

# Introduction to the Special Section: Designing a Better User Experience for Self-Service Systems

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In one of our first meetings as editors of this special section on “Designing a Better User Experience for Self-Service Systems,” we started listing some of the self-service systems that we had used that very day. Our list included an automatic teller machine (ATM), an online banking site, a driving license renewal application, a ticketing machine, a check-in terminal for the train, a vending machine, a site where you could sign up for government health insurance, parking meters, and different web stores.

We had used those self-service systems through websites on our desk computers and through applications on our mobile phones, but also through terminals and kiosks that we had encountered in public places. The systems were designed with many intended functions in mind: presenting information, enabling transactions, and selling various products and services. However, the essential and critical function we address in this special section is that self-service systems must help us to help ourselves.

## LIVING IN A SELF-SERVICE SOCIETY

We are increasingly living in a self-service society. Many organizations are making the shift to self-service systems as an alternative to their “traditional” service provided in face-to-face contact with an employee or telephone contact with a call center agent. The benefits of self-service to the organization are often clear; self-service is more efficient for them and, hence, cheaper. Also, with

self-service, they can expand their business hours and target a much larger customer audience.

The business advantage of the self-service alternative can be considerable. A Dutch bank calculated that a complete redesign of their website, with the aim of making it completely accessible and entirely self-service, reduced the number of contacts with their telephone call center by 15%–30%. With about 20,000 calls per week, and organizational costs of € 7.50–12.50 per call, the focus on web-based self-service brought the bank a cost reduction of more than 1.7 million Euro per year [1].

But what about the benefits for users and customers, who often have no choice but to use the self-service system? Both public and private organizations seem to assume that we—the average citizen, client, or customer—can cope with ever-changing self-service systems, and are willing to do so. Self-service systems offer us the benefit of 24/7 access to an ever-growing range of services and perhaps also a strong sense of autonomy and fulfillment. In exchange, we—rather than the service providers—have to put in extra effort, as well as losing “the human touch” in the service encounter. We can no longer call on a “real” human but find ourselves face-to-face with a system, and we are on our own to make the darned thing work for us!

What does that scenario mean for experiences designed and created for the users of these systems, and how do self-service system developers take the premise of self-service into account in the design of such systems? That is the question that led to the work for this special section.

## PLACING SELF-SERVICE COMMUNICATION IN THE FIELD OF PROFESSIONAL COMMUNICATION

The field of professional communication rests on decades of research and practice in the design of information products—print and online documentation, training, software user

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assistance, product user interfaces, and many other informational formats—as well as usability research and design of the overall product user experience. Professional communicators can apply this well-grounded understanding of the many dimensions of a user’s contextualized encounter with a design (whether it is a product or process) to the new problem of designing for self-service systems.

There are some differences. Although self-service systems rely on many or even most of the tools and techniques developed for the design of instrumental text and graphics (concerned mainly with guiding the user through the steps in a task), they also often call for the use of strategies focused on user appreciation, self-confidence, and other “soft” dimensions of the user experience. Nevertheless, the fundamentally human-centered, problem-solving approaches advocated by the professional communication field can guide and inform practice in this expanded domain.

## WHAT IS GOOD SERVICE IN SELF-SERVICE SYSTEMS?

The research literature about customer experiences of service and how they relate to perceptions of good service is quite clear about one thing: what matters most is the quality of the service employees and their engagement and interaction in service encounters. Two customer experiences are unambiguously related to customer satisfaction scores:

- The feeling that there is a reliable, responsive, empathetic, and knowledgeable service employee available to help us [2]
- The belief that an organization is committed to caring for us, because our customer experience matters to them.

And that human and organizational presence is exactly what is missing in self-service systems.

Positive perceptions and experiences of a service lead to high customer satisfaction with the service, and will result in return visits and loyalty to the service provider. But how does this work when the service is self-service? Can designers of systems or interfaces make sure that the users of a self-service system have as satisfying a user experience as the customers who interact with real people in service encounters? Is it enough to make sure that the self-service system is easy to use in an environment

where responsive, caring, and empathetic support is not easy to get?

