Mobile Users and Service Experience Developers

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1. Abstract

Customer Experiences have become increasingly important as well as challenging to differentiate and add value to products and services. Experiences play a particularly important role in the emerging field of service development and design, as value is co-created by customers through their interactions with service providers resulting in a unique contextual outcome (Stuart and Tax 2004; Mager 2009). Services are relational and require shared knowledge and background between a company and its costumers (Verhoef, Lemon et al. 2009). Therefore it is considered more difficult to create valuable service experiences when the company is not present (Sandstrom, Magnusson et al. 2009; Verhoef, Lemon et al. 2009), and some authors advocate further research to create memorable service experiences through the design of new interactive applications, its interfaces and its specific mobility (R.S. Subramanya 2007).

This research contributes to a better understanding of user' experience requirements in mobile services and to improve its incorporation into New Service Development. This article reports the results of two qualitative studies that explored experiential factors in mobile services covering regular users of mobile services and designers/developers' perspectives.
The first study involved in-depth interviews and focus groups with 25 users of mobile phone services, focusing on the experiential factors of a mobile loyalty service and analyzing existing services. The second study involved a sample of 82 individuals (mainly designers - 52, 6%), during a creative training course on innovation. Mental modelling supported the design of an imaginary mobile service interface through a co-discovery method. Following qualitative methods (Charmaz 2006), both studies were transcribed and analyzed to identify categories of service experience requirements. The analysis accomplishes a comparative assessment of the experiential factors identified by regular users as well as endorsed the identification of requirements influencing mobile service experiences from the designers' perspective describing it with their own language code.

The results of the study with mobile service users allowed for an in-depth understanding of the user experience, which are not strictly related to the design of the interaction device. According to study results, one of the most important factors influencing the

mobile service experience is the interaction with service merchants, and the service environment in which the mobile service is used. This subject is relevant when people prefer some mobile systems due to factors such as emotional experiences that might play an important role in addition to functional aspects(Thüring 2007). Other factors such as ease use and its trade-off relationship with privacy, ease of learning, data usage, visualization, were also deemed important.
The designers' group also pointed out some of the experience factors already identified by users, such as ease of use and efficiency, but they paid much more attention to the functional and technological aspects surrounding mobile phones in comparison to the service characteristics. This fact may be a result of their professional backgrounds.

This two-way analysis places two unlike approaches and as a result similarities and differences can be identified on how the service processes, and the way interface is used. Although the usability and performance factors are mentioned by both groups, designers do not address the contextual elements that have a strong influence in the overall customer experience, such as the service environment, the service process.

This perspective has eased the understanding of the differences and priorities of experience in a mobile loyalty service according to developers and regular user's perception. Furthermore it has helped to identify the service design elements that affect users and developers' experiences, such as the interface and the service context of use, and to find their specific responsiveness to the interaction process.
This points out to the need of a more collaborative approach from both stances. We believe that this work can contribute to increase this collaboration and therefore add value to service innovation. The New Service Development demands a good understanding of the user's service experiences, as well as developers that must be aware of this complete service scope.

2. Introduction

There is an increasing demand for service innovation through customer-provider interactions in order to create improved enhanced experiences, thus gaining more attention from the business point of view (IBM 2007; Verhoef, Lemon et al. 2008). Experiences play a particularly important role in this emerging field of service development and design, as value is co-created resulting in a unique contextual outcome (Mager, 2009; Stuart & Tax, 2004). Service design is evolving by combining digital technologies with the ability to design the user experience (Lovlie 2009). The emergence of new and various mobile service experiences brings new challenges to the design process. This context of mobility with specific characteristics increases self-services and induce users to be self-sufficient. This research addresses three questions in the context of the empirical mobile service design:
(1) First, designing successful mobile services requires an in-depth understanding from a holistic perspective to assure that customers experience requirements are met.
(2) Subsequently this entails to identify the gaps between users, customers and developers to achieve a maximum impact for the business and for the user experience.
(3) To enhance the design of mobile services, designers need to have a better understanding and decode user experience factors. However, creating a common understanding of the service experience between customers and designers is not an easy task.

