicting interests: on the one hand, sensitiveness to patients' preferences is expected (Department of Health 2001; Stevenson 2003), but on the other, prescribing decisions should be rational and economic (Schwartz et al. 1989; Bradley 1991). In fact, little effort has been made to clarify the different forms of participation and their implications to physicians' decision making. For this purpose, this study investigates the influence of the manifestations of patient participation on prescribing decision-making. Services marketing research should not ignore the development towards increased consumer empowerment but attempt to gain more insights into customer participation in professional services.

The remainder of the article is organised as follows. The next section outlines a theoretical framework for customer participation in the professional service production process. After that, the methodology of the empirical study is presented, followed by an analysis of the manifestations of patient participation in the medical service process. The conclusions relate to different types of customer input to a service production. Also implications for services research and practice are discussed.

Customer participation in professional service production

The professional service process principally focuses on problem solving (e.g., Gummesson 1978). Consumers typically seek the services of a professional due to their lack of the know-how required to solve a problem or execute a task by themselves (cf. Rouse 1991). Professional service providers possess specialist knowledge and skills which afford them the right to isolate problems and determine the means for their solution (Mills et al. 1983b). In producing the service, the professional uses a set of resources such as specialist know-how and experience, as well as the technology and systems of the professional organisation to carry out an assignment (provider's input) (cf. Gummesson 1978; Grönroos & Ojasalo 2004). However, the client's input provides the necessary raw material (Mills et al. 1983b). During the service operation, the problem is identified and studied, goals are formulated, and methods of problem resolution are specified (cf. Gummesson 1978; Gadrey & Gallouj 1998). The *output* of the process is the benefits of the service for the customer. The immediate outcome of the professional service is advice, a professional opinion, or information that serves as a *solution to the client's problem* (Ritsema van Eck-van Peet et al. 1992). Sometimes the final result of the implemented service unfolds only over time: it is likely to be many months before the earnings or losses produced by an instance of investment advice, for example, can be assessed (Sharma & Patterson 1999). The result of an implemented solution can be described as the ultimate service outcome (cf. Halinen 1996). The professional service process is illustrated in Figure 1.

In general, customer participation can be considered as the contributions (input) that is provided by the customer to the service production and delivery process (e.g., Mills et al. 1983b; Larsson & Bowen 1989; Rodie & Kleine 2000). Services marketing literature offers a variety of definitions of what customer inputs to the service process may include. For example, Rodie and Kleine (2000) regard customer participation as the actions and resources supplied by customers for service production, including customers' a) mental inputs, such as information and cognitive effort, b) physical inputs, referring to tangibles and physical efforts, and c) emotional inputs, such as behaving patiently in an unpleasant service situation. Larsson and Bowen (1989) make a distinction between the "raw material" provided by the customer, such as the specification of desired outcomes and the client's body, mind, and/or goods to be served; and the client's actions. Kelley et al. (1992) discuss customer participation in terms of their technical contributions, involving *what* the customer provides for the service encounter, for example labour or

information, and functional contributions i.e. *how* the customer behaves in terms of interpersonal aspects such as courtesy and friendliness.

Besides these examples, many other explications exist in the literature as well. All in all, definitions of participation revolve around three types of customer contribution: First, many researchers discuss the *resources* that clients provide in the service production, such as information (e.g., Mills & Moberg 1982; Kelley et al. 1992; Ennew & Binks 1999), the client's body, mind or tangibles (e.g., Larsson & Bowen 1989; Bitner et al. 1997), or time (e.g., Silpakit & Fisk 1985; Cermak & File 1994). Second, participation may include some form of concrete *actions, efforts or labour* (e.g., Kelley et al. 1992; Bitner et al. 1997; Broderick & Vachirapornpuk 2002; Bendapudi & Leone 2003). Third, many authors have included the client's *emotional or interaction inputs*, such as manner of behaviour, in their definition of participation (e.g., Kelley et al. 1992; Ennew & Binks 1996; 1999; Rodie & Kleine 2000). These potential customer inputs to the professional service production and delivery process as suggested in the literature are outlined in Figure 1.

