



# Co-creation and learning in health-care service development

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## Abstract

**Purpose** – The purpose of this study is to develop and evaluate a model for patient co-creation and learning based on diaries for use in health-care service development. In particular, the study aims to investigate the process of patient co-creation and different mechanisms through which health-care service providers can learn from the patient.

**Design/methodology/approach** – The study is based on an action research approach. First, a development phase for patient co-creation and learning leading to a proposed model was conducted. Second, a test phase of the diary-based method was performed on 53 patients in three cases: orthopaedic care, rehabilitation care and gastroenterology care.

**Findings** – The study suggests a model for co-creation and learning in health-care service development through three learning methods. First, the model may be used as a means for generating and collecting patient ideas; second, a single patient's story can be illustrated and can serve as incentive for health-care service development and creation of patient-centred care; finally, a larger number of diaries can be analysed and combined with patient surveys to provide a deeper understanding of how the patient experiences health care services.

**Originality/value** – This study extends the research on diary-based methods as an operationalisation of co-creation in two ways. First, the study offers new and more diverse ways of using the rich material provided by customer diaries in the development of services. Second, the study suggests a co-creation approach of involving patients in health-care service development through patient diaries.

**Keywords** Co-creation, Service development, Health care, Action research, Learning

**Paper type** Research paper



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## Introduction

Service development may be carried out from either an inside-out or outside-in perspective (Day, 1994). The former stresses efficiency of services and development through the lens of the organisation. On the other hand, the latter approach views the service through the lens of the customer and focuses on its effectiveness (Gustafsson and Johnson, 2003). Previous research on customer co-creation suggested that customers have played a limited, largely passive role in the development of new services (Nambisan, 2002). In addition, previous research mainly focused on the results of customer co-creation (Kristensson *et al.*, 2002), or whether customers perform better than service developers in generating an idea (Magnusson *et al.*, 2003). An empirical investigation into microwave ovens suggested that ideas generated through customer co-creation are more original than ideas generated through customer interviews or focus groups (Witell *et al.*, 2011). These studies suggested that customer co-creation is a powerful mechanism in service development but is limited to idea generation.

In health care, the patient is usually the only person who experiences the full course of a health problem, from first symptom to contact with the health-care system, such as examination, treatment, follow-up activities and rehabilitation. Despite this, health-care service development is often carried out from an inside-out perspective (Bitner and Brown, 2008) where the focus is on technical quality, and functional quality comes second (Grönroos, 2007). Patients are not sufficiently seen as co-creators for others (Humphreys and Grayson, 2008; Witell *et al.*, 2011) in the development of health-care services (Groene *et al.*, 2009; Lombarts *et al.*, 2009). One of the central questions is, how can health-care organisations develop services from the perspective of patients and learn from them about both technical and functional quality?

In line with Berry and Bendapudi (2007), this study takes a step towards a more holistic understanding of the patient's life, practices and experiences in which care services are naturally embedded. This study aims to develop and evaluate a model for patient co-creation and learning based on diaries for use in health-care service development. In particular, an investigation is undertaken on the process of patient co-creation and different mechanisms through which health-care service providers can learn from the patient. Two key research questions are:

*RQ1.* What should a model for patient co-creation in health-care service development look like?

*RQ2.* Through what different mechanisms can health-care service providers learn from patient co-creation?

Through action research, a model for co-creation and learning from patients was developed and tested in a study of 53 patients from an orthopaedic care process, a rehabilitation care process and a gastroenterology care process. Throughout the paper, the argument is made that diaries are effective for capturing the voice of the patient *in situ*. The basic assumption is that patients can detect value-in-context, and when they are encouraged to take initiative and identify possibilities for improvements they will share their inventiveness and experiences.

