

USER EXPERIENCE WHITE PAPER

Bringing clarity to the concept of user experience

Result from Dagstuhl Seminar on Demarcating User Experience, September 15-18, 2010

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PREFACE

The term 'user experience' (UX) is widely used but understood in many different ways. The multidisciplinary nature of UX has led to several definitions of and perspectives on UX, each approaching the concept from a different viewpoint. Existing definitions for user experience range from a psychological to a business perspective and from quality centric to value centric. There is no one definition that suits all perspectives. A collection of UX definitions is available at www.allaboutux.org/ux-definitions.

The term user experience is often used as a synonym for usability, user interface, interaction experience, interaction design, customer experience, web site appeal, emotion, 'wow effect', general experience, or as an umbrella term incorporating all or many of these concepts.

A clear description of UX would help to:

- Teach the basics of user experience
- Communicate the meaning of the term to people unfamiliar with it
- Clarify different perspectives on UX amongst UX researchers and practitioners
- Advance UX as a research field
- Ground practical UX work in commercial, industrial and government organizations

This UX White Paper describes what in discussions with UX professionals were seen as the core concepts of UX and clarifies the different perspectives on UX. The paper is prepared as a joint effort by a group of leading UX researchers and practitioners, and is freely available at www.allaboutux.org/uxwhitepaper.

Disclaimer: The UX White Paper is a result from discussions among the invited experts of the Demarcating User Experience seminar, so it is based on the contributors' expertise and judgment. While we acknowledge the influence of existing UX literature on our thinking, we are, unfortunately, unable to provide a comprehensive list of literature references in this white paper.

1. INTRODUCTION

The field of UX deals with studying, designing for and evaluating the experiences that people have through the use of (or encounter with) a system. This use takes place in a specific context, which has an impact on, or contributes to, the UX.

UX can be viewed from different perspectives: it can be seen as a phenomenon, as a field of study, or as a practice. To understand this distinction, consider the following analogy: health as a phenomenon, medicine as a field of study, and a doctor's work as a practice. Each of these views can be further detailed as follows:

UX as a phenomenon:

- Describing what UX is and what it is not
- Identifying the different types of UX
- Explaining the circumstances and consequences of UX

UX as a field of study:

- Studying the phenomenon, for example how experiences are formed or what a person experiences, expects to experience, or has experienced
- Finding the means to design systems that enable particular UXs
- Investigating and developing UX design and assessment methods

UX as a practice:

- Envisioning UX, for example, as part of a design practice
- Representing UX, for example, building a prototype to demonstrate and communicate the desired UX to others
- Evaluating UX
- Delivering designs aimed at enabling a certain UX

In this paper, we mainly focus on UX as a phenomenon and UX as a practice.

2. UX AS A PHENOMENON

The notion of experience is inherent to our existence as people. Experience in general covers everything personally encountered, undergone, or lived through. User experience differs from ‘experiences in a general sense’, in that it explicitly refers to the experience(s) derived from encountering¹ systems².

UX as a phenomenon can be described as follows:

- UX is a subset of experience as a general concept. UX is more specific, since it is related to the experiences of using a system
- UX includes encounters with systems – not only active, personal use, but also being confronted with a system in a more passive way, for example, observing someone else using a system
- UX is unique to an individual
- UX is influenced by prior experiences and expectations based on those experiences
- UX is rooted in a social and cultural context

What is UX not?

- UX is not technology driven, but focuses on humans
- UX is not about just an individual using a system in isolation
- UX is not just cognitive task analysis, or seeing users as a ‘human information processor’.
- UX is not the same as usability, although usability, as perceived by the user³, is typically an aspect contributing to the overall UX
- UX design is more than user interface design
- UX differs from the broader concepts of brand/consumer/customer experience, although UX affects them and vice versa

Although ‘user experience’ has a narrower scope than ‘experience’, ‘user experience’ is still an umbrella term that may refer to several forms of user experience. More specific terms may help in explaining the intended perspective. We describe three different perspectives on UX that people may take when referring to UX. Note that these terms are similar to those used in experience design in general.

¹ Using, interacting with, or being confronted passively

² ‘System’ is used to denote products, services, and artifacts – separately or combined in one form or another – that a person can interact with through a user interface.