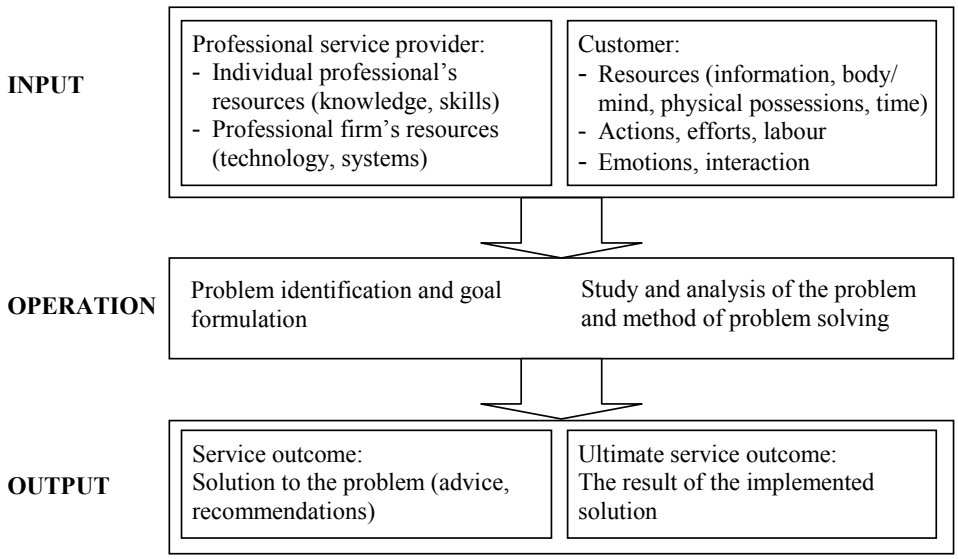

Figure 1 Potential customer inputs to professional service process.

The next section presents an empirical study that investigated the kinds of inputs customers contribute to the medical service process.

Methodology

The empirical study investigated physicians' perceptions of the manifestations of patients' contributions to the production and delivery of the medical service, and the influence of such manifestations on prescribing decision-making. In accordance with the elements of professional service production described in the previous section, the central components in the medical service process are producing a diagnosis of the patient's condition (problem formulation), assessing the intervention options (analysis and study of the problem), and decision-making regarding intervention (solution to the problem) (e.g., Thomas et al. 1991, pp. 5-6). The empirical study focused particularly on these central aspects.

The research approach was inductive because the aim was to investigate physicians' perceptions of participation without imposing predefined concepts. Qualitative interviewing was regarded as an appropriate method, as it could expose doctors' accounts of how they perceive patient participation in prescribing decisions, which would reveal something of the kinds of ideas, norms, and beliefs they operate with in relation to patient participation (Mason 1996). The interviewees could themselves construct their approach to evaluating patient participation.

Data collection

Medical service encounters can be very different, ranging from an unconscious patient being brought to an emergency room, to a situation where the doctor refills a patient's prescription based on a short telephone conversation. Thus, it was sensible to delimit the study to service processes with similar characteristics: consultation regarding prescribing decision-making for certain diseases with certain available treatment options. In order to ensure a broad perspective to participation, chronic conditions were considered suitable as they are associated with a higher degree of, and need for participation (Department of Health 2001; van Dam et al. 2003).

The indications chosen were osteoporosis and schizophrenia. They are similar in terms of being chronic, potentially disabling illnesses that usually require long-term treatment. For both illnesses, there is a wide range of treatment options available. However, the two indications were predicted to differ in terms of patient participation: patients with a mental illness were assumed to be generally less able and motivated to participate than osteoporosis patients. Participation is considered to vary considerably depending not only on the type of services, but also on the client's skills and motivation level (e.g., Bowen 1986; Mills & Morris 1986). Hence, the

inclusion of two different illnesses was regarded important for studying the different manifestations of participation.