## Theoretical framework

### *Co-creation of value*

Based on the ninth foundational premise of the service dominant logic, all social and economic actors are resource integrators (Vargo, 2008). In this view, customers are resource integrators (Vargo and Lusch, 2008) who operate on resources made available to them by a given provider, by other market actors or by themselves to increase their well-being. The customer can be seen as part of a specific network of public and private service organisations constituting its own supply chain. We can divide the customer's value-creating process into an open part, in which interactions are made with the supplier, and a closed part, in which the customer is alone in creating value (Grönroos and Ravald, 2011). As formulated by Ravald (2010), one of the challenges for service providers is to integrate their processes with the customer's value creation, rather than the opposite. This view is in line with Heinonen *et al.* (2010) who suggested that companies need to understand the customer to make themselves fit into the customer's life, and that understanding the interaction between the customer and supplier is not enough.

Humphreys and Grayson (2008) argued the need to make a distinction between co-creation for use and co-creation for others. The two processes differ in their orientation: co-creation for use is performed by a specific customer for his or her own benefit, whereas co-creation for others is oriented towards other customers (Witell *et al.*, 2011). In co-creation for others, the customer provides ideas, shares knowledge or participates in other ways in service development to improve the service process for the benefit of other customers. Alam (2002) suggested a continuum to describe different types of co-creation for others that ranges from passive acquisition of input, through gaining specific customer information and extensive consultation, to customer representation in development teams. A literature review of product and service innovation by Matthing *et al.* (2004) revealed a limited number of studies with a primary focus on customer co-creation in service development. The authors suggested that even though several studies and techniques implicitly reported on learning from and with the customer, few studies make an explicit connection between customer co-creation and learning (Pitta and Franzak, 1996; Wikström, 1996). To facilitate proactive learning about the customer, research has stressed observations of customers in real action. An underlying assumption is an action-based way of learning about existing and latent customer needs (Joshi and Sharma, 2004).

### *Co-creation in health care*

Research on health care has seen a trend in favour of increased patient co-creation for use, wherein the role of the patient changes from a passive to an active role of contributor of care (Badcott, 2005). Bitner *et al.* (1997) described how patients assume different roles in the provision of health care, both as a productive resource and as a contributor to quality, satisfaction and value of their own care. A key motivator for co-creation for use in health care is its positive impact on patients' adherence to treatment, which in turn yields better clinical outcomes and lower costs (Martin *et al.*, 2005). Thus, hospitals need to design resource constellations and service systems that support patients and include them as resources in value co-creation (Edvardsson *et al.*, 2011).

In a literature review, Crawford *et al.* (2002) identified 42 research papers on patient co-creation that seemed to focus on patient forums, health panels, focus groups

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and patient interviews. In most studies, the patient's role is limited to functioning as a provider of information, and no instances could be identified in which the patient had an active role in service development. In response, a supplementary literature review in Pubmed (Medline) was performed to identify additional research papers published between 1990 and March 2011 related to patient co-creation for others in health care. In the end, 43 empirical investigations on the role of patients in health care were identified, but almost all concerned co-creation for use, whereas co-creation for others seemed to be missing. To conclude, patients are often not involved in health-care service development, and reactive methods to involve them are used when the patient is passive.

#### *Diary-based methods*

Diaries are reported as a method of ethnographic and anthropological research (Burgess, 1991; Hammersley and Atkinson, 2007) and they have been widely used in psychology (Breakwell *et al.*, 2006; Mackrill, 2008). The advantage of ethnographic methods, such as diaries, over reactive methods, such as interviews or focus groups, is the ability to reduce problems of retrospective recall biases and at the same time provide an understanding of the natural context of events (Smyth and Stone, 2003). Two primary types of diaries are used in research. A solicited diary is kept at the request of the researcher and is usually structured into time, events, persona or units of interest. An unsolicited diary is a personal document written without any inducements that attempt to describe a subjective perception of social reality (Jones, 2000).

In service marketing, customer diaries have been used as a tool for capturing customer ideas in service development (Magnusson *et al.*, 2003; Matthing *et al.*, 2004). The role of the diary has been to capture customer ideas *in situ* and to document the context in which the ideas arise to enable service developers to understand the underlying customer problem. In addition, customer diaries have been used as an ethnographic tool for understanding customers within service design (Segelström *et al.*, 2009). Ethnographic methods are seen as especially useful when trying to understand how customers use and evaluate services (Wilson *et al.*, 2008).