This paper aims at contributing to the New Service Development, by studying customer and developers understanding of the user experience in the mobile service context.
The research has been following the development of a new mobile service that supports the management of loyalty programs through a mobile application. Loyalty programs are activities designed to encourage purchasing through a marketing process (usually through cards) and the distribution of its rewards. The empirical ground frames a comparison between two studies:
One made with regular users of loyalty programs identifying their service experience requirements and a second with a group of developers, mainly designers. The same experiential factors framework supported both studies.

3. Literature Review

Contributing to the New Service Development designers must carefully integrate innovation through customer-centric experiences (Ostrom, Bitner et al. 2010). These experiences occur when a customer has any sensation or acquires knowledge from some level of interaction with the elements of a context created by the service provider (Pullman and Gross 2004). Although, according to Gentile, Spiller et al. (2007) customers not always recognize the experience' structure. In contrast, customers perceive each experience as a complex but unitary feeling, each component being hardly distinguishable from the others.

The term Customer Experience Requirements reflects the focus on the customer needs and perceptions, which are increasingly important success factors for interaction design in the open and uncontrolled service environment. Furthermore Verhoef et al.(2008) describe the customer experience as a holistic experience that involves customer's cognitive, affective, emotional, social and physical responses. Therefore the merchant cannot promote unaided, all the conditions for a good service experience. Several authors also refer the difficulties to promote valuable service experiences when the company is not present (Sandstrom, Magnusson et al. 2009; Verhoef, Lemon et al. 2009).

The notion of mobility (Kakihara and Sorensen 2001) has an expanded perspective that goes beyond the functionalistic understanding of the term itself and so covers all the following service dimensions:

The Service Social Environment comprehends the experience of each customer and its impact into others also referred by Zomerdijk and Voss as *fellow customers* (2009); A product or service promotes the use and consumption together with other people and leads to the creation of a community or a tribe of fans; It can contribute to create social identity, inducing either a sense of belonging or distinction from a social group.

Service Interfaces are the physical or virtual collection of touch-points between customer and the service provider (Gallouj and Weinstein 1997), to support the specific service activities. For this service dimension a cognitive component is extremely relevant, as it is connected with the thinking and consciousness of the mental process and perceptions; mobile service delivery may lead customers to use their creativity, even in situations of problem solving. The mobile interface performance may be affected by the variability of the context and by it's being an innovative service (Thüring 2007).

Service Atmosphere affects the sensorial component of the experience. Its design aims to provide good sensorial stimulus, such as sight, hearing, touch, smell and taste, thus arousing aesthetical pleasure, satisfaction, sense of beauty, adapted to the surrounding service interface (e. store)(Buchenau and Suri 2000). Mobile technology inherently influences temporality and context of the service atmosphere. (Kakihara and Sorensen 2001)

The relevance of the understanding of human-computer interaction, as embodied in the meanings, experiences, and values, cannot be ignored as it influences the Service Social Environment, Interface and Atmosphere (Forlizzi 2004).

The Service Usefulness though is obviously an instinctive requirement as it has been always considered. It has to do with the service effectiveness and its recognized value:" capable of being used advantageously" (Davis 1989) and, within the context of mobile applications, the completeness of its operations (Patrício, Cunha et al. 2008). It has to do with a pragmatic component that includes, but is not fulfilled by, the concept of usability. Usefulness may also be weighed by the price and the conscience of the relation cost-benefit of the overall service experience.

Furthermore an Emotional component (Gentile, Spiller et al. 2007) has become a tendency within human centred product or service development. We cannot truly design something user-centred without a deep understanding of the common emotional experiences in the human nature. The emotional factor is referred as "a resource for understanding and communicating about what we experience" (Forlizzi 2004)
Emotions color the experience and, more importantly, how the experience will be remembered (Norman 2008). It involves customer affective system through the generation of moods and feelings.

In this multidimensional context, customer experience requirements are extremely important for the service design and development; although companies know a lot about customers' buying habits, incomes, and other characteristics, they know little about their thoughts, emotions and perceptions, that influence their interactions with products and services (Hippel 2002).
Rohrer, Dickenson et al. (2008) stressed that creating highly usable products, with great look and feel, would not be sufficient to sustain business growth, unless it meets customer requirements. Achieving high levels of usefulness can actually disguise the importance of challenges in usability and desirability, since business success is still attainable.

