Service Prototyping According to Service Design Practitioners

Johan Blomkvist, Stefan Holmlid

johan.blomkvist@liu.se

IDA, Linköpings universitet, 581 83 LINKÖPING

Abstract

Current trends in service design research include case studies and similar approaches that aspire to reveal what the practice of service design looks like. The understanding of how service design is performed can serve as a base for future research into more specific research endeavours. One area where knowledge is said to be lacking is service prototyping, part of which knowledge this paper attempts to contribute. The main data source for the paper is findings from in-depth interviews with six practicing service designers from some of the more well-known design agencies. The informants consider service prototyping to be a very important part of their work that allows them to learn and communicate about design ideas. The practitioners' account of how they work with prototypes indicates that service prototyping has different meanings and that the practice of prototyping is very diverse. The interviews also uncover a number of areas that, according to the designers, might prove extra challenging for service prototyping to be successful. This research shows that there is much potential in the not yet fully formed practice of service prototyping.

KEYWORDS: service prototyping, interviews, design practice

Introduction

There is a turn in service design toward more rigorous research and thorough inquiry of what service design is, how it is practiced and what it means to design services (Segelström & Holmlid, 2009). This paper is an attempt in that spirit to uncover what practitioners mean by service prototyping and how they describe what they do to prototype services. The potential in service prototyping is frequently mentioned, but the actual practice of service prototyping is yet to be revealed.

> *"Although methods for expressing important characteristics of a service have been widely used, the understanding of how these can be used to prototype services is lacking. It is often stated that prototyping a service experience could potentially contribute to higher quality services, more well-directed service engineering processes, etc." (Holmlid & Evenson, 2007 p.1)*

To be able to place the research presented here in context, a brief summary of the research about service design practice will be presented in the following sections, pointing to some areas of missing knowledge and the current understanding of what service prototyping is. After that, the approach of interviewing practicing service designers will be detailed followed by the results of the interviews and a discussion. In the conclusion, the main contributions of the paper are summarised. This will highlight the new knowledge about what service designers do to prototype services and what they mean by service prototyping.

Research into the practice of service design

Blomkvist, Holmlid, & Segelström (2010) have identified current trends in service design research based on an overview of peer-reviewed papers published during 2008-2009. The trends were described as research about 1) *design theory,* exploring the fundamental questions of service design, the language of service design and co-creation, 2) the overlap between and contribution from service *management,* 3) *systemic* approaches to service design, such as product-service systems, 4) *design techniques*, such as tools and processes and 5) the practice of service design researched through *case studies*. The trends were used to contrast recent research with older research which focused mainly on how the discipline relates to other (design) disciplines and arguing for service design in its own right (Blomkvist, Holmlid, & Segelström, 2010).

In total, six case studies were published during the two years covered by the study. The emergence of empirical studies of service design is contemporary with the breakthrough of the discipline as a whole, (Kimbell, 2009a). Extensive research about the practice of service design has been conducted by Lucy Kimbell in the project Design for service in science and technology-based enterprises (Kimbell & Siedel, 2008), covering the practice of three design consultancies that work with services. Kimbell's (2009b, c) work has shown a number of interesting features that characterise the practice of service design. They are summarised and presented below.

» Looking at services from both a holistic and detailed point of view.
» Considering both artefacts and experiences.
» Making services tangible and visible through visualisations.
» Assembling sets of relations (between artefacts, people and practices).
» Designing business models.

An ambitious case study, looking at the practice of service design by 17 design agencies, consulting firms and experience-centric service providers (Zomerdijk & Voss, 2010), reported similar results as Kimbell (2009b,c). The result shows that the broad sense of designing services – not only carried out by actual designers – concerns the delivery of physically- and socially mediated touchpoints through interactions between the customer and a strategic front-line and backstage system. In addition, the study found that the studied companies to some degree 1) designed the dramatic structure of events and 2) managed the presence of fellow customers (Zomerdijk & Voss, 2010). The evidence of 1 was most obvious in companies with design backgrounds that more easily adopt the theatrical metaphor, and for 2 they found only limited evidence (ibid).

The studies performed by Zomerdijk, Voss and Kimbell concern the practice of service design on a general level and the distinguishing features of what service designers do. More focused studies, looking at specific activities in service design or at the activities that are shared by other disciplines are still uncommon.