## FROM USABILITY TO USER EXPERIENCE

Case studies of design processes of self-service systems, including those published in this journal, have focused mostly on what we are here calling “classic usability” research. Those studies give a good view of the approaches and methods that designers have applied to ensure that their systems are easy to use and useful for the intended users in their specific context of use. In classic usability studies, the focus is often on designing for the instrumental, “make-it-work” qualities of the system, and less attention is usually paid to designing for the other component of classic usability, satisfaction.

In fact, the term “satisfaction” often serves as a catch-all for all of the affective, emotional responses of users to the system in the case study, or is treated simply as the consequence of the effectiveness and efficiency of a system. Anyone who has ever been really frustrated with a system that was hard to learn to use, ineffective, or inefficient, knows that “classic usability” problems can lead to strong affective responses. Yet, affective responses to a system can encompass much more than emotions evoked by the instrumental qualities of a system.

The study of affective responses to systems is typically the domain of user experience (UX) researchers. According to the ISO 9241-210 definition, user experience is “a person’s perceptions and responses that result from the use or anticipated use of a product, system or service” [3]. Thus, in what we are here calling “classic UX” research, the focus is on affective, experiential responses, that is, the feelings, emotions, and perceptions of users before or during use.

Classic UX researchers pay much attention to the noninstrumental qualities of a system, such as its beauty or its potential for creating new impressions. In their design case studies, they treat system qualities, regardless of whether they are instrumental or noninstrumental, primarily as antecedents of specific evoked feelings. The article by Bach, Bernhaupt, and Winckler in this issue gives an overview of the dimensions of user experience that the classic UX research community has focused on.

In this special section, our goal is the design of better user experiences. We treat user experience

as a multidimensional construct that subsumes both the affective responses to the instrumental qualities of the actual system, service, or product, and the affective responses, feelings, and emotions before, during, and after the experience of using it. Our integrative approach of studying the user experience or designing for specific user experiences of self-service systems, then, requires a multidisciplinary mixed-method approach, combining the best of the classic usability and the classic UX design fields.

## DESIGNING THE USER EXPERIENCE OF SELF-SERVICE SYSTEMS

Empirical studies of UX design have rarely focused on the fact that many online services are actually delivered through *self-service* systems. In those systems, a good user experience is even more critical than in systems that rely on interaction with a service representative. When users of self-service systems experience uncertainty, fear, or frustration, there is no one present to motivate them to continue, to ensure them that they are on the right path, and to reward them for their efforts.

A bad user experience in a self-service system is likely to lead to users who abandon the system, or who escalate their problem to another—often more expensive—service channel such as the call center, thus reducing the benefits of self-service systems for the service provider. However, there is very little research available about the user experience of self-service channels that designers can rely on for their UX design decisions, nor about methods and approaches intended for investigating the user experience of self-service systems.

We stated earlier that our integrative approach of assessing the user experience requires a multidisciplinary mixed-method approach. For example, a study might combine quantitative methods to explore task performance (using measures such as task success rate and number of errors) as well as qualitative and quantitative methods to explore reactions to use (using techniques such as interviewing or Likert scale questionnaires to measure frustration and feelings of empowerment).

But we need to make a further distinction in user experience research, having to do with the research context and goals. Studies conducted in academic settings typically have the goal of enlarging our understanding of the general principles that apply broadly to a population. Thus, much of

the academic research into user experience has focused on the common factors that shape the user experience and has emphasized the use of rigorous quantitative methods that support generalizations based on the use of statistical analysis. (See, for example, the special section on modeling the user experience in *Interacting With Computers* [4].)

User experience studies conducted in industry, on the other hand, often need research methods that are fast and easy to implement, because they are employed to illuminate specific design problems. Furthermore, practitioners typically need results that paint a vivid picture and tell a compelling story about the impacts of design elements on the user experience, because such stories lead to action that improves customer satisfaction. For these reasons, user experience researchers in an industry product-development context tend to prefer qualitative methods [5].