Numerous examples exist of diaries used in the health-care field (Furness and Garrud, 2010; Hufford *et al.*, 2002; Jacelon and Imperio, 2005; Keleher and Verrinder, 2003; Milligan *et al.*, 2005; Smyth and Stone, 2003; Valimaki *et al.*, 2007). Using patient diaries is a common data collection strategy for capturing patients' health behaviours (Hufford *et al.*, 2002; Smyth and Stone, 2003). The diaries used in the health-care field have had the primary aim of increasing an understanding of certain patient groups to improve the diagnostics and treatment methods.

### **Research methodology**

#### *Action research*

The research methodology used in this project was based on action research (Gummesson, 2000; Perry and Gummesson, 2004; Reason and Bradbury, 2001; Van de Ven and Johnson, 2006). Action research is characterised by close, continuous collaboration between the research system and the practice system (Van de Ven and Johnson, 2006). The research system is driven by questions originating in research based on explicit or implicit theories developed in previous research, while the practice system is driven by problems originating in practice (Gummesson, 2000; Van de Ven and Johnson, 2006). A common and self-reflective spiral of cycles of

planning, acting, observing is a key in action research (Zuber-Skerritt, 2001). The approach was to produce common conceptualisations and interpretations of the research process and to build a two-way flow of information, knowledge and expertise between researchers and practitioners (Van de Ven and Johnson, 2006).

In this study, five researchers were directly involved in the research and development activities and represent the research system. Physicians and nurses from three different health-care units, orthopaedic care, rehabilitation care and gastroenterology care, represent the practice system. The research study started with a joint process of exploration and evolving understanding, in which the researchers and practitioners together discussed the research questions and planned the actions, issues and problems to be addressed. Common full-day workshops were carried out and topics such as diary design, execution of the data collection process and utilisation of the ideas and experiences gathered from patients were discussed. The model for patient co-creation and learning was tested iteratively with health-care personnel and patients and was gradually refined into the present version.

#### *Description of care processes*

The developed model for patient co-creation and learning was implemented in three care processes of the participating health-care units. Multiple cases were investigated to confirm, challenge or extend the theory under investigation. A theoretical sampling method (Eisenhardt, 1989) was adopted in which the cases represented different care processes.

The first case was the orthopaedic care process. This care process is signified by a standardised procedure for care. The complexity of the treatment is low in the sense that it represents a field in which clinical knowledge is high and standardised procedures are possible. The orthopaedic process has a low degree of patient involvement.

The second case is the rehabilitation care process. This process includes patients with longstanding chronic pain who participate in a pain rehabilitation programme. The goal of the pain rehabilitation programme is to help patients minimise their suffering and restore their ability to take joy from life. Active involvement of the patient and family is vital to the success of the programme.

The third case is the gastroenterology care process. The process includes a continuous treatment of patients with chronic stomach and intestinal disorders. This is a highly complex process, as knowledge of these illnesses is generally low compared with other types of disorders. This process is also characterised by a high degree of patient co-creation because the chronic condition makes patients experts on their disease.

#### *Data collection and analysis*

All workshops in the project were documented including short reports, jointly elaborated process maps and reports from communication with patients. Alternative designs of the diary and the process of learning from patients were tested in different seminars with physicians and nurses and through tests with patients in practice. The outcome of the joint research was a model for patient co-creation and learning. Data from the patient diaries were collected through application of the model to the three care processes. In total, diaries were received from 53 patients. The diaries were categorised and the number of words and ideas for each of the diaries were recorded.

In addition, each idea was documented and categorised based on content. A number of statistical tests were performed to compare different types of diaries and media, and to identify changes in the use of the diaries over time.