Empirical data were collected by conducting one-to-one interviews with physicians in the UK and the USA. A total of twenty physicians were interviewed, ten for each condition. A theoretical sampling strategy was applied: the interviewees were selected based on their experience and interest in treating the indications in question. All interviewees had to have an active clinical practice so that they frequently experienced patient encounters. All interviewees were specialists: informants about schizophrenia were psychiatrists, and interviewees for osteoporosis included rheumatologists, endocrinologists, geriatricions, and gynaecologists.

The interviews revolved around the physicians' description of treating patients with osteoporosis/schizophrenia, and their perceptions of the patients' role in the service process. The interviewees were asked to describe the typical treatment processes and practices of the illness, and the factors that influenced prescribing decisions. Patient-related aspects were elaborated on with questions aimed at revealing the different kinds of client input that physicians considered influential in the service process. Interviews were semi-structured; the same set of questions was used as the basis for each interview, but the course of the discussion varied according to the issues the interviewees themselves brought up. All interviews were tape-recorded and transcribed for analysis.

Data analysis

Data analysis began by coding the transcribed interviews. All extracts with a reference to patients' inputs were coded in order to characterize what each remark was about in terms of general thematic content (Coffey & Atkinson 1996). These remarks were compared and linked in order to identify recurring themes (Dey 1993). Comparisons between the two illness and also the two countries were made.

The aim of the qualitative study was to explore the kinds of notion doctors hold about patients' influence, rather than to estimate their prevalence. However, in order to give the reader a rough idea of the prevalence of themes addressed by the interviewees, a numeric presentation of the themes is provided in Appendix 1. Statistical generalisation is not intended. Next, findings of the empirical study are reported.

Patient participation in medical service production and delivery process

Many similar participation manifestations could be identified within the two different medical conditions studied. As predicted, a clear difference was nevertheless evident related to the patient's inclination to participate. According to the interviewed psychiatrists, many schizophrenia patients may be unwilling to contribute to the service process. Many patients with osteoporosis are, on the other hand, sufficiently motivated to start contributing to the service process even prior to the service encounter. Quite a few osteoporosis doctors mentioned that patients sometimes make considerable *effort to initiate the service*, for example, request a bone scan or press their primary care physician for a referral to specialist consultation. Furthermore, many osteoporosis patients *prepare for the consultation* by searching for information regarding the illness and available treatments on the Internet or in literature before seeing the doctor.

Problem identification and goal formulation in the medical service process is principally determined by the patient's *medical condition*; the customer self and their individual problems are the primary resource for the professional service process. According to the interviewed physicians, clinical decisions are influenced by factors such as the patient's symptoms, medical history, lifestyle, and family history of certain diseases. This *information* is typically provided by the patient. Osteoporosis patients may also participate by *specifying the problem and desired outcomes*. Many interviewees mentioned that women come to see the doctor knowing specifically that they want to have their bone density checked and to discuss their risk for osteoporosis. According to the interviewees, these patients tend to be well-read and of a higher social class. A clear difference between the studied illnesses was evident in this respect.

The two groups of patients were found to differ also in terms of their *expectations regarding their role* in the diagnosis and treatment decision-making process, which is reflected in their *way of interacting* with the physician. Two British and every American doctor interviewed about osteoporosis mentioned that patients commonly *ask questions* about osteoporosis and the available treatment options: "I see a lot of patients who are confused about the risk benefit ratio of different treatment approaches and they really want to sit down and talk for an hour." According to the interviewees, some osteoporosis patients regard the doctor more as an information provider who helps clients in their decision-making, than as an authority who decides for the client. Psychiatrists did not mention patients requesting information; they stated that they may give information to patients

because it is considered "good practice", and because it "increases agreement and patients' confidence in the doctor".

The data indicates that patients' role expectations may have important implications for the service process in terms of the skills and resources needed from the doctor. The interviewees mentioned that particularly primary care doctors often lack the time and expertise to discuss all potential treatment options thoroughly, and may hence find it difficult to serve patients who expect all the pertinent information. Some doctors thought that a good physician should be able to guide the patient towards right decisions: "I think that they are willing to be advised by their physicians, assuming that their physicians know how to respond."