Having stressed the importance of the experience requirements for the Service Development it is up to the R&D to come up with solutions. Customers aren't experts or informed enough to interfere in the innovation process. Designers must be able to influence the earlier phases of the product and service development, because this is where the holistic service experience is largely projected. This can be achieved as design thinking involves investigation, to gain multiple perspectives on a problem; generation of possible solutions; iteration and reflection(Zimmerman, Forlizzi et al. 2007).

This study has taken into account the main experiential requirements identified by the designers and compared their outcomes with those of the regular users.
The main research questions addressed in this empirical study were:
(1) Which are the most important customer experience requirements for a new mobile service?
(2) How do customer and designer's perspectives differ with regard to service experience requirements?

4. Methodology

A qualitative phase of research was initiated to identify experience factors for a new mobile loyalty service. In order to gather information two studies with different approaches were applied.
The framework of data collection was planned in three main clusters of the user experience: use of loyalty programs, use of the mobile phone, and the idea of a new mobile loyalty service (Fig.1).

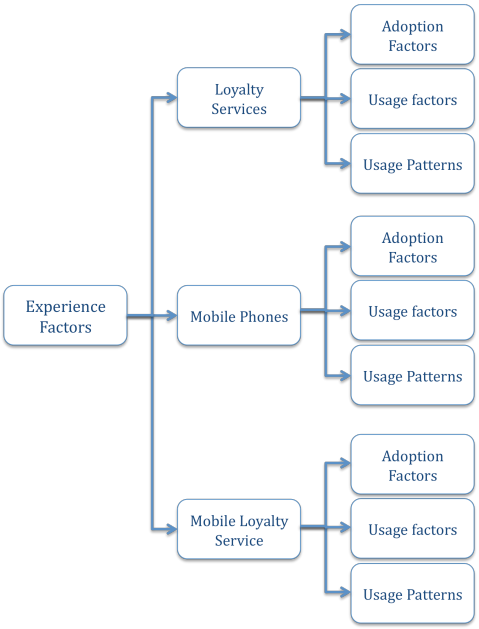

Figure 1 - Experiential Factors Map

Following qualitative methods (Charmaz 2006), all the collected information of these studies was recorded and then was literally transcribed, and analyzed. Data analysis was supported with Nvivo (www.qsrinternational.com/products_nvivo.aspx), which allowed for a better organisation and structure of the process of coding and categorisation.

Regular Users study

This study concerned interviews with 25 users of mobile phones. The study approach involved eight in-depth interviews (with an average of 45 minutes each) and two focus groups (one hour each) with eight and nine participants respectively.
The conversations covered the customer experiences of using loyalty programs and mobile phones and their requirements for the new service (Charmaz 2006).
The interviews looked for to understand experiences requirements raised up from the main topics. The participant described and reflected his experiences. The interviewer was there to observe and listen. The Focus Groups joined people together to discuss the same topics.
On this first study 50% of the users had wireless on their mobile phones, although 60% of the sample said that they only used them to make phone calls, send text messages, or using its agenda.

The issues covered by the interviews and the Focus Groups, were as follows: *Please tell me how do you manage loyalty programs? How do you feel about the merchants approach? Tell me about your mobile phone? Has it been influenced by your personal characteristics? What would be your idea of a new mobile loyalty service?*

Designers' study

The second study involved a sample of 82 individuals during a creative training course on Innovation. Their background was composed of 32,6% product designers, 20% industrial designers, 11,2% mechanical engineers, 11,2% computer engineers, and 9% experts of human factors among other professional areas. The importance of this sample must be stressed, as all of the participants are potential project innovators and mobile users. The average age of this group was 21.

To gather the most of the available information of the designer's group, a questionnaire was initially answered, aiming to understand their usage of mobile phones and loyalty programs. On this second study, all the participants had a mobile phone and 46% were already using wireless services associated with their phones, although 42,7% of the sample said that they only used it to make phone calls and send text messages. 11,2% of the participants stated that they didn't have any loyalty card; 12% had at least 3 bonus cards and 16% had at least 3 identification' cards.