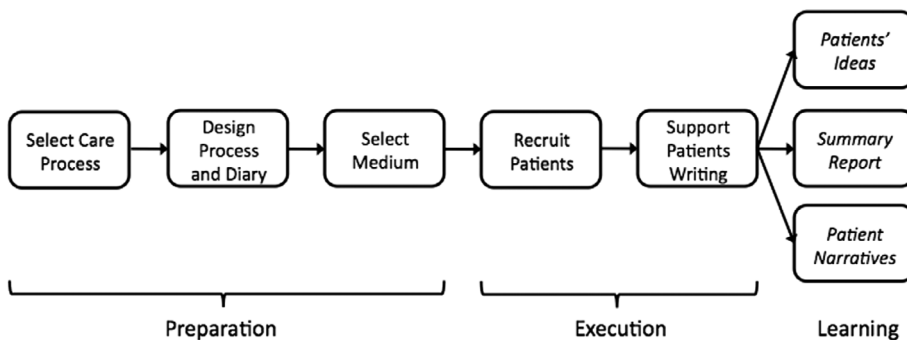
**A model for patient co-creation and learning**

To enable patient co-creation in health-care service development, several important practical and methodological issues need to be planned and managed, from selecting the care processes, designing a method for gathering patient ideas to analysing the gathered information and using it. This section presents a model for patient co-creation and learning that has been developed together with physicians and nurses from the three cases. The idea is to establish supporting processes, methods and tools that enable learning from real patient experiences, in other words, to take an outside-in perspective on health-care service development. The model for patient co-creation and learning describes the process throughout the three phases of preparation, execution and learning (Figure 1). Preparation includes the steps to select the care process, design process, diary and medium. Execution is the period in which patients record the required information and generate ideas for improvements. Two important steps in this phase are recruit patients and support patients' writing. Finally, learning includes three alternative ways to analyse and use the knowledge generated from patient diaries.

*Preparation*

*Select care process.* The selection of the care process is an important methodological concern because by depending on the care process, patients can make different contributions to health-care service development. The model for patient co-creation and learning should have greater potential in care processes with a higher degree of co-creation for use. In our case, orthopaedic care is signified by a standardised procedure with a low degree of patient co-creation. On the contrary, patients with chronic diseases as pain rehabilitation have a high degree of patient co-creation in the care process. The success of the clinical treatment of chronic diseases hinges on the active participation of the patient in the form of self-care.

From the care providers' perspective, having a defined strategic intent about the focus of the health-care service development is important (Ovretveit, 2008). One way to choose strategic areas is to proceed from where the greatest value for the patients can be attained in relation to an organisation's mission and goals. This can be based on major



**Figure 1.** The main steps in model for patient co-creation and learning

patient flows, major costs and/or costs for lack of quality, with an evaluation made of the potential for improvement.

*Design process and diary.* Since the idea was to capture patients' notions and experiences in context, diaries were used as a data collection method (Matthing *et al.*, 2004). In the preparatory work, making decisions regarding the control of the diary process from start to finish is necessary. Such decisions are important primarily for ethical reasons, and for practical reasons, as the diaries may contain sensitive information and may imply the generally weak position of the patient compared with other customer types. Thus, how patients should be approached and by whom, how diaries should be handled and stored and who has access to the data from the diaries need to be clearly defined during an early stage.

In addition, the diary needs to be designed to enable gathering and documentation of relevant information and ideas for health-care service development. In the introduction part of the diary, patients were asked to provide basic demographic data and present reasons for their contact with the health-care system. In the second part, patients were asked to write on two themes:

- (1) everyday situations related to the health-care problem; and
- (2) contacts with health-care providers (such as examination, rehabilitation, treatment, advice).

Patients were also asked to write down ideas in a separate text field with a three-item list. Patients were instructed to record events for 14 consecutive days.

*Select medium.* Diaries can be used in several ways. This study determined the use of three different media:

- (1) paper and pen;
- (2) blog; and
- (3) telephone.

Alternative media were especially important for patients from the rehabilitation care process because using a pen was connected with pain for certain patients. Out of the 53 diaries, 39 patients decided to use paper and pen, 14 decided to use a non-public blog and only one decided to use a telephone (answering machine).