Both osteoporosis doctors and psychiatrists implied that treatment decision-making may involve considerable *negotiation* with the patient. All but one interviewee mentioned that patients quite often have some *preconceived notions* regarding certain classes of pharmaceuticals. Patients' preferences and concerns typically concern the side effects and risks associated with different treatments: "I think people have a rather strong view about hormones, either one way or another. A lot of women feel that they are unnatural, that there are so many risks, that they don't want to take hormones… and everyone seems to know about bisphosphonates and the GI disturbances." The data indicates that patients' *opinions, concerns and preferences* may influence the actual prescribing decision. Many doctors mentioned that some patients may request a specific treatment, or more often, decline to have certain types of drugs: "Some experienced patients would just tell you flat out that they refuse to take some drug that they had bad experiences with." While many interviewees stated that the doctor should make the final prescribing decision, they also mentioned that sometimes patients do not accept the doctor's decision but need to be persuaded. One endocrinologist stated that: "Many of my patients reject what I recommend for them because they have read some article saying that they should not take it." Schizophrenia patients refuse treatments usually because of their beliefs regarding the side effects of the drug. Some American psychiatrists stated that they are willing to prescribe according to the patient's wishes, if possible: "Sometimes these beliefs [about different drugs] are very important and if I don't have any reason not to, I give what the patient wants." American psychiatrists in particular considered it important to try to find out even patients' unvoiced agendas and preferences.

Patients' preconceptions regarding treatment options for osteoporosis or schizophrenia were reported to derive from different sources. According to the interviewees, osteoporosis patients get ideas form the media or the Internet. For example, a large study on the risks of hormonal replacement therapy that

had been widely reported in the media had made a number of patients suspicious of this class of medication. Furthermore, direct-to-consumer advertising of pharmaceuticals in the USA was considered to influence osteoporosis patients' views. According to the interviewed psychiatrists, schizophrenia patients' opinions about treatments usually derive from their own or their friends' or family members' experiences: "They may say, my mother takes this medication, and it's been very helpful, I would like to try that."

The doctors interviewed in the cases of both illnesses emphasized the importance of patient participation in *implementing* the service. A patient's co-operation after the service encounter is fundamental to treatment success, as they are usually responsible for taking their prescribed medication. Both osteoporosis and schizophrenia are chronic conditions that require medication for long periods of time, and patient adherence to treatment determines its success. A patient's *willingness to follow a treatment regimen* also seems to have a direct effect on prescribing decision: for example, when a patient does not want to or does not remember to take a daily pill, he or she is prescribed a long-acting drug that is taken less often. According to the interviewees, both osteoporosis and schizophrenia patients often stop taking their medication without consulting their doctor, and in that way have a drastic influence on the ultimate outcome of the service. American psychiatrists in particular discussed the possibilities for trying to increase participation in order to improve patient adherence to the treatment regimen. One psychiatrist explicitly stated: "If the person feels that they are at least being heard in the decision that is being made, maybe I'll get them to take the pill."

Figure 2 illustrates some of the participation manifestations discussed above in the medical services process.