Following this, they were invited to sketch a mental model for a new mobile loyalty service. According to Kim Goodwin (2009) Mental Models are internal representations based on imagination, perceptions and experience, and those conceptual structures sometimes reflect what is done by software engineers as implementation models. The request was enunciated as followed: *Imagine a mobile Loyalty Service, how it would be? Build a mental model of a service operating through your mobile phone, joining several companies' facilities. Try to explain which tools you would need? What kind of functions you would expect to do with a service like this? What kind of information would you expect to find?*

The Mental Modelling led to the construction of 82 possible outlines for the new mobile service. The conceptual maps content was analyzed in order to reach conclusions on experience requirements and also to obtain relevant clues for designing the service.

5. RESULTS

Service Experience requirements were classified covering regular users and designers/developers' perspectives. The data gathered was organized in the three main topics that had been worked with the participants: use of loyalty programs, use of the mobile phone, and the idea of a new mobile loyalty service.
We could not reach a truthful outcome when comparing both studies due to the fact that different methodologies were followed by each study, which in turn led to different conclusions being drawn. Nevertheless the comparative analysis of both studies allowed a relevant assessment of the experiential requirements; either those identified by regular users, as well as those influencing the designers' perspective, described in their own language code.

The approach of the regular users group covered a wider panorama of the referred topics. The semi-structured interviews made available the process of managing loyalty programs and their relations with their mobile phones. Besides it allowed users to identify the requirements that they considered to be relevant to an Overall service experience (Table 1).

The classification for the loyalty programs management was more descriptive in the users study than in the designer's, as a consequence of the data gathering tools used. Nevertheless regular users of the first study gave more expressive answers for the experience requirements impact on the Service interface, the Usefulness and the Social Environment. The Usefulness is undoubtedly the first main experience requirement for using these services. *"I don't go to a store because I've a card… though often I do go, because I have vouchers to get a discount!"*
Other important factors influencing the mobile service experience are the interaction with service merchants in Service Interface and the Social Environment with the idea of belonging. *"I am not a mother but in my age many people have children, so perhaps those who have children benefit a little more…"*

On the other hand designers don't pay much attention to these items, which could be gathered from the large percentage of participants that don't even had any scoring bonus cards (Table 2).

Regular users were less significant for the mobile phones than they were with the loyalty programs. 32% of the regular users, though, mentioned – Addiction - to the mobile phone: *"I am very much addicted to my mobile phone, completely addicted…"*

There are little differences enunciated in their experience requirements such as the importance of the interface visualization, the social environment (contributing to have two mobile phones) and the usefulness of the device to communicate.

In the designers group, those who admitted having a predisposition for using a new mobile loyalty service were those who used an average of at least two of a list of 12 features on their mobile phones (consulting the weather, sending e-mails, using a camera, GPS services, an external memory card, Instant Messaging, watching a TV Channel, checking websites, downloading music and games, personal assistant,

commercial transactions, amongst others). Although 46% already had wireless in their mobile phones, 40% didn't use it for any other function than calls and send SMS.

The most relevant results came from the analysis through the outcomes of the service experience requirements within a new mobile loyalty service. First of all there is a different interpretation of the service experience components: When for the regular users the Service Interface means going from the analogical to the digital or an easier application of loyalty programs, the designers stress and detail the several aspects of the interaction with the mobile device (Tables 3 and 4).

The clusters of the experiential factors were ordered in terms of their relevance for the new service design. Some aspects of this Interface's are: Aesthetics (clearly visual, visual allusions, minimal, or engaging); Easiness of usage (easiness, speed, friendliness, ubiquitous, easy learning, custom made and efficiency);

For both groups the Usefulness of this new loyalty service is to have better-updated information, although the regular users point out the utility to save wallet' space and the designers describe several actions available through the application.

The same could be referred about the Social environment, when the groups equally mentioned safety and privacy as experience requirements, even with very different degrees of concern. The users group is much more apprehensive with these aspects than the designers. Safety is clearly a basic requirement in many customer experiences and represents the fear of running risks (Shaw 2007). The references on safety concern may have been influenced by functional aspects such as those referred to by an individual "*Having passwords - I don't want more than one password*".
Some authors submit that security/privacy includes the subject of credit card payments and privacy of shared information (Kim, Jin et al. 2009). Thus, this issue was also considered: *"Web access to your account, so one would be able to follow everything you have bought?"*

Pertinent information gathered from the two studies is the relative importance that regular users gave to the mobile context of use, while this was not even mentioned by the designers.