> *"Until recently research regarding design with a service perspective as well as services with a design perspective has been scarce. Many fundamental aspects of service design are still unexplored academically." (Segelström & Holmlid, 2009 p. 1).*

Other researchers (Segelström & Holmlid, 2009; Segelström 2009) have looked more closely at how service designers visualise research material. This research was based mainly on interviews with service designers and supports the idea that visualisations are important for the practice of service design by showing that visualisations are used as communication tools, to preserve empathy within the design team and to make insights tangible (Segelström 2009). It also showed that visualisation techniques are important for service designers and facilitate the early research stages of the design process (Segelström & Holmlid, 2009).

Missing knowledge about service design practice

The research so far about what service design practice is has mainly looked at the process in general or focused more on the early stages of the design process – the research phase. No studies have explicitly shown what prototyping is in service design. The need for more research about service prototyping has been pointed out among other important research areas recently; "[r]esearch is also needed to deepen and creatively expand knowledge of design methods and tools, such as service blueprinting, service prototyping, and service simulation models /.../" (Ostrom, et al. 2010, p. 18).

Holmlid & Evenson (2007) have claimed that the specific attributes of services makes prototyping special in a service context but that knowledge about how this is done, or should be done, is missing. The idea and the ways that services are different from products is persistently reiterated by the service design community, but studies that thoroughly explore the implications of those differences are not common. This is especially true for service prototyping, and this paper aims to provide parts of that missing knowledge.

To find out what service prototyping is, a number of different approaches can be imagined. A common characterisation of design research is to divide it into research *about* design, research *in* design and research *through* design (Frayling, 1993). This paper is part of a larger attempt to map out the practice of service prototyping, mainly focusing on research about design. That means that this research is focused on interviews with- and observations of - practicing service designers.

Early attempts to frame and define service prototyping

Service prototyping has been described in a variety of ways by design practitioners, and is also mentioned in academic literature, as we have seen, as an area that needs more investigation. Some rudimentary definitions of service prototyping exist, like the one suggested on the online repository for Service design tools (2009), a project aimed at identifying communication tools for design processes in complex systems: "[service prototyping is a tool] for testing the service by observing the interaction of the user with a prototype of the service put in the place, situation and condition where the service will actually exist." The same definition is basically reproduced in academic reports from the project but adds that: "[t]he difference between this kind of simulation and all the others is the attention paid to the external factors that could interfere with the service delivery, factors that have a great impact on the user experience."(Diana, et al. 2009 p. 8) In essence, this would mean that any prototype that is tested in the intended "place, situation and condition" is a service prototype. The data behind the work is collected via several case studies, existing

literature and interviews with designers and academics, but focused mainly on different types of visualisations.

Another description focuses more on the emotional impact and the business side of service prototypes. According to Jeneanne Rae (2007), service prototyping helps in gaining a competitive advantage and reduce risk. She also says that:

> *"Good service prototypes appeal to the emotions and avoid drawing attention to features, costs, and applications that can clutter the conversation and derail the excitement factor. Storytelling, vignettes, cartoons, amateur videos—all are low-budget tools that bypass the intellectual "gristmill" and go straight to the heart." (Rae, 2007)*

The exact meaning of service prototyping is not mentioned by Rae, though it is described as a collaborative, explorative, iterative and open-ended activity. Miettinen (2009) exemplifies a quite different approach to service prototyping. In her work she has stated that; "[s]ervices are usually prototyped through scenario-building and role-playing." (p. 4512) and in the specific case she described, prototyping was also placed in a real-life environment. The actual process and meaning in Miettinen (2009), about what service prototyping is meant to imply is unclear though, and the question remains what service design practitioners do to prototype services.

In the next section, the approach used in this paper to find out what service design practice looks like is presented. This is followed directly by the results, which is divided into the purpose, attitude and challenges associated with prototyping services that were reported in the interviews. And then, a discussion about the implications of this research clarifies the main points followed by some future research considerations and finally the conclusions are presented.

Interviews

The paper is based on interviews with practicing service designers in Sweden(1), Norway(1), USA (2), and The Netherlands (2) (see Table 1). The interviews focused on prototyping but started with some background questions about the designers and general questions about their typical work process. Their backgrounds and level of experience within the field of service design varied. The backgrounds of the informants can be seen in Table 1, where some additional information can be found as well. The shortest interview was 35 minutes and 4 seconds long, and the longest one took 104 minutes and 34 seconds. The average interview was ca. 74 minutes long and all the interviews were conducted via telephone (2), or Skype (4).