³ Objective usability measures such as task completion time or the number of clicks and errors are not good UX measures, since they do not tell if the person perceived them as good or bad.

Experiencing

The verb ‘experiencing’ refers to an individual’s stream of perceptions, interpretations of those perceptions, and resulting emotions during an encounter with a system. Each person may experience an encounter with a system in a different way. This view emphasizes the *individual* and *dynamic* nature of experiencing the encounter with a system.

In practice, designers focusing on experiencing usually pay attention to specific interaction events, which may have an impact on the user’s emotion (e.g., in game design, scoring a goal or the appearance of a frightening character). Evaluation of experiencing could focus on how a single person experiences the encounter with a system from moment to moment (e.g., measuring emotions at various moments in time to uncover which elements in an interaction may induce which emotions).

A user experience

The noun ‘user experience’ refers to an encounter with a system that has a beginning and an end. It refers to an overall designation of how people have experienced (verb) a period of encountering a system. This view emphasizes the *outcome and memories of an experience* rather than its dynamic nature. It does not specifically emphasize its individual nature because ‘a user experience’ can refer to either an individual or a group of people encountering a system together.

Typical examples of this perspective are placing the focus of UX design on a specific period of activities or tasks (e.g., visiting a web site), the narratives of games (e.g., building up suspense and having a happy end) or the outcome after using a system (e.g., having learned a dance with a dance game). Evaluation here could focus on methods that can provide an overall measure for the experience of a certain activity or system use (e.g., a retrospective questionnaire method).

Co-experience

‘Co-experience’, ‘shared experience’, and ‘group experience’ refer to situations in which experiences are interpreted as being situated and socially constructed. The emphasis is not only on encountering a system, but also on people constructing and at the same time *experiencing a situation together*. If these terms are used without considering the role of a specific system in the experience, then it no longer makes sense to talk about ‘user experience’, but more appropriately about experience in general.

When focusing on socially constructed experiences, group behavior and/or group attitude is of importance. Designing with a focus on socially constructed experiences may result in, for example, a platform system providing general constraints and affordances for multiple people to act and interact rather than focusing on the determined flow of interaction and outcome for one person. For evaluation, this could mean including indirect ‘group experience’ measures such as the number and nature of encounters between people.

3. TIME SPANS OF USER EXPERIENCE

While the core of user experience will be the actual experience of usage, this does not cover all relevant UX concerns. People can have indirect experience *before* their first encounter through expectations formed from existing experience of related technologies, brand, advertisements, presentations, demonstrations, or others' opinions. Similarly, indirect experience extends *after* usage, for example, through reflection on previous usage, or through changes in people's appraisals of use.

This, and the contrasts above between 'experiencing' and 'an experience', raise the question of the appropriate time span when focusing on UX. At one extreme, we could focus solely on what someone has experienced for a very brief moment – e.g., visceral responses during usage. At the other, we could focus on cumulative experience formed through a series of usage episodes and periods of non-use, that might span months of usage, or longer. UX can thus refer to a specific change of feeling during interaction (*momentary UX*), appraisal of a specific usage episode (*episodic UX*), or views on a system as a whole, after having used it for a while (*cumulative UX*). *Anticipated UX* may relate to the period before first use, or any of the three other time spans of UX, since a person may imagine a specific moment during interaction, a usage episode, or life after taking a system into use.

When discussing or addressing UX, it is important to clarify the time span of UX that is in focus: momentary, episodic, or cumulative UX. Focusing