Regular Users were emotionally expressive with services they already knew. On the other hand the designers also referred some emotional reactions while they were mental modelling the new mobile service.

Table 1 Service Experience requirements on regular users for loyalty services and mobile phones

SX Requirements On Regular Users	Interface		Social Environment		Context/ Atmosphere		Price		Usefulness		Emotional Component	
Loyalty Services	Merchant pressure - well succeed	56 %	Belonging	56 %	Feedbacks inform.	25%	Credit	12%	Bonus	72 %	Feel good	4%
	Ease Application	44 %	ID	32 %	Process speed	20%	Fee	4%	Rewards	28 %	Feel bad	8%
	Merchant pressure - resistant	40 %	Safety	16 %	Direction	20%			Habit	24 %	Disturbed	4%
	Preferred treatment	16 %									Cheated	4%
Mobile Phones	Visualization (8% + 32% -)	36 %	2 mobiles (personal /profess.)	32 %	Workable	16%	Cheap	16%	Mean of Communication	32 %	Joy	4%
	Ease to learn	24 %	Other's influence	24 %	Truthfully multimedia	8%	Cost benefit	8%	Tool of work	12 %	Desire	4%
	Consistency	12 %	Info exclusion	12 %					Uselessness	4%	Sarcasm	4%
											Discontent	4%

Table 2 Service Experience requirements on Designers for a new mobile loyalty service

SX requirements On Developers	Social Environment		Service Usefulness	
Loyalty Services	Don't have any ID card	15,7%	found it useful	13%
	Don't have any score card	28%	don't have any loyalty card	11%
Mobile Phones	The mean of who said that it would use 2,35 features of their mobiles; admitted to be opened to a new service.		have mobile phone and use it for calls and SMS	100%
			don't use any other function	39,7%
			has wireless	46%

Table 3 Service Experience requirements on regular users for a new mobile loyalty service

S X Latent Requirements for a new service On regular Users	Service Interface		Social Environment		Mobile Context/ Atmosphere		Service Usefulness	
	Digital Analogical	64%	Safety	44%	Time Consuming	12%	Saved space	24%
	Ease Application	24%	Privacy (24% - 16%+)	40%	Fulfilled Space	12%	Awareness	24%

Table 2 Service Experience requirements on Designers for a new mobile loyalty service

S X Requirements On Developers	Service Interface		Social Environment		Price		Service Usefulness		Emotional Component	
SX latent requirements for a New Service	Ease of use – Easiness	24%	Safety	13%	Cost/benefit	7%	Actions – "making shopping", "reservations"	32%	Discontent	8%
	Efficiency	20%	Privacy	14%			To be informed	30%	Satisfaction	7%
	Fast	13%								
	Easy learning	11%								
	Friendly	5%								
	Ubiquitous	6%								
	Usable	5%								
	Custom made	4%,								
	Aesthetics – Visual allusions	9%								
	Simple minimal	8%								
	Engaging 7,5%	8%								
	Clearly visual	3%								

6. DISCUSSION

The holistic perspective for a mobile service experience was analysed and its relevance framed the gathered data. The study stressed the demand of a closer communication between designers, developers, customers and users. It contributes also to answer one of the problems that have already been referred.
The conscientiousness from the designers' point of view of the user experience components is an important element to reach a better service design.
Taking into account that this exploratory study involved the knowledge and habits of managing loyalty cards and services mobile phones, it has helped to reach a better understanding on the relations between these subjects. This outcome ascertained the requirements of services that customers already knew, but also their latent experience needs (Desmet 2008).