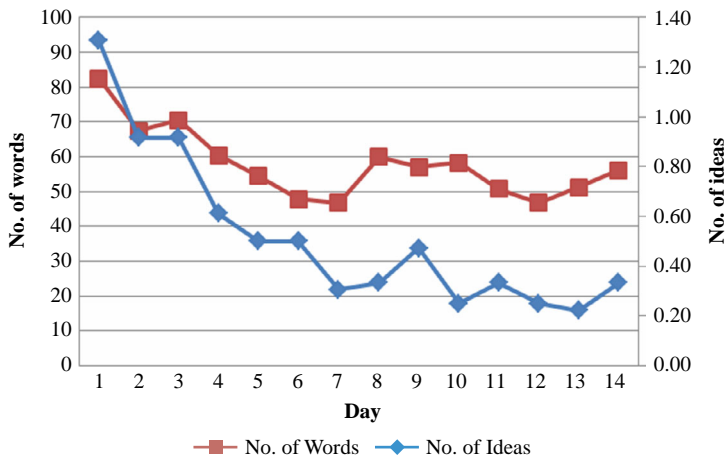
Each medium had advantages and disadvantages. Since the telephone was only used in one case, it was excluded from the comparison of the media. The blogs resulted in more text (on average 135 words per entry) than traditional paper and pen diaries (on average 58 words per entry). The blogs included more extensive descriptions of daily situations and context. However, there was no significant difference in the number of ideas (6.57 per blog in relation to 7.24 per diary;  $t = 0.36$ ;  $p > 0.72$ ). In the case of paper and pen, most of the patients wrote regularly every day and returned their diaries after 14 days. In contrast, bloggers were less systematic, the time span often was more than 14 days and the number of entries varied significantly (from one entry to 53 entries) despite the clear instruction to write every day for a consecutive 14 days. The clear advantage of a blog was that it was easier to control because patient activity can be traced over time. Interestingly, several patients chose to continue blogging after the specified time period.

*Recruit patients.* In the present study, patients were selected randomly. Alternative strategies for patient selection could be used, such as special patient groups (for example, immigrants, elderly) that the service provider wishes to focus on. The first contact with the patient was a letter describing the project, including the acceptance form for the patient to sign if he or she intended to participate in the study. First, the letter included the confidentiality rules, informing the patient that places, names and other references that could lead to the recognition of an individual would be removed. Second, the patient was informed that participation was voluntary, and that contact with the health-care providers would not be harmed if the patient chose not to participate. Third, the patient was informed that he or she was free to stop and exit the study at any time.

*Support patients writing.* This section describes the experiences from the period during which the patients wrote in their diaries. On average, each person wrote 810 words in his or her diary and came up with seven ideas. Great variation existed in the number of ideas proposed by the patients. The most creative patient generated 20 ideas in the diary, in contrast to no ideas in another diary.

The number of words written in the diary was observed to decrease over time. Figure 2 shows the average number of words and the average number of ideas per day from 39 paper and pen diaries for 14 consecutive days. At one point during these 14 days, patients were contacted by telephone and encouraged to continue to write in the diary. A *t*-test revealed that contact with the patient had an effect on the number of written words ( $t = 2.29$ ;  $p < 0.05$ ). Figure 2 shows that patients started using about 80 words to describe their experiences and that the descriptions became less extensive by the end of week one. Often, patients started week two by writing more extensively before the number of words per entry started to decline again. The generation of ideas showed a similar pattern, with more ideas at the beginning of week one and week two. Patients wrote more words ( $t = 3.15$ ;  $p < 0.01$ ) during the first week (66 words/day) compared with the second week (53 words/day) and patients generated more ideas ( $t = 4.00$ ;  $p < 0.01$ ) during the first week (0.72 ideas/day) than during the second week (0.31 ideas/day).

An issue to consider in the execution phase is anonymisation. Health-care personnel involved in the diary work attempted, either consciously or unconsciously,



**Figure 2.**  
An overview of the number of words and ideas in patient diaries



to understand which patients wrote what and when. Anonymisation means not only removing the names of the patients and their relatives but also ensuring that places and contacts with health-care staff will not reveal the name of the patient.