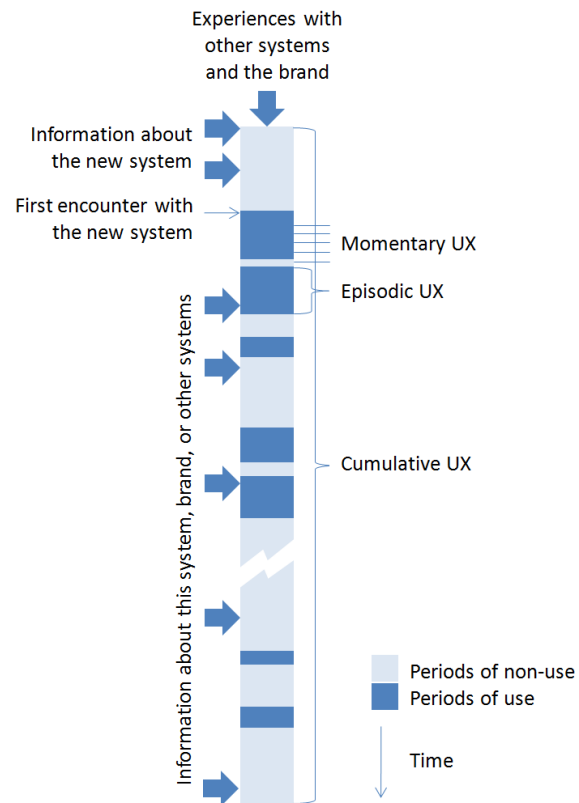


Figure 1. UX over time with periods of use and non-use

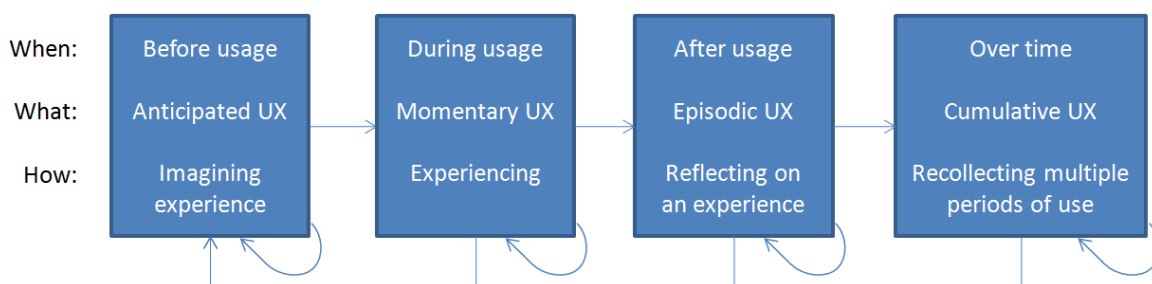


Figure 2. Time spans of user experience, the terms to describe the kind of user experience related to the spans, and the internal process taking place in the different time spans.

on the moment can give information on a person's emotional responses to the details of the user interface. Focusing on longer periods may reveal the eventual impact of momentary experiences on cumulative UX. For example, the importance of a strong negative reaction during use may diminish after successful outcomes, and the reaction may be remembered differently. A focus on momentary experience places different demands on design and evaluation than a focus on usage episodes or longer time spans.

For longer time spans, it is possible to structure UX in terms of a lifecycle or journey, for example from first encounter, through episodes of usage to reflection on usage. Previous experiences influence a future one, for example, reflecting or recounting after one usage episode will frame anticipations of future ones. The phases of experiencing overlap and interleave in a variety of orders, there is no fixed sequence from anticipating to recounting.

4. FACTORS AFFECTING USER EXPERIENCE

Although a wide range of factors may influence a person's UX with a system, the factors can be classified into three main categories: the context around the user and system, the user's state, and system properties.

1. **Context:** UX may change when the context changes, even if the system does not change. Context in the UX domain refers to a mix of social context (e.g. working with other people), physical context (e.g. using a product on a desk vs. in a bus on a bumpy road), task context (the surrounding tasks that also require attention), and technical and information context (e.g. connection to network services, other products).
2. **User:** UX is dynamic, as the person experiencing the system is dynamic. This refers to, for example, a person's motivation to use the product, their mood, current mental and physical resources, and expectations.
3. **System:** A user's perception of the system's properties naturally influences UX. Important for UX are the properties designed into the studied system (e.g. functionality, aesthetics, designed interactive behavior, responsiveness), the properties that the user has added or changed in the system or that are consequential of its use (e.g. the picture of your children on your phone, or scratches and a worn look after a device has been used for some time), as well as the brand or manufacturer image (e.g. sustainability, coolness).

UX itself cannot be described by describing the UX factors, but UX factors and their main categories can be used to describe the situation in which a person felt a particular UX. UX factors also help identify the reasons behind a certain experience.