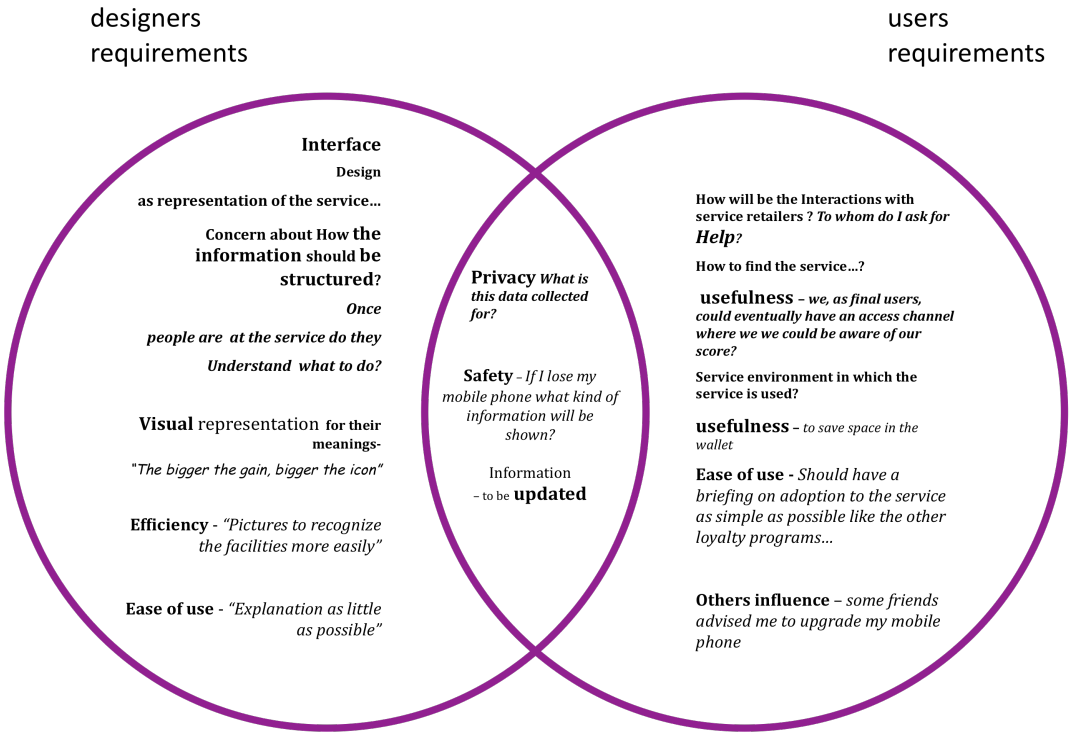

Figure 1 – ***What experience requirements Designers and Regular Users have in common?***

This perspective has eased the understanding of the differences, similarities and priorities of experience in a mobile loyalty service according to developers and regular user's perception (Figure 1). Furthermore it has helped to identify the service design elements that affect users and developers' experiences, such as the interface and the context of use, and to find their specific reaction in the interaction process. The interpretation and the weight of these service experience requirements are not the same in both studies; still there are some service components that are mentioned by the two groups: Usefulness is far more relevant for regular users than for designers. On the other hand the designers group focuses in detail the requirements for the interface.
The designers' group also pointed out some of the experience requirements identified by users, such as ease of use, speed and efficiency, but they paid much more attention to

the functional and technological aspects surrounding mobile phones in comparison to the service characteristics. This fact may be a result of their professional background.

7. CONCLUSIONS and FUTURE WORK

The main results of this exploratory study helped to bridge the gap between users and developers. Occasionally along this process, designers frame the situation, but move out of the concrete. They overlap some of the service dimensions, mainly focusing on the service interface. Dubberly et. all (2008) suggest to bridge this gap with models of thought that can help them to move from the abstraction to the real.

According to results, one of the most important factors influencing the mobile service experience is the interaction with service merchants, and the service environment in which the mobile service is used. This subject is relevant when people prefer some mobile systems due to factors such as emotional experiences that might play an important role in addition to functional aspects (Thüring 2007). Further research is demanded to create better service experiences through the design of new interactive applications, its interfaces and its specific mobility (R.S. Subramanya 2007).

The work can also contribute to improving the service design process as an effort to include interest in co-creation from the marketing perspective by working with people as "partners" not only customers, but also as users, who can express their experiences requirements thus helping the service innovation process (Sanders 2008).
At last, it assisted on the improvement, decoding experiential requirements to be further materialized into design characteristics that will support product and service development.
The New Service Development demands a good understanding of the user's service experiences as well as developers need to be aware of this complete service scope.

8. REFERENCES

Buchenau, M. and J. F. Suri (2000). Experience Prototyping. DIS '00, Brooklyn, New York., ACM.

