# Chapter 3
# Concept of User Experience and Issues to be Discussed

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## ABSTRACT

*The origin of the concept of UX (User Experience) is first reviewed within the context of usability studies. Then the brief history of the UX concept, the publication of the UX white paper, and the relation with the hedonic aspects are surveyed. In the latter half, the author's view in terms of the following aspects of the UX are discussed: (1) the processing model of cognition (information) and emotion (valence), (2) the importance of the meaningfulness, (3) the lifecycle model of the UX, (4) the inadequacy of using the word "use" and "user," and (5) the application of social psychological model of impression formation.*

## 1. INTRODUCTION

UX (User experience) has become a hot topic for usability professionals, marketing specialists, and designers. As an example, UPA (Usability Professionals' Association) changed its title to UXPA in 2012. But its concept is not yet clearly defined. It is necessary for us to discuss the concept and its connotation and extension, its range in terms of the temporal sequence and some other issues to be considered. This article deals with such issues by overviewing the footprints of researchers in various fields and proposes several tentative models in terms of the UX.

## 2. FROM THE USABILITY TO THE UX

### 2.1. Early Usability Study

The advent of the concept of UX is related to the dissatisfaction to the limitation of the concept of usability. For this reason, the historical overview on the concept of usability should precede the discussion on the UX.

The first person who used the word "usability" in an academic sense might have been Shackel (1984, 1991). It was early in 1980s when ICT devices were becoming popular in the form of microcomputer and microprocessors embedded

DOI: 10.4018/978-1-4666-4313-0.ch003

in various devices. And voices criticizing the difficulty of use of such device started to be announced in various places. Of course, ease of use was regarded as important before then, but the study has mainly been conducted from the human factors engineering in terms of the man-machine interface. But when the computer was started to be used by the general people in 1980s, the difficulty in understanding, memorizing, and learning the user interface has become the focus of attention as well as the man-machine interface. Those problems should be dealt with the cognitive psychology more than the traditional human factors engineering. Though Shackel was a human factors specialist, he could understand and foresee the importance of such cognitive aspects.

Shackel (1991) listed up the utility (Will it do what is needed functionally?), the usability (Will the users actually work it successfully?) and the likeability (Will the users feel it is suitable?) as the positive aspects of the artifact that should be compared to the cost. Based on the trade-off between these positive and negative aspects, the acceptability of the artifact will be determined on balance of the best possible alternative for purpose.

Two years later, Nielsen (1993) proposed a concept structure that includes the usability with 5 sub-concepts and is located below the usefulness as shown in Table 1. Two things should be pointed out about his concept structure. One is that there are 5 sub-concepts for the usability but they are not in a positive sense but in a non-negative sense. As he is famous for proposing the heuristic method for evaluating the usability, these sub-concepts mean that the artifacts should not have problems in terms of those aspects, i.e. efficiency, for example, does not simply mean that the interface should be efficient, but instead should not be inefficient by taking a long time to achieve the task. Another point is that he differentiated the utility from the usability where the former is generally a positive aspect and the latter a non-negative aspect. It means the utility is one of the attractive qualities whereas the usability is one of the must-be qualities (Kano et al., 1984).

But, as will be explained in the next section, ISO9241-11 defined the usability that includes the utility as well as the usability by Nielsen. In other words, ISO9241-11 regarded the Nielsen's usefulness as equivalent to the usability. Hence, sometimes, the definition by Nielsen is called as the small usability and the definition in ISO9241-11 as the big usability.

*Table 1. Nielsen's concept structure (Nielsen, 1993)*

<table>
<tr><td rowspan="11">System Acceptability</td><td>Social Acceptability</td><td></td><td rowspan="6"></td><td rowspan="6"></td></tr>
<tr><td rowspan="10">Practical Acceptability</td><td>Cost</td></tr>
<tr><td>Compatibility</td></tr>
<tr><td>Maintenance</td></tr>
<tr><td>Reliability</td></tr>
<tr><td>Safety</td></tr>
<tr><td rowspan="6">Usefulness</td><td>Utility</td></tr>
<tr><td rowspan="5">Usability</td><td>Learnability</td></tr>
<tr><td>Efficiency</td></tr>
<tr><td>Memorability</td></tr>
<tr><td>Errors</td></tr>
<tr><td>Satisfaction</td></tr>
</table>