Designing for Resourcefulness in Service:

Some Assumptions and Consequences

ABSTRACT

Research on design for service has mainly concerned itself with understanding the design process. In this research paper focus will be shifted towards service performances, based on a suggested model that can work as an aid to distinguish between different stages in the service development life-cycle and in co-creation of value. In a service performance, participants will enter with resources, competence and attitudes.

What if we view every person in the performance of a service as resourceful? What are the assumptions? How does it fit with figures of thought in service and design research? Which consequences does it bring?

The analysis will be based on situated cognition and socio-cultural theories. In contrast to activity theory, theories that highlight emergent activities and participation will be used. It is shown that, design research on service research can find a good foundation in theoretical concepts such as activity theory, zone of proximal development and legitimate peripheral participation, to direct future development of the area.

About the author

Stefan Holmlid is associate professor at Linköping University working mainly with interaction and service design research. Stefans research takes as its starting point the power of design action and design thinking, and the challenges brought forward by the constant renegotiation of the boundaries of design practice. Currently his research make a deep dive into the realms of services, especially

concerning the expressive powers of design methods and techniques, what it means to design with objects and materials that can be both dynamic and active, as well as the design of value co-created "in use". Stefan is heading the IxS design research groups, and has been a co-founder of the ServDes conference as well as the Service Design Network.

Keywords: resourcefulness, performance time, value co-creation, service development lifecycle, zone of proximal development, legitimate peripheral participation, situated cognition, socio-cultural theory

Introduction

In the development of the field of service design a lot of focus has been put on the design practices that designers, clients, customers, users and stakeholders engage themselves in together. Design for service as Sangiorgi (2009) views it can be to design interfaces, systems or transformation. Design research on visualisations used in different stages of the design process has been performed (Segelström, 2009, Segelström & Holmlid, 2009; Diana et al 2009). Studies of practices and development of techniques for service prototyping (Blomkvist, 2009, 2010; Cantú & Simeone, 2010; Holmlid & Evenson, 2007) is developing. Research on more general methodological issues of design for service (Blomkvist, 2010; Blomkvist & Holmlid, 2009; Vaajakallio, 2009; Holmlid, 2007, 2009a; Wetter Edman, 2009; Han, 2010; Kimbell, 2009) is common. There is an ongoing development of theories relating the practice of design for service to design in general as well as to other relevant areas (Holmlid, 2009a; Sangiorgi & Clark, 2004; Blomkvist, Rankin, Anundi, & Holmlid, 2010), and studies on the designer in relationship to other areas of competence (Kimbell, 2009; Pacenti & Sangiorgi, 2010; Blomkvist, Holmlid & Segelström, 2010; Holmlid & Evenson, 2008). As a consequence, knowledge on design for service, especially what happens at *design time*, is growing fairly rapidly.

In the practice of service design recent trends, such as the highlighting of co-creation, participation and engagement (Stickdorn & Schneider, 2010; Parker & Heapy 2006), assume a figure of thought where one is viewing participants and stakeholders as resourceful on their own terms (Holmlid, 2009; Sleeswijk-Visser, 2009; Mattelmäki, 2006). That is, that the participants in a design process possess valuable knowledge and opinions, have and create insights and ideas that are as valuable as any other participants, have competences that are important in driving the process forward, and are allowed and willing to participate and contribute to decisions just as any other actor in the design process.

It has been less acknowledged what this means in terms of a service as it is being performed and co-created, in *performance time.* And the consequences it has for service design. If we don't want to view this from a business oriented resource integration perspective we may view it as a social and cultural activity, and rely on theories about such activities as situated phenomena.

In this research paper we will build a deeper understanding of design for service based on the arguments that 1) there is a need for a foundation based on situated cognition, 2) research need to direct its attention towards what happens at *performance time* in a (designed or non-designed) service.

Being resourceful at design time

When the focus is on *design time*, there is an implicit assumption that comes with resourcefulness; that someone in these processes knows, or has a good understanding of, what the performance of the service is like, how it is structured and operated, and how it's actually working. There are probably different views on this in a design process, a kind of pluralism (Lantz & Holmlid, 2010). This, in turn, can be a good basis for achieving insights beyond the individual participants. Often, results of such a design process are presented in a narrative manner. These narrations show how a new way of working in a future service situation achieves better results from, e.g. a user experience perspective, than the existing service.