This paper reports mainly on answers to the question "Can you talk a little about how you actually make prototypes?" but also include other answers relevant to that question. None of the designers knew beforehand that the interview was going to be about prototyping. A table (Table 1) show some basic information about the informants and what geographical region they are active in. The information in the table has been retrieved from the interview material and the answers provided there. Mainly the questions about their background, prototyping practice and who they involve in the creation of prototypes have been used.

Table 1: the informants and some characteristics of each prototyping approach

#	Region of operation	Author of prototypes	Scope of prototypes	Background	
				Educational	Professional
1	Nordic	Themselves	Holistic	Industrial and Interaction design	Interaction and Service design
2	Nordic	Themselves	Single touchpoint/s	Industrial design/ Art school	Design strategy
3	USA	All stakeholders	Single touchpoint/s	Journalism	Interaction design/ Marketing
4	The Netherlands	Themselves/ stakeholders	Single touchpoint/s	Software engineering	Mobile marketing
5	The Netherlands	Specialists	Single touchpoint/s	Photography/ Communication	Marketing/ Business strategy
6	USA	In-house experts	Single touchpoint/s	Interaction design/ Media	Web design/Art director

Results

In the following sections, the main themes of the reported practice of service prototyping will be presented, starting with the main purposes for prototyping services. How and why prototyping is seen as an essential part of service design, and then some characteristics of current service prototyping will be described, followed by a presentation of the challenges for service prototyping according to the informants. The symbol "#" followed by a number is used to denote the different informants according to Table 1.

Purposes for prototyping services

Service prototyping is primarily said to be used as a tool for *learning* or as a tool for *communicating*. All of the informants report using prototypes for both purposes, generally with the emphasis on one or the other. Service prototypes are communicative tools in the collaboration with stakeholders and colleagues; "[service prototyping] is a way to show a service without creating the service, to show what it could look like and how it could work" #2. The visualisation of services is an important part of communicating with prototypes "[a] service prototype is an attempt at visualising for someone, whether it is a client or the end user, what the service would be like in the future, when wholly realised" #3.

The learning purpose can be divided into *exploring* and *evaluating*. These purposes are mentioned in different variations by most of the interviewed designers. Exploring is mentioned in terms of "generate insights, developing your thinking [about a situation] and gathering insights", while evaluating is described as "testing, receiving feedback and finding fail-points". Service prototypes are described as "a lightweight version of the actual service

where the crucial parts of the service are tested" #1, "a situation from which you learn how to improve a service" #4, and "a way to develop your own thinking and receive feedback about that thinking from others" #6. Service prototypes not only help designers explain services to others, but also make them more feasible to themselves, it lets them "get a glimpse of the future" #3.

Prototyping as an essential part of service design

The informants were all asked whether they considered prototyping to be an important part of their work. Without exception, the answer was yes. Looking at their description of what their work processes looks like though, only half of them spontaneously mentioned prototyping. Looking at a larger data-set, including other interviews with service designers (see Segelström 2009, for a description of the interviews) prototyping seem to be a priority in the work process for about half (8/15) of the informants. This means that when half of the service design practitioners were asked about their general work process, they did not mention prototyping (or activities closely related to prototyping). There was also a big difference in how the informants approach prototyping. One design agency stands out in particular. #1 was the only informant to report that prototyping is done in a systematic way, regardless of the specific project they are working on. They were also unique in that they always make holistic prototypes, which means that they prototype a select number of touchpoints and test them to evaluate their prototypes, i.e. they prototype several touchpoints at the same time, instead of single artefacts or interactions, see Table 1. This allows them to take the whole service into account when prototyping.

The interview data also show that some of the agencies do not have a specific phase dedicated to prototyping. Two out of the six informants reported to have a prescribed way of working with prototyping. The process of collecting data and sorting the material seemed to be generally more well-defined and were accounted for in greater detail than prototyping. Excerpts from some of the interviews illustrate that prototyping is not a very articulated; "what is a service prototype? I don't use that word" #2, or distinct practice within some of the agencies; "[t]he prototyping starts when we talk about ideas /./ If I have an idea and I talk about it with my client or with anyone- like a colleague -then the idea comes a little bit to life and /./ that is a way of testing the ideas" #5 and "[f]or me a prototype can be anything – anything that helps you learn about the thing you want to test /./ Prototypes for us are anything that can be used to test a certain part of a new concept" #4.