5. UX AS A PRACTICE

The roots of user experience design (UXD) can be found in the principles of Human Centred Design (HCD⁴; ISO 13407:1999; revised by ISO 9241-210), which can be summarized as:

- Positioning the user as a central concern in the design process
- Identifying the aspects of the design that are important to the target user group
- Developing the design iteratively and inviting users' participation
- Collecting evidence of user-specific factors to assess a design

In principle, UXD is not different from HCD. However, UXD adds important dimensions to the challenge of implementing HCD in a mature form. These additions are not trivial. The main dimensions distinguishing UXD from a traditional view of HCD include UX factors; methods, tools and criteria used in UX work; representation of the UX idea; and UX positioning in the organization.

UX factors

As discussed in the previous section, the factors affecting UX are significantly broader and more diverse than those traditionally within the scope of HCD. While traditional usability factors were largely related to performance and smooth interaction, new UX factors relate to affect, interpretation and meaning. Some UX factors, such as social and aesthetic aspects, are likely to be very different in character from the traditional concerns. This presents UX practitioners with significant challenges in terms of identifying which UX factors they need to consider when embarking on a design project. In any case, it is usual that a design team will only be able to deal with a few critical UX factors that influence the suitability of the design for a typical usage situation. Consequently, a big challenge for design teams is to make sense of the available information during the early phases of the UXD process. Essentially this means:

- scoping out the factors that are known, because evidence exists, or are thought likely to be the drivers of UX in their particular instance,
- identifying those factors that are critical to the success of the design and can be satisfactorily dealt with by the design team, given their own operational circumstances,
- identifying those factors that are likely to need further investigation and, if so, the form that those investigations could take.

Methods, tools and criteria

All design teams face the challenge of making trade-offs between the various requirements that they have to meet. The intangible nature of UX makes it even more difficult to estimate the consequences of design decisions on the UX. It may be very difficult, if not impossible, for the design team to deal with some issues (e.g. social, emotional or aesthetic) in a very direct or explicit way. Design teams often have to handle them intuitively, relying on professional judgments.

⁴ Often referred to as UCD, User Centred Design

Design teams will need to identify applicable and feasible methods, tools and criteria that can be used to manage the UX factors throughout the process. This includes setting initial targets, managing the iterative development of design proposals, and supporting evaluation work during and after the design work. In many cases the factors may involve traditional usability issues that can be handled using conventional methods.

No generally accepted overall measure of UX exists, but UX can be made assessable in many different ways. For example, there are tools for simply evaluating whether an evoked emotion is positive or negative. There are also methods and instruments specifically developed for evaluating particular UX qualities such as trust, presence, satisfaction or fun. The choice of an evaluation instrument or method depends on the experiential qualities at which the system is targeted, as well as on the purpose of the evaluation (e.g. summative or formative) and other (often pragmatic) factors such as time and financial constraints.

Representing concepts and designs

Another big challenge is to find ways of giving people a sense of what the experience might be like before the design itself is available. Of particular importance is that a design team needs to create *representations* of the system to:

- stimulate the participation of prospective users or their surrogates to gather feedback on design directions,
- enable the capture of emotional responses of people and their explanations of why,
- communicate the concepts and designs to other colleagues, senior management and others who have an interest in the success of the design,
- sustain the vision of the design team throughout the design process.

UX within organizations

UX is gradually becoming recognized and established as an important part of an organization's business and strategy. This development has consequences for the UXD practitioners, viz. new organizational debates and blurred organizational boundaries. The debates concern responsibilities for the 'customer experience issue' and the way UX fits in at different levels within an organization. In essence UX needs to have a 'departmental home'. UX needs to be much better integrated as a multidisciplinary activity into the key development processes of organizations. UX practitioners also need explicit areas of responsibility and to develop effective working relationships with the complementary functions and competences, thereby getting UX work accepted as a valued part of the overall design and development effort of an organization. In the longer term the emphasis should be on positioning UX in order to secure strategic influence over:

- the business directions in terms of new value propositions to be developed,
- the choice of designs to be developed and their contribution to the business objectives of an organization,
- the development of the processes used to guide the way the organization operates.