In participatory design, among other human-centered design disciplines, this has been a reoccurring theme, where multiple user groups and stakeholders bring their resourcefulness to the development projects, in order to make them succeed. For example, real users are trying out mockups of a future system in an office environment, and bring their knowledge into the design process. Sometimes design probes are dispatched or design games are played to increase the level of empathic design (Mattelmäki, 2006; Vaajakallio, 2012).

This is a great way to influence a design process, to not only take into account technological rationality and organizational rationality, but also to direct a design process towards rationality based on usage. In most cases, opening up a design process to several different resource bases, give opportunities for achieving better results from several perspectives in a shorter time with less risk of failing further on in the process.

But there are also certain limitations. Everyone participating in a design process knows that they are not in a setting where the service is performed for real. It opens up for giving comments, and for reflection, but it also distances the participants from how they would behave, or have to behave, in a real situation. As long as one is aware of these limitations, use them in a clever way (Blomkvist et al 2012), or find ways of avoiding them, the limitations does not have to be the cause of unwanted side effects.

A short note on performance time and design time

The figure of thought behind *design time* and *performance time* is a model that helps us distinguish between the different stages of developing a service. It should not be viewed as a prescriptive gate model or a predefined sequence for a whole service development project. It is merely a description of stages that the pieces and wholes of services go through in their lifetime.

The model is built by using an analogy with software programming. When errors are detected in a programming project, the error can have many sources. These are distinguished from each other based on when the error is introduced or occurs. Usually these are referred to as 1) *design time*, where a fault is introduced already when the software is planned and the architecture is decided, 2) *programming time*, where a fault is introduced when the code is written, 3) *compile time*, where a fault is introduced when the programming code is translated into the code that the computer uses, and 4) *runtime* errors, that are introduced when the program is run. Another way of describing it is that, e.g. a compile time error is difficult to detect at programming time, or is an unwanted side effect of the translation process based on the programming code.

If we rid our figure of thought of the error connotation, it works well for service development and design. It allows us to talk about certain stages for the development of service, each of which has its own conditions:

- Design time, is the conditions under which the service is ideated, conceptualised and designed.
- Development time, is the conditions under which the details of the service is developed and tested.
- Implementation time, is the conditions under which the service is implemented in an organisation.
- Performance time, is the conditions under which the service is performed.

While being a figure of thought, it is meant to highlight aspects and give direction, not to be a formal and extensive definition. In service design research, most of what is presented as cases or research studies are performed looking at *design time* or *development time*.

On being resourceful at performance time

The simple way of viewing resourcefulness at performance time, is to say that the customer brings the most important resource for a service; the customer itself as a resourceful integrator. In the service-dominant logic they are part of the dynamic or operant resources, as opposed to the operand resources such as raw material, technology etc. This is expressed in several of the foundational premises; that the value is co-created with customers, that the company only offers service propositions, and that the value is defined by the beneficiary (Vargo & Lusch, 2004, 2008).

In a somewhat more complex perspective, there is a division of labour of the operative processes of a service between the stakeholders, such as th service providers and customers. In a bank service, e.g., the customer is allowed to perform a wide range of actions when engaging with the online service. When visiting the bank office the customer is not allowed to perform all of these actions. In each of these configurations, the division of labour and usage of support tools are different from each other, and could be understood as joint cognitive systems, as computer supported cooperative work, or as computer mediated action.

Taking on the full complexity of a service, there are many stakeholders and participants that together create the service. They all are beneficiaries of some kind; they bring value to and take value from the service. Configurations and constellations drive integration of knowledge towards shared and individual objectives.

In order to contribute to the understanding of what it means to design for service when everyone is regarded resourceful at performance time, we will use some examples as a backdrop for socio-cultural theories and situated cognition

Expertise in importing goods

The Swedish Customs has two different areas of operation; preventing crime and contributing to trade efficiency. In a service development project carried out in 2006 an analysis together with four companies involved in import processes was performed. For other analyses of this service, such as a service ellipsis analysis can be found in Holmlid (2011, 2010, 2009b).