*Learning*

The outcomes from the diaries offer three possible ways of learning from patient experiences. First, ideas provided in the diaries can be input for idea generation in health-care service development (Kristensson *et al.* (2004)). Second, a larger number of diaries can be analysed and a summary report created to provide an overview of the patient group's experiences. Third, specific diaries can be selected for narrative storytelling. These three ways are presented in Table I.

*Patient ideas.* One of the main purposes of the studied cases was to involve patients in idea generation for health-care service development. Patients were encouraged to

*First way of learning: patient ideas*

Source	Ideas from all patients
Purpose	Patient ideas are used as the basis for innovation and development of the care process
Description	Explicit and implicit ideas are gathered from the diaries
Target audience	Process improvement teams
Excerpt from diaries	"A discussion should be held together with relatives on the effects of the disease, and what the side effects from the medication are" "Keep regular contact with [rehabilitation] patients to check up on the current situation, and how the patient functions at work and in his or her spare time"

*Second way of learning: summary report*

Source	Texts and ideas from all patients
Purpose	To identify critical events and areas in health-care process, so that these can be targeted
Description	A systematic review of all diaries in the process is made. Critical incidents, negative and positive, are identified. Incidents are arranged according to their placement in the patient's process
Target audience	Process improvement team, process team members, process management
Excerpt from diaries	"I thought I would get lunch [at the rehabilitation] but that wasn't the case. So I had to walk to where they served lunch. It took me quite a long time to get there, due to the pain. It was a really long queue and I realised I wouldn't get back in time. I had a mandarin orange and juice. When I got home, I felt a little disappointed"

*Third way of learning: patient narratives*

Source	Texts from selected patients
Purpose	To promote a holistic understanding of the patient and a patient perspective on the service provided
Description	A single individual's story is highlighted. An especially interesting diary is chosen, and presented in video format, or as a written story. The story is presented to the organisation in question and used as a basis for discussion
Target audience	Staff and management of the specific process, health-care organisation at large
Excerpt from diaries	"After a day at Rehab, I'm back at the patient hotel. When I'm here and don't have to work, I start to think how wrong it is to feel as bad as I do, physically, after a day's work. Two days here make me wonder why I go to a job that takes all my energy, so that it leaves me nothing fun in my spare time. I should add, I've been working 22 years as park caretaker, always liked my work. It's my whole body that says 'stop'"

**Table I.**  
Three ways of learning from the patient

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document ideas in addition to their everyday writing about health problems and contact with health-care providers. The ideas provided by the patients were:

- based on a patient perspective;
- touched on contexts invisible to the health-care provider; and
- considered multiple aspects of life.

The contexts ranged from the caregiver, the extended caregiver (such as pharmacies, insurance agencies, local health centres), the workplace and the home environment. In the study, six different categories of ideas were identified regarding treatment and medication: organisational, social, informational, attitude among health-care staff, practical and clinical. Examples of ideas are provided in Table I.

The ideas provided by the patients were primarily incremental improvements to the existing process rather than fundamental changes to health-care provision. For this reason, the ideas are suitable input for use on an operational level, such as in process improvement teams for Lean or Six Sigma projects. In the specific case, ideas served as input into the caregiver's improvement processes. Since ideas often did not address patient problems with the health-care provider alone but also with other organisational bodies such as local health centres, a collaborative approach was needed to put the ideas into practice. In one of the studied cases, the improvement team consisted of the caregiver, external physiotherapists and representatives from local health centres, which allowed for a larger portion of the ideas to be utilised than would have been possible by just the individual caregiver.

*Summary report.* Patient satisfaction surveys and other patient group statistics are commonly used in health care at the hospital, regional and national levels. These are primarily used to compare health-care organisations with one another to observe changes over time and to identify areas needing improvement. The accumulated material in the diaries can paint a picture of the patient group, giving qualitative meaning to the quantitative reports. Both strong and weak areas of health-care provision from the patient's perspective can be identified through the diaries. This methodology builds on the critical incident technique, in which in-depth qualitative data are used to gain an understanding of the issues that drive customer satisfaction. A critical incident in services is defined as a specific example of the service. The example describes either positive or negative performance and should be as specific as possible (Johnson and Gustafsson, 2006).