As expected from reports on service design practice (see e.g. Vanstone & Winhall, 2006; Fullerton, 2009), the prototyping approaches were collaborative. A prerequisite for prototypes to serve as facilitators of communication is, like prototypes in general, their function as manifestations of ideas and thoughts (Lim, et al. 2008). This allows designers and stakeholders to communicate more effectively and collaborate around otherwise abstract concepts (Samalionis, 2009). This function was evident also in the interviews that support the image of service design as collaborative; "/./ we work really closely with our clients and try to involve them in some way or another. It's not like they give us an assignment and then we return to [our office] and then work for six weeks /./ and then return to uncover the finished product" #2. Working intimately with clients and involving decision-makers were seen as especially rewarding. In most cases though, the prototypes are produced (authored) by the design agencies themselves, see Table 1. When it comes to the evaluation of prototypes, all informants say they involve the stakeholders as much as possible.

Challenges for service prototyping

The result that service designers use prototypes to learn and communicate is perhaps not so surprising; variations of those purposes can be found in most design research papers about prototyping. More interesting are the specific challenges that the informants see with prototyping services.

The general attitude towards prototyping services seemed to be that it is helpful and that the benefit is greater than the cost. When asked whether the designers, in an average project, spend enough, too much or too little time on prototyping, two of the informants said that they want to do more prototyping. The interesting question is perhaps not if they do enough, but rather if they do enough for the client. #1 said they do enough for their clients, but that they had a feeling that the community as a whole does not. The reason why some informants do not do more prototyping is because the clients either do not see the benefit (#5) or the designers cannot motivate the extra time for more iterations (#4). Another aspect of the client relationship is reported by #3, who says that during prototyping it is important to "slow the client down" because at that point clients often want everything to happen at once. #2 believe they are doing just enough prototyping but would like to learn more about how to actually prototype for services.

The awareness that service prototypes are different than prototypes using other design materials was high, though the interpretations of the implications and concerns related to this difference varied a lot. For instance, several different aspects that make service prototyping more challenging was suggested, such as the *inconsistent* nature of services; "If it's a technology-based prototype its presentation is the same each time, if it's a human-delivered prototype /./ it's going to be delivered a little bit different each time, even within the same person, or from person to person." #3. The problem of *authenticity* was also stressed (e.g. by #3) and this was reflected in some of the answers; "if you do role-play, you know the people who are taking part- they are role-playing. It's not the actual situation. They respond to each other because they pretend" #5.

The *validity* of the test situation in relation to the intended implementation context was mentioned several times by the informants. Simulations are not real situations, and therefore prototyping might not even be the best tool to use, according to #6. Testing concepts in isolation and then letting them out in "the real world", you never know what is going to happen #5. The complexity of services makes them more difficult to prototype and understand since it is hard to know what to look at #4, was another opinion. An associated challenge was *time*, which largely affects the experience of service prototypes (#1 and #6). The problem of prototyping *intangible* things, such as experiences and social interactions was also prevalent in the interview material.

Another challenge is that many of the design agencies work with clients who do not necessarily know what service design is or that they are actually delivering a service, which means that the companies sometimes do traditional prototyping (e.g. mock-ups #2, animations #2, product models #6, and information #2). This can be frustrating, as illustrated by this excerpt where an informant talks about a project where they were hired to design the printed material for a public transportation service, but where they:

> *"[know] that public transportation is about much more – it's about what they tell you onboard the train or bus, what phone number to call for route information, how does the travel card work and how do you buy it online – all these things are parts of the service /./ But in this case the client could only handle one part of the service at once. In that case we did only one thing, but tried to push the client to see the whole picture." #1*

Discussion

The purpose of this paper is to reveal and describe the practice of service prototyping, according to service designers. In a sense, it is easier to describe what service prototyping is not. For instance, it is not *one* thing to the interviewed designers. The reported practice, and the definitions provided by the informants, varied largely. This means that the description of a service prototype found in Diana, et al. (2009) could not be confirmed by this research, since most of the descriptions of how service prototyping is actually done deviated from that description. The interviews also revealed that service prototyping is not very articulated (some informants were unfamiliar with the term) and not very rigid in the sense that it can be pretty much anything- like an idea, an everyday object or a deliberately constructed artefact or social interaction. To most agencies it was also not a specific phase in the design process, i.e. it could happen at any time and place during a project. This is a natural consequence of not having a language- and a process for, working with service prototyping.