When a company wants to import goods or materials, there is a set of administrative procedures that needs to be done. In Sweden, depending on the degree of maturity of the company's import quality control process, as defined by the Swedish Customs, the companies are allowed to take a higher degree of responsibility of these procedures. At the highest level of maturity, a company does not pay any import fees or taxes until a customer pays for the product. In the example used here we will assume that the company is not at the highest level of this maturity scale (see figure 1 for a stakeholder map).

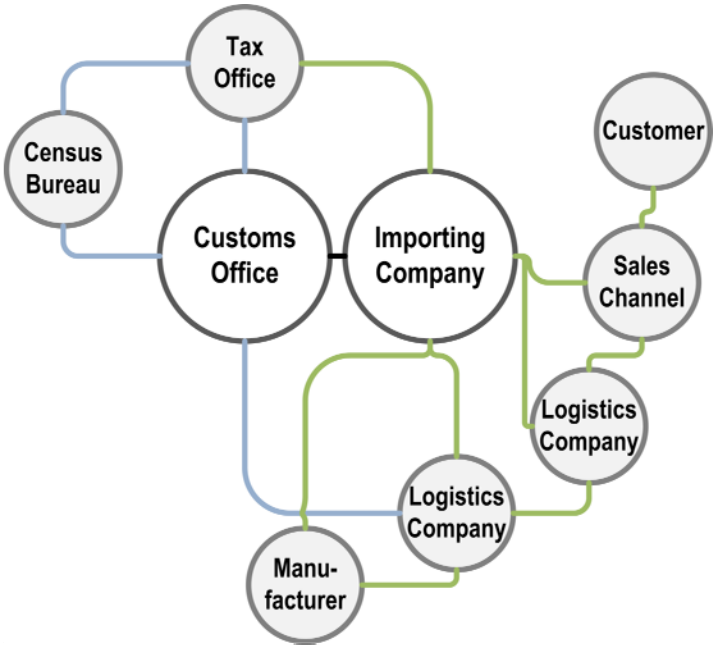

Figure 1: stakeholder map. Blue lines signify direct contact with customs office, green lines signify direct contact with the importing company.

The first service ellipsis starts when the importing company make decisions on why the import is needed, what is needed to import, and the timeframes for the import. Based on earlier experiences of importing and on business goals, these timeframes might be adjusted to formal procedures, logistics, trends, standards, etc. In relation to the Customs the company need to fill out a set of forms, such as import permits, applications and taxation forms. Depending on what is imported there are different forms that might be needed. The Customs host a phone based customer service, to which every company can call, when they need help in filling out forms. The calls are made to a central customer service, and the experience of the importers is that every call is structured in a similar way, where the calls start from the beginning of a set script every time.

The customer service receives a lot of phone calls for certain questions, one which is questions regarding what is called the “stat-number”. The “stat-number”, which more formally is known as the Taric Number or the Commodity Code, is a 10 digit number, sometimes with a 4-digit additional code. For example, pure cocoa-powder has the Taric Number 1806 10 15 00, and cocoa-powder with 70-80% of its weight containing sucrose is 1806 10 30 10. Chocolate and other food preparations containing cocoa, more specifically a preparation containing cocoa for making beverages in immediate packings of a net content not exceeding 1 kg has the Taric number 1806 90 70 10. The commodity codes help statistical analysis of trade balance, and are defined by the Census Bureau.

Many importers use a limited set of stat-numbers, but sometimes it can be a matter of judgment which number that should be used, depending on features of the product to be imported. Probably the importer has a set of paper and electronic documents, describing the product, and possibly the importer have started to fill out the forms. The customer service does not have access to these documents, and in conversations there is a risk for misunderstandings and generation of delays. A first service ellipsis has its closure when the importer sends the forms to the Customs (see figure 2 for a simplified blueprint with the service ellipses).