A report organised according to the patients' care process and that combines the critical incidents with patient surveys can provide a basis for service improvement. Providing qualitative meaning to statistics from surveys makes the material more accessible to health-care staff. Examples of parts of the patients' healing process that were repeatedly in focus in the studied cases were sleep (a problematic area for many patients), medication (lack of information related to medication, such as side effects) and self-treatment (patients wanted to be more involved in their care, such as through exercises and trying different treatments).

*Patient narratives.* Each diary is in itself a story about a part of a patient's life. The narrative style of these diaries varies, from dry reporting of the day's events where emotions and subjective impressions need to be read between the lines, to the more expressive and gripping tales of certain patients (Table I). For each care process, one diary was selected based on the richness of the story told. A journalist was hired

to write a script based on the diaries. Professional actors then performed these scripts and a video clip approximately five minutes long was recorded for the diaries. These clips, in which the patients' stories are told, are accessible online ([www.iei.liu.se/q/projects/service-innovation-in-health-care](http://www.iei.liu.se/q/projects/service-innovation-in-health-care)) and can be used for educational purposes of health-care personnel and as inspiration for other development projects.

The films were also used as a basis for discussion among the different health-care units. In one of the films, a man gets his hip replaced for a second time and says (among other things):

If I had known the pain would be so much worse than the first time, the pain would not have been any less severe, but I would not have had all the worry.

He confused the members of the improvement team, who thought they had informed the patient about the increased pain from the second operation. According to the physician, a possible explanation to the situation was that all information is given at one time and the patient may be overloaded with information. One of the outcomes of the film was an improved procedure for informing patients and a better understanding at the clinic of the difference between giving information and patients' taking it in.

### **Discussion and conclusions**

The present study contributes to the knowledge and practice of how customer co-creation for others can be used in health-care service development. As argued by Matthing *et al.* (2004, p. 487), "Customer involvement especially devoted to service research is preached but not practiced". The present study may be seen as a response to this statement in that it puts theory into practice to understand how learning from and with patients may be organised.

#### *Theoretical implications*

This empirical investigation of co-creation for others highlights how patients can actively participate in the development of health-care services. In general, the findings contribute to discussions of customer co-creation (Vargo, 2008), customer involvement to obtain customer ideas (Magnusson *et al.*, 2003) and learning from customers in service development (Matthing *et al.*, 2004).

Although concepts such as patient-centred care, patient involvement and patient participation (Epstein, 2000; Stewart, 2001; Entwistle and Watt, 2006; Guadagnoli and Ward, 1998; Hughes and Larson, 1991; Longtin *et al.*, 2010) are widely discussed in the health-care literature, our knowledge about patient co-creation in health-care service development is limited. The empirical investigation of 53 patients showed that patients can be active contributors of knowledge and skills in health-care service development; however, supporting processes, methods and tools to enable patient co-creation and learning are often missing. Based on the findings, a model for patient co-creation and learning was suggested. The model may support both co-creation for use and co-creation for others (Witell *et al.*, 2011). The three different ways of learning from patients showed the potential of patient co-creation for improving health-care service provision. Health-care staff can use the outcomes from the diaries to better understand an individual patient and improve the care for that patient (co-creation for use) or in health-care service development (co-creation for others).

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The model for patient co-creation and learning builds on previous research in service research (Matthing *et al.*, 2004) and in health care (Hufford *et al.*, 2002; Smyth and Stone, 2003), and contributes to a better understanding of how knowledge is co-created with customers and how service providers can learn from customer diaries. Previous research in service management primarily focused on customers as idea generators, but the present study showed that the knowledge available in customer diaries is not limited to ideas. In addition to idea generation, this study showed that learning from a diary-based method can include summary reports and learning from narratives. These methods of learning provide the service provider with knowledge about the closed area of value creation at patients' homes or in their interactions with other health-care bodies (Grönroos and Ravald, 2011). This study proposes that the use of a diary method is an operationalisation of what Berry and Bendapudi (2007) call "whole person" service, for which the basis is to understand the individual patient from a holistic perspective. Although this study is conducted in the health-care sector, these learning methods can be used for other services.