The fact that there is no actual prototyping phase in the projects is partly due to the designers' clients. For instance, #2 explains that they do not sell projects based on prototyping; it is not part of the specification for projects, unlike e.g. research. It is likely though that this varies a lot between different design agencies. There is also reluctance among service designers to actually work with methodologies or rigid processes, which is evident in other research as well: "[w]hilst some organizations had well-developed and tight methodologies, many successful innovators preferred a more flexible approach. They feared that tight methodologies would inhibit the creativity required for experiential service design and would increase time to market unnecessarily. This suggests that the relatively tight and rigorous methodologies typically found in product innovations may not always be applicable to service innovation." (Voss & Zomerdijk, 2007 p. 3)

Another piece that was largely missing in the interviews was the holistic perspective of services. What is interesting about this is that when asked, all recognise the value of a holistic perspective, but when asked about how they actually prototype, all but one company (#1) talked about single interfaces, products or interactions. This indicates that some knowledge about how to approach service prototyping is missing and that the practice is more reactive than proactive. There is also the question of how much of a priority service prototyping actually is. All informants recognise the importance when asked but only half even mention it as part of their work process. This might of course be due to the fact that prototyping is implicitly taken for granted, or they simply do not prioritise prototyping to the extent they say they do.

One thing that can be said about service prototyping, and that is corroborated by findings about service design in general (Rae, 2007) is that service prototyping is a collaborative effort. "The quality of the service depends on your collaboration with your customer" #5. To achieve this, the use of prototypes to visualise service concepts and ideas seem especially valuable.

This paper also reveals that designers see a number of challenges for service prototyping. A number of specific features of services, and for prototyping in particular, was mentioned; inconsistency, authenticity, validity, intangibility and time. At the same time, most designers did not report any problems in their *own* work in prototyping services, which might indicate that they do not actually address these service related issues in their practice. A problem related to clients was said to be the amount of prototyping that occurs within projects, and showing the value of prototyping services. This problem has also been identified in other service research:

"It seems the main barrier to using design (as well as creativity-and innovation-related practices more generally) in service firms was the perception that it was not relevant: half the service firms expressed this opinion. This aside, the more important barriers were the cost of these activities and the lack of clear tangible rewards." (Tether, 2008 p. 8)

Future research

This research needs to be completed by observations of actual prototyping cases, to wholly understand the practice of service prototyping. A holistic approach to service prototyping, that address the challenges suggested in this paper, also needs to be developed or brought to light in future research. Especially the issue of how to prototype whole services, in a realistic environment that accurately convey the experience of the future service, is a question that should be further investigated. Responding to this question means developing processes that investigate how new service concepts relate to "servicesscapes" (Bitner, 1990) and whole services; "the physical environment, the service employees, the service delivery process, fellow customers and back office support" (Zomerdijk & Voss, 2010 p. 25).

Another important area is how the value of service prototyping can be measured and communicated to service providers. The design community seem to realise the benefits of prototyping, but lack the tools to convince key stakeholders. More research on how to develop methods for practicing service designers that clearly communicate the benefit of their work is needed.

Conclusions

This paper has shown that service prototypes are used to explore, evaluate and communicate design ideas and concepts. A number of challenges with prototyping services as opposed to products were identified: inconsistency, authenticity, validity, intangibility and time. At the moment, service prototyping cannot be said to be one thing but rather a variety of approaches and activities. The area shows great opportunities for improvement and one of the informants even pointed out the lack of knowledge about service prototyping within the community, and another designer said that they, at their agency, need to learn more about how to prototype. Findings along that line underscore the notion that service prototyping is still not wholly formed and needs further development.

What the research presented here can contribute is a number of characteristics of contemporary conceptions of what service prototyping is. Summarising the prominent features according to service design practitioners, indicates that service prototyping is an activity that is:

» 1) central to their work (but not a structured unit of their processes),
» 2) about making services visible, to learn and communicate about services and
» 3) collaborative.

The potential and still unrevealed knowledge about how to tackle certain aspects of services makes this area one of the more interesting future research areas that can develop tools and methods specifically for the prototyping of services. The attempt to unmask service prototyping should focus on developing a new shared language of prototyping and arriving at a first description of service prototyping as a well-defined and structured activity, taking the service specific attributes seriously.

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