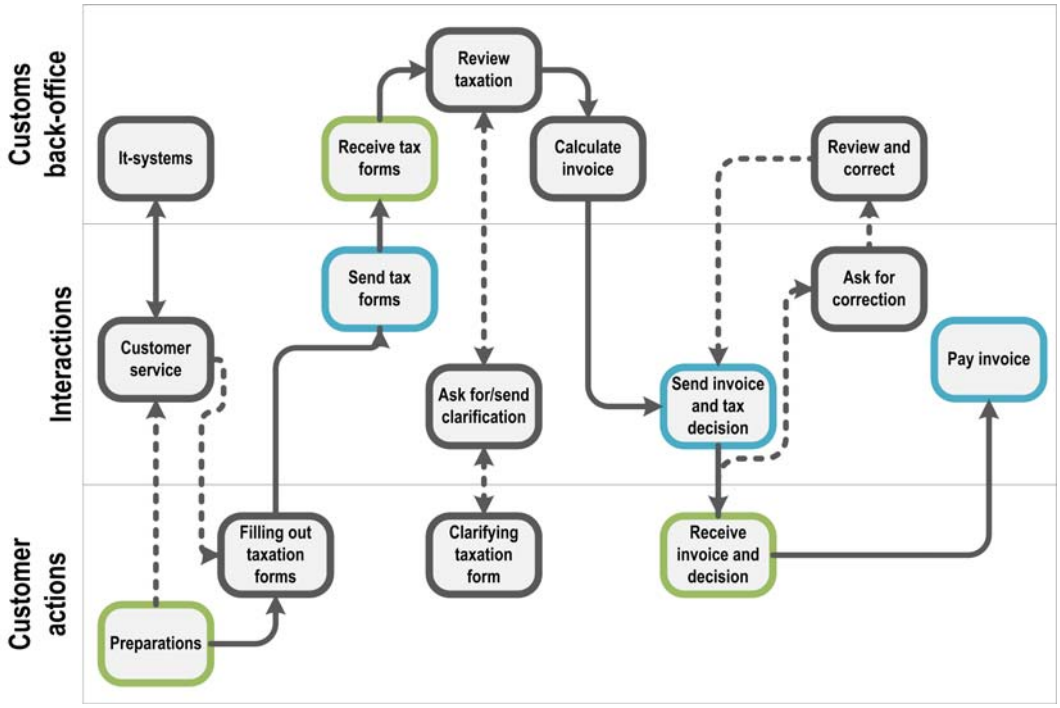

Figure 2: simplified blueprint. Continuous lines signify necessary steps, dotted lines show alternative interactions. Trigger actions are green and closure actions blue.

Receiving the forms at the Customs is a trigger for the second service ellipsis. If there are any unclarities, missing information or mistakes, the Customs sends the forms back, often together with a definition of what the problem is. The importer sends the forms back until they are deemed to be OK. During this period the importer also handles the practicalities with the logistics of importing, and finally receives the goods. When the goods arrive the import documents are given to a customs officer at the border. When these documents are registered the Customs continues their work. Closure of this ellipsis is achieved when the Customs office sends the import taxation decision and invoice to the importer.

Receiving the import taxation decision and the invoice is the trigger of the third service ellipsis. The importer checks that the invoice states the correct goods and the correct amount of goods that have been received. If there are discrepancies the importer contacts the Swedish Customs, in order to deal with these differences in

the invoice. After having finished that, the importer pays the bill. This defines the closure for the third service ellipsis of the import process.

A view from socio-cultural theories

We might view this from an Activity Theory perspective, as suggested by Sangiorgi (2004). Activity Theory is powerful when dealing with goal-directed activities, and especially when one wishes to understand historically construed actions and persistent structures across activities (Nardi, 1996). Using Activity Theory in analysing the example would require of us to describe it as two activity systems that meet temporarily, or one activity system that is temporarily created each time the service is performed. Both alternatives capture the complexity of the service and the situation, but it will also be hard to grasp. A set of foundational questions can be identified based on using activity theory in these specific situations; What are the possibilities to merge two activity systems that have different objectives? Will there be a need for a meta-activity system, where e.g. division of labour is defined between systems rather than within a system?

Instead we will try to understand how the resourcefulness plays out in this example with the help of Vygotsky (1978), and the concept Zone of Proximal Development, ZPD.

The cultural-historical school of psychology is based in Russian psychology, with Vygotsky and Leontev as its main proponents. One central concept that was developed was the Zone of Proximal Development. As the concept was developed in relationship to children's learning, the definition is very focused on learning situations:

> *the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers (Vygotsky, 1978, p86)*

That is, when a person is performing an action together with an expert or a more capable peer, then s/he may perform better than when trying to perform an action by herself. Other, further developed definitions are common (e.g. Engeström, 1987; Wertsch 1985), but here we will rely on the original definition.