Given the complexity of the concept “user experience” and the differences in user-experience research contexts and goals, it is not surprising that we do not have a definitive handbook of evaluation methods exclusively focused on the “user experience.” But we do have a robust set of methods that have been developed over the years for studying the component parts. The user experience can be researched in part with methods that usability engineers have always relied on, such as observation of task performance, thinking aloud, and questionnaires.

The affective components of the user experience can also be accounted for within the same studies; several authors have formulated recommendations for methods to study these components, such as [6]. In fact, given the rapid growth of self-service systems of many different types, meeting a huge range of new needs for new audiences, we can expect that our research toolkit will only grow, and that our studies will draw from an increasingly wide range of methods, quantitative as well as qualitative.

## INTRODUCTION TO THE PAPERS IN THIS SPECIAL SECTION

In the three papers presented in this special section, we see the mixed-method strategy in practice. Also, because these empirical studies took place in the context of a design process, all three include techniques intended to give designers a rich descriptive narrative about user views, feelings,

and reactions that can help guide specific design choices.

In “Identifying User Experience Factors for Mobile Incident Reporting in Urban Contexts,” Bach, Bernhaupt, and Winckler present a complex study that attempts to identify the critical user-experience dimensions involved in having citizens use a self-service system to report incidents or problems (for example, broken street lights) in their neighborhood to the government via mobile phone. To get a full picture of the user experience in this case, the authors triangulated interviews, a survey of existing systems, and a model-based task analysis. This combination of methods enabled the authors to describe the reporting process in a fine-grained way, differentiate among degrees of importance of specific user-experience dimensions in various stages of the process, and explore the influence on usage of users’ personal values like civic engagement.

In “Improving User Experience for Passenger Information Systems. Prototypes and Reference Objects,” Wirtz and Jakobs narrow the focus more specifically to the ways that users form a first impression when encountering a novel self-service application, in this case a passenger information system for public transport (for example, a site listing a train schedule). To explore this question, the authors used three main methods: task-based laboratory observations, thinking-aloud techniques, and interviews. They find that in forming first impressions of the communication patterns and interface design of a new system, users draw on their prior knowledge of other systems that have more or less the same characteristics or goals to develop expectations about the new system.

In “A User-Centered Design Approach to Self-Service Ticket Vending Machines,” Siebenhandl, Schreder, Smuc, Mayr, and Nagl examine a different self-service application in the public transportation sector: the self-service ticket vending machine. They focus on defining the user-experience requirements for a new machine design that would meet the needs of a very great diversity of end-user groups, including older users, users with lower affinity for technology, or users with different abilities. To

explore the user-experience requirements for the system prototype, the authors used a wide range of methods, including focus groups, interviews, experimental observations, design workshops, and a competitor analysis, and fed their findings back to the designers in an iterative design process.

## DOOR TO THE FUTURE

For this special section, we have selected three papers that approach the design of the user experience of self-service systems in an integrated way and show the readership of this journal what methods and techniques can be used in this type of design process. These three papers together give us an in-depth and broad introduction to the challenges of designing for the user experience of self-service systems, while providing us with some exemplary solutions.

The papers also reinforce our sense that the toolkit developed over the years in the field of professional communication contains many tools and techniques that can be brought to bear on the problem of designing self-service systems, if used with a clear sense of the distinctive challenges and design problems presented by these systems. As self-service systems become more prevalent, the need to deal properly with their inherent challenges will grow. These papers open a door to the future and give us a first look into more systematic self-service design processes.

The 2010 IEEE PCS Conference, with Thea van der Geest and Lex van Velsen as program chairs, had “Communication in a Self-Service Society” as its theme [7]. The work presented at this conference inspired us to edit this special section and invite contributions from conference presenters and others who are active in the field. We hope this special section, in turn, will inspire researchers and practitioners to step through that half-open door and share their experiences and solutions. After all, designers who are creating the user experience of self-service systems are designing our daily life experiences in the self-service society, for now and for years to come. Your editors would prefer those experiences to be better ones.

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