Previous research on diary-based methods in service management did not elaborate on how to design the actual diary or the process of patient co-creation. Following research on diary methods from other sectors, 14 days was used as the baseline for patient co-creation (Elg *et al.*, 2011; Jacelon and Imperio, 2005), but patient ideation decreases after one week and an organisation needs to evaluate the benefit of the second week against the cost. In addition, patient diaries using different media provide the same amount of ideas, but whereas a paper and pen diary provides a description of ideas *in situ*, blogs are often written at the end of the day. In contrast, blogs often include more detailed descriptions of the situations a patient faced in everyday life. More research is needed to increase our knowledge on how the use of different media influences patient co-creation of ideas and sharing of experiences.

### *Practical implications*

A crucial issue for practitioners is how the process for co-creation and learning from the patient can be organised and managed. The results of the present study raise several issues that need consideration and attention.

First, the use of diaries has an ethical dimension that is difficult to handle but needs careful attention. The main reason for this is the vulnerable and weak role that patients are in Berry and Bendapudi (2007). The voice of the patient needs to be protected. Each patient should feel secure in participating in writing and in knowing that the outcome of the writing will not influence his/her future contact with the health-care provider. One important consequence of this dilemma is that staff outside the immediate professional – patient relationship should work with the diary-based method, which applies to the steps of collecting and processing information from the patient. If the risk exists that the voice of the patient will have negative consequences on his/her future treatments and contacts, that voice should not be used in learning processes. A principle of precaution is necessary.

Second, the diaries need to be handled cautiously to prevent individual patients from being identified by their treating medical personnel, as this could potentially influence patient treatment. Anonymisation is not only important in respect to the professional – patient relationship but also in respect to patient privacy. The three possible ways of learning from patient experiences make the diaries accessible to a broad audience.

Staff responsible for diaries need to prevent data from being published or released in a form that would permit actual or potential identification of participating patients.

Third, the selection of medium should be considered carefully. Maintaining a level of flexibility for patients to make their own selection is recommended. The characteristics of the patient group as well as the individual patient's preferences are important input for this decision. For instance, for many in-house patients to use paper and pen is easier because access to blogs/computers for patients is rather low in hospitals. On the other hand, outpatient groups have more access to computers. In particular, younger groups of patients may be more predisposed to use blogs. The selection of medium also depends on the health condition of the patient. For instance, a pen might be too heavy for some patients (Elg *et al.*, 2011).

Fourth, the recruitment of patients is a critical activity. The experiences of the study are that the manner in which patients are approached determines their willingness to participate. That both the health-care staff and the researchers interacting with the patient during recruitment and writing have good knowledge about the research process and the diary design is important. In one of the cases, the gastro process, only a nurse not involved in the interactive research contacted the patients. The number of participating patients from this case was significantly lower than in the two other cases.

Fifth, the three ways of learning from the patient offer alternatives for different situations. The ways of utilising the diaries make this possible: first, the diary as a means for generating and collecting patient ideas; second, a single patient's story can be illustrated and serve as an incentive for health-care service development and creation of patient-centred care; finally, a larger number of diaries can be analysed and combined with large-scale quantitative patient surveys to provide a deeper understanding of how the patient experiences health-care services. By understanding a single patient, we will not understand the complete customer group but allows us to acknowledge the subjectivity of the experience and gain an emotional connection to the patients that statistics or fragmented information does not allow. This situation can be compared with journalism, in which an individual war victim's destiny grips the reader, rather than cold statistics and body counts. Highlighting these stories sends a message to the organisation that individual patient experiences matter.

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### Further reading

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