In the first service ellipsis two ZPDs are created. One is customer-centric and is a ZPD where the Customs is regarded as the more capable peer. and the other is a ZPD where it is the importer that is the more capable peer. The first ZPD is articulated in the design of the service, by 1) the existence of a customer service call-center, as well as 2) the centralized structure of the call-center, and 3) the repeated behaviour exhibited when customers are calling. That is, the design articulates that the Customs are the more capable peer, and it is through interaction with them that the importer performs a better task when assisted by the public sector agency. In other words, the design of the service positions the Customs in an expert role.

The second, importer-centric ZPD, in the first ellipsis is practically non-existent. Actually, in the case here it is precisely because the first ZPD is articulated in the way it is, that the second ZPD is suppressed. The second ZPD would imply that the customer service call-center would perform better by letting their zone of development expand with the help of the importer as the more capable peer. This might be articulated in the design of the service, by making sure that customer service personnel either are dedicated to certain industries or companies, or that they are given automatic access to relevant documents from the caller as a support in making meaningful conversations.

In the second service ellipsis, the Customs is not regarded as an expert, but in a formal role as a government office. In the relation between the importer and the Customs there is mainly one ZPD, where the Custom’s office is the more capable peer. That is, they give feedback on potential errors in the forms, and ask for corrections.

What is interesting here is that the amount of work needed in this ellipsis is directly influenced by the quality of the joint work during the first ellipsis. In organizations where the person working with helping customers to do it right from the beginning, is the same person that receives and checks the forms, this connection will be very clear. On the other hand, in organizations where this is not possible or not allowed, two ZPDs can be identified. In this case, at the Customs, they both appear between the different ellipses, and can be used to increase performance time resourcefulness. The persons engaged in the second ellipsis are experts on the formalities and details, whereas the persons engaged in the first ellipsis are experts on the difficulties importers have in getting it right. They can act as more capable peers towards each other, and leverage on integrating internal and external knowledge.

Understanding and identifying these ZPDs, as we have seen, make room for design moves. In parking services, similar design moves can be made. On the surface a parking service is fairly simple, but it quickly increases in complexity (Wreiner et al 2009). One example of a design move, is that the “parking guard” is transformed into a “parking guide”, not only as a new title, but also in what the role is supposed to contribute to the service and in the behaviour and tasks of the person. As guards (with the right to give parking fines based on local parking rules and regulations) they are experts on parking rules. Using this expertise when acting as guides, they create a ZPD where the driver that wants to park can find a suitable parking spot for his/her goal. The driver thus performs a better task when assisted by the parking guide. Other examples of application are debt relief processes at the Swedish Enforcement Authority, a florist (Holmlid, 2012), build-a-bear, among others.

Some general and transferrable design consequences are:

1. Because actors are resourceful in relationship to a situation and a task, the role as capable peer, the expert, change during the course of the service performance. This implies that only using personas, that are static

representations across a service, as a design tool for the different actors in the service might be too blunt.

2. Mapping who is bringing resourcefulness to different situations in a service during performance time, and how this relates to the performance of other actors clarifies the degrees of freedom that needs to be created in development time and implementation time. It will give the possibility for actors to make informed decisions based on the resourcefulness at hand in a service performance.
3. The service occurs in the *meeting between capable peers*. Service may then be viewed as construed by the activities and goals that these peers can achieve with the guidance of the more capable peers. Designing support structures for taking on different and changing roles as a more or less capable peer is of major importance.
4. During performance time co-creation could be expressed as co-production, or *performance time co-creation* to distinguish it from *design time co-creation*

To sum up, when we assume that everyone is resourceful in performance time of service, we may allow this resourcefulness to bring value to the service performance. The assumption also brings with it the possibility to articulate distinct design alternatives where the resourcefulness matters.