Charmaz, K. (2006). Constructing Grounded Theory: A Practical Guide through Qualitative Analysis. London, SAGE Publications ltd.

Davis, F. D. (1989). "Perceived Usefulness, Perceived ease of use, and user acceptance of Information Technology." Mis Quarterly **13**(3): 319-340.

Desmet, P. M. A. (2008). Product Emotion. Product Experience. H. N. J. Schifferstein and P. Hekkert**:** 377-395.

Dubberly, H., S. Evenson, et al. (2008) "The Analysis-Synthesis Bridge Model." Interactions **15**, 57-61.

Forlizzi, J., Battarbee, K (2004). "Understanding Experience in interactive Systems " ACM(DIS 2004): 261 - 268

Gallouj, F. and O. Weinstein (1997). "Innovation in services." research policy **26** 537-556.

Gentile, C., N. Spiller, et al. (2007). "How to sustain Customer Experience: An Overview of Experience Components that Co-create Value with the Customer." European Management Journal **25**(5): 395-410.

Goodwin, K. (2009). Designing for the digital age: How to create human centered products and services. Indianapolis, Wiley Publishing

Hippel, S. T. a. E. v. (2002). Customers as Innovators, A new way to create value. Harvard Business Review**:** 74-81.

IBM (2007). Succeeding through Service Innovation, Developing a Service Perspective on Economic Growth and Prosperity, Cambridge UK, Cambridge Service Science, Management and Engeneering Symposium.

Kakihara, M. and C. Sorensen (2001). "Expanding the 'Mobility' Concept." SlGGROUP Bulletin **22**: 33,37.

Kim, J., B. Jin, et al. (2009). "The role of etail quality, e-satisfaction and e-trust in online loyalty development process " Journal of Retailing and Consumer Services **16**: 239,247.

Lovlie, L. (2009). "From products to people " Touchpoint the Journal of Service Design(1): 40,42.

Mager, B., Ed. (2009). Service Design as an emerging field.

Norman. (2008). "The Psichology of waiting Lines."

Ostrom, A. L., M. J. Bitner, et al. (2010). "Moving Forward and Making aDifference: Research Priorities for the Science of Service." Journal of Service Research

Patrício, L., J. F. e. Cunha, et al. (2008). "Designing multi-interface service experiences: the Service Experience Blueprint " Journal of Service Research **10**(4): 318-334.

Pullman, M. E. and M. A. Gross (2004). "Ability of Experience Design Elements to Elicit Emotions and Loyalty Behaviors." Decision Sciences **35**: 551-578.

R.S. Subramanya, B. K. Y. (2007). Enhancing the user experience in mobile phones. Computer**:** 114-117.

Rohrer, C., N. Dickenson, et al. (2008). Design, Marketing, Strategy?
Where does User Research belong? CHI 2008, Florence.

Sanders, L. (2008). An Evolving Map of Design Practice and Design Research. Interactions**:** 13,17.

Sandstrom, S., P. Magnusson, et al. (2009). "Increased understanding of service experiences through involving users in service development." European Journal of Innovation Management **12**(2): 243-256.

Shaw, C. (2007). The DNA of Customer Experience, How Emotions Drive Value. New York, Palgrave MacMillan.

Stuart, F. I. and S. Tax (2004). "Towards an integrative approach to designing service experiences - Lessons learned from the theatre." Journal of Operations Management **22**: 609-627.

Thüring, S. M. M. (2007). "Usability, aesthetics and emotions in human-technology
." International Journal of Psychology **42 (4)**: 253–264.

Verhoef, P. C., K. N. Lemon, et al. (2008). "Customer Experience Creation: Determinants, Dynamics, and Management Strategies." Journal of Retailing: 31-41.

Verhoef, P. C., K. N. Lemon, et al. (2009). "Customer Experience Creation: Determinants, Dynamics, and Management Strategies." Journal of Retailing: 31-41.

Zimmerman, J., J. Forlizzi, et al. (2007). Research Through Design as a Method for Interaction Design Research in HCI. CHI 2007, San Jose, California.

Zomerdijk, L. G. and C. A. Voss (2009). "Service Design for Experience-Centric Services." Journal of Service Research **XX(X)** 1,16.