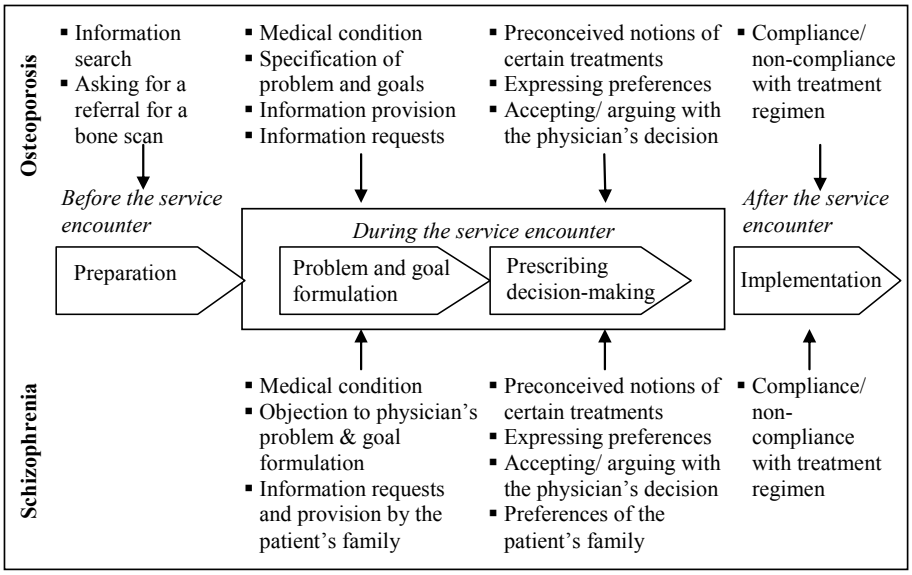

Figure 2 Examples of manifestations of patient participation in the medical service process concerning the treatment of osteoporosis and schizophrenia.

Conclusions and implications

The exploratory, qualitative study investigated the concrete manifestations of patient participation in medical services as perceived by physicians. Many types of customer input to service production that have been suggested in the services marketing and management literature could be identified in physicians' descriptions of the medical service production process. The themes exhibited by the interviewed physicians were for the most part related to patients' contributions of resources and actions.

The interview data imply that the degree to which patients contribute different inputs varies according to the illness and to the patient. In the case of both illnesses, the patient's condition is the primary *resource* for the service, and patients have preconceived notions regarding the preferred outcomes of the services. In concordance with the assumptions made in earlier research (e.g., Mills et al. 1983a; Larsson & Bowen 1989; Boström 1995), the medical service production is influenced by the patient's medical problem, and information and preferences related to its resolution. It seems that the information input provided by the customer, particularly in terms of expressing preferences, has important implications for problem resolution, which can be considered a key activity in the professional service process. The

empirical data suggest that professional service providers perceive encounters as differing in terms of the knowledge and conceptions of the customers. Similar findings have been presented by Boström (1995) who studied architectural services.

Patients were also found to participate by performing *actions* before and after the service encounter. These actions relate to searching information about the illness and implementing the service. The empirical study indicated that action inputs are contributed more by osteoporosis patients than by schizophrenia patients. It seems plausible that this is due to their higher motivation and ability to participate (cf. Mills & Morris 1986; Lengnick-Hall 1996). The study findings also support the importance of participation outside the service encounter. For example, a patient's search for information before seeing the doctor has an effect on the kinds of inputs the patient contributes during the service process, and the doctor's assessment of the client's willingness to implement the solution after the consultation influences treatment decision-making. Although some important contributions have already been made (e.g., Dellande & Gilly 1998; Dellande et al. 2004), more research is encouraged on participation outside the service firm and its implications for service production and delivery.

Potential manifestations of *interaction inputs* reported in the study related mainly to the role expectations of the customers. Aspects related to *emotional* inputs, such as friendliness or patience, were not brought up by the interviewed physicians, although many authors have regarded such aspects as components of participation (Kelley et al. 1992; Ennew & Binks 1999; Rodie & Kleine 2000). However, the study findings suggest that customers' role expectations and inclination to participate have important implications to the service process. The empirical study reported osteoporosis patients to contribute very different interaction input to the service process in comparison to schizophrenic patients: while many osteoporosis patients expect to be informed thoroughly about the options, and wish to assume an active role in treatment decision-making, schizophrenia patients may refuse to participate altogether. These opposite interaction inputs require very different actions on the part of the provider. According to the role theory perspective, successful client-provider interactions depend on the congruence of the scripts adopted by the provider and the customer (Solomon et al. 1985). Customers have certain normative expectations associated with a service encounter as to what the service provider should do and how to behave, and also regarding what the customer self is supposed to do and how to behave (Kelley et al. 1990). The client's interaction input may be considered their role script in the service encounter (cf. Broderick 1998). It may be useful for service organisations to

segment their clientele according to their willingness to participate, and their role and interaction expectations. Some researchers have discussed selecting or attracting customers on the basis of their participation abilities (see e.g., Mills & Morris 1986; Zeithaml & Bitner 2003 pp. 369). However, many professional services organisations cannot effectively choose clients, nor are they allowed to do so. Instead, professionals could be encouraged to assess an individual client's preferences for participation and interaction, and to adapt their approach accordingly.