Legitimately increased participation

Another foundational theory that can inform our understanding of resourcefulness in performance time is based in situated cognition. The specific theoretical concept used here is called legitimate peripheral participation, LPP (Lave & Wenger, 1991). It goes beyond Vygotsky's focus on individuals to communities of practice, and relies partly on Giddens (1979) as well as embodiment (Merleau-Ponty, 1945; Bourdieu, 1977). Lave & Wenger (1991) argue that a person develops competence and skill in relationship to a community of practice, and may go from legitimate peripheral participation in the community to full

participation. It should not be mistaken for a master-apprentice relationship, where there is assumed a strong asymmetry of power and knowledge. Instead, the path to full participation is given structure by being resourceful in work practices and the integration of operant resources in activities.

An important concept here is that peripherality is a positive term. That is, it does not have to be the goal of a person or a community to aim for full participation. In the case of communities that relate to each other, peripherality drives articulation of practices as well as communities. It is also important to understand that a person may go from peripheral to full participation and back to peripherality.

The community of home health-care practice

One service example where LPP can matter for design is advanced distributed home health-care. In these situations it is common that the operation of technological aids, such as glucose or blood pressure instruments, is performed by patients or their relatives. But also reporting and judging pain levels, or distributing medicine finds new operating procedures involving the patients as well as relatives, home nurses, etc.

This kind of health-care was earlier mostly performed in specialized institutions. Then, these services were rarely designed in order to transform the patient from a peripheral participant into a full participant into a community of practice. The division of labour was strictly based on the dichotomy between the patient and the medical experts, and on functional division of labour within medical practice.

Nowadays, when a lot of advanced health-care is transferred into the homes of people, new design possibilities arise. First of all, the patients and their relatives will have to become legitimate participants in a health-care system. Some will only participate in the periphery, while some will become full participants in a home health-care community of practice. At the same time, health-care personnel will become peripheral participants in the community grey zone between a home

and a health-care situation. They will only peripherally participate in the family community, but together with the patient and the closest relatives, be full participants of the community of home health-care practice.

Other communities of practice

The parking guide service can also be viewed from an LPP perspective. As a driver you are legitimately participating in the community of parking, where the parking guides are the "masters" of parking. Depending on what the driver says about the parking need/goal, the guide will adapt the answer, and might choose a strategy where inexperienced parkers, get easier guidance, whereas more advanced parkers (exhibited through the way they articulate their needs), will get more advanced guidance. Ultimately the guide will not need to tell drivers how to navigate the structure of the parking activity in the city; the driver will fully participate in the community of practice, and might even guide other parkers.

The Diabetes agenda case, with the creation of ActivMobs and Issue Cards, is a wonderful example where the design of service articulates communites of practice and means for legitimacy, peripheral participation and full participation (Murray & Burns, 2006).

Several examples concerning chronically ill can be found in Kilbournes (2008) PhD thesis, where he defines patients as skilled practitioners.

To sum up some design consequences are

1. In services where a long term engagement is needed for co-creation of value in performance time, it is important to design for the *transformations between peripherality and full participation.* This implies that the ordinary view of customer journeys has limited applicability, that usually are geared towards static representations of the actors.
2. In performance time co-creation, a community of practice will contain people that are peripheral and full participants, being equally important to achieve the value of the service. Through co-design practice we participate in articulating these positions. Or more specifically, through such a participatory practice towards value co-creation, and alternative ways of

becoming peripheral or full participant, participants in such a performance time service process contribute to articulate these positions.

3. In performance-time situations and actions are emergent, and does not always follow prepared structures. That is, understanding the situated nature of a service help us to design for resourceful action in emergent situations.

A short outlook

First of all, given the design-time/performance-time framework new design studies can be performed. There is a lack of studies that start out with the knowledge on the conditions of the different stages. Moreover, focused studies on specific aspects might be done, such as service failure or service recovery. That is, whether the failure is introduced at, e.g., design time or implementation time, and how recovery may be done in performance time.

Activity Theory focuses on systemic structures, configurations and persistent phenomena. As a balance to this situated cognition focus on emergent actions, capacities and competence. Taken together, service design research can find a good foundation in theories such as activity theory, zone of proximal development and legitimate peripheral participation, which might direct how we may understand service design practice, and how to develop that same practice.

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Text for the figures:

Figure 1: stakeholder map. Bold lines signify direct contact with customs office, thin lines signify direct contact with the importing company.

Figure 2: simplified blueprint. Continuous lines signify necessary steps, dotted lines show alternative interactions. Trigger and closure actions of the ellipses are indicated.