It is concluded that the input patients may contribute to medical service production may involve resources, actions, and interactions. Supporting earlier research, participation by accomplishing actions was found to vary considerably depending on the client's motivation level (cf. Mills & Morris 1986). However, the study findings indicated that even patients with impaired motivation to participate provided input for problem solving, not only in terms of their illness (customer-self), but also in terms of information about their preferences and preconceived notions. In other words, we conclude that even customers with low motivation to participate provide significant input to the professional service process.

Many authors have argued that participation has a positive impact on service outcomes (e.g., Cermak & File 1994; Kellogg et al. 1997; Dellande et al. 2004). The findings of this study support this assumption particularly with regard to customer participation in the implementation of the service: a successful service outcome – the patient's well-being – is ultimately dependent on the patient following the treatment regimen. However, the study findings indicate that an increased amount of customer participation does not necessarily contribute to higher quality service outcomes. In the medical context, patients may overrule professionals' decisions based on ideas deriving from advertising, word-of-mouth, or personal experience. Some patients have strong preferences for the treatments they are willing to undertake and, in order to gain compliance, doctors may be willing to prescribe according to patients' wishes. Hence, it seems that customer inputs may not function merely as raw material for the professional's decision, but customers may participate in the actual problem solving. Thus, in addition to expertise in their professional area, professional service providers need competencies related to negotiating with their client, and responding to a client's potentially unjustified requests. It is a challenge to manage professional service encounters in such a way that customer inputs are utilized, and the customers' expectations are met, without having to compromise the quality of the decisions made. In the medical services context, sufficient time allocated for consultation with each patient, as well as educational material such as

information leaflets may help doctors to justify their medical decisions to the patient.

This paper reported the findings of a small-scale study in only one professional field. The results as such are not generalisable, but serve as an attempt to explore some examples of participation manifestations in two particular kinds of medical service setting. The applicability and relevance of the different types of customer input need to be studied across different services, particularly generic services, and be validated by further research. This study omitted to address the influence that the provider's input may have on customer participation. Williams and Anderson (2005) argue that within a participatory-based context, the boundaries between the customer's role and the provider's role become blurred, and role behaviours become interdependent. It seems likely that through their role behaviours providers can either increase or suppress customer participation. Further qualitative work may be advantageous in investigating customer participation mediators and moderators.

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Appendix 1. Recurrent themes in doctors' discussion concerning patients' input in the medical service process.

Participation themes addressed by the interviewees[1]	Osteoporosis		Schizophrenia	
	UK (n=5)	USA (n=5)	UK (n=4[2])	USA (n=5)
Patient provides information regarding symptoms, previous medications etc.	3	3	2	3
Patient specifies the need or problem and desired outcomes	3	3	0	0
Patient has opinions regarding the suitability/acceptability of some treatment options	5	5	4	4
Patient's preconceived notions are based on				
…information search (Internet, literature)	3	3	0	0
…media coverage and advertising	1	5	0	0
…word-of-mouth (friends, relatives)	1	2	0	3
…their own experience	1	1	3	3
Patient asks questions and expects the doctor to provide information	2	5	0	0
Patient prefers particular drugs	2	2	0	2
Patient prefers not to have particular drugs	5	2	1	3
Doctor has to persuade the patients who do not accept doctor's decisions	2	1	4	2
Doctor prescribes what the patient wants	0	0	0	3
Patient's willingness to follow the treatment regimen influences treatment choice	3	2	2	3
Patient may stop the treatment on his/her own	2	3	4	5
Doctor tries to find out patient's wishes to increase participation	0	0	0	3
Patient refuses to co-operate	0	0	4	4
Doctor tries to negotiate and build a good relationships with the patient in order to increase compliance	0	0	1	3

[1] The numbers refer to the count of doctors who exhibited the themes reported.

[2] One UK psychiatrist interview had to be excluded from data analysis since the interviewee treated mainly forensic patients who are on enforced medication. This interview was not considered suitable for giving information on patient participation.

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