

MiLE+

(Milano-Lugano Evaluation method)

Library of User Experience Indicators (UEIs)



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Introduction

This document presents the list of **User Experience Indicators (UEIs)** useful both for conducting a User Experience Usability Inspection and for the User Testing. The UEIs are divided in three dimensions corresponding to the different types of user interaction experiences. These dimensions are:

- 1. Content Experience;**
- 2. Navigation & Cognitive Experience;**
- 3. Interaction Flow Experience.**

1. Content Experience

The Content User Experience Indicators measure the quality of user interaction with the content of the application.

UEIs	Description
Completeness	The user can find all the information required. The content is complete when it presents all principal elements that allow its understanding. The content should be complete both to information and to semantic level.
Richness	The richness refers to the quantity of information that explains the content. Note: The difference between richness and completeness is that the content should have all the needed information elements for explaining it (Richness) and these elements should be complete (Completeness). For example if we present a car the content has to speak about its security system, features, prices ... (richness) and all these elements has to be complete (e.g. if we present the prices list, any price should be omit).
Comprehensibility	The comprehensibility is related with the capability of the content to be auto explicative. The main topic(s) of the content should be clear and not ambiguous.
Relevance	Relevance is the relationship between an informational need (which can be an explicit or an implicit question) and the answer(s) which meets it. "Relevance" is different from "truth". Example: given a person who is 32 years old and was born in Münster, if the question (need) is: where was he born?, and the answer is: he is 32 years old, the answer is true but not relevant, vice-versa, if the answer were München, it would be relevant but not true. The ideal case, of course, is when it is relevant and true.
Multilinguisticity	The content addresses to different type of users speaking difference languages, should be given in more than one language.
Multimediality	The use of different multimedia files is helpful for conveying the information. It is clear that these multimedia files should be consistency with the main topic and the goals of the information and they don't should overcrowd the page.
Satisfaction	The capability of the content to satisfy a user means that the information provided meets the desires, the needs and the goals of the user.

2. Navigation & Cognitive Experience

The Navigation & Cognitive User Experience Indicators allow the measure of how the navigation works and how the cognitive aspects of the application meet the cognitive world of the user(s).

UEIs	Description
Self-evidence	Self-evidence is the property of interactive elements used for supporting some elementary operations. These elements should be auto explicative, not ambiguous and consistency with the semantic of the operation.
Predictability	Predictability is the capability of interactive elements (symbols, icons, textual links, buttons, images...) to anticipate the related content and the effects of the interaction.
Learnability	Learnability is the capability of the application to be "clear" for the user. Using the application the user should learn the deep communication strategy supporting the entire system (it should be able to explain how the navigation works, which are the visual strategy for interactive elements, to create a map of the site...).
Information Overload	Information overload refers to the quantity of the message and their degree of heterogeneity. In fact they could request an excessive effort for a first time/web novice to understand the meaning of each message.
Accessibility	Accessibility refers to ensuring that content is accessible, ie. ensuring that Content can be navigated and read by everyone, regardless of location, experience, or the type of computer technology used.
Understandability	Understandability is the degree to which the purpose of the application, the navigation, the content and the interactive elements are clear to the end-user.
Memorability	Memorability refers to the mental faculty of retaining and recalling past experience. When users return to the application after a period of not using it, they should be able to re-establish proficiency the past experiences of use.

3. Interaction Flow Experience

The Interaction Flow Experience Indicators permit the measurement of how the interaction with the application is appreciated by the users.

UEIs	Description
Naturalness	Naturalness is the quality of web application of being natural with respect to the users' <i>common ground</i> both referred to the real and to the online world. So the application should present a general semantic that are easy to understand for the user (e.g. the icon representing a home is often used for representing the <i>go to home page</i> action).
Effectiveness	Effectiveness is the capability of the user to attain his goals. For reaching his goals the user has to pass through a series of tasks efficiently. The main measure for establishing the degree of effectiveness are: <ul style="list-style-type: none"> • Success rate of each task and goal; • Number of backtracks (within the execution of the task); • Time for performing the experience.
Engagement	Engagement is the ability of a system to ravish the user. The engagement is normally caused by the quality both of the content and of the overall interaction with the system.
Recall	Recall is the degree of overlapping between the searching space defined by the query and the one covered by the response. Therefore, recall can be view as one of the specific tools for measuring the coverage of content. In this sense, recall is the capability of the system to provide the needed information without much effort for the end-user (in particular if he is a novice user).
Precision	Precision is the purity of retrieval. Precision measures the semantic congruency between the information need (expressed by the query) and the response obtained by the system. Precision is a measurement tool for relevance. In this sense, it is the capability of the system to provide punctual information and not to overload the user with non-desired information.
Satisfaction of the experience	Satisfaction of the user experience means that the user has achieved all his goals. The satisfaction is reached by attaining others user experience indicators such as naturalness, effectiveness, engagement...: in this sense, the general satisfaction of the user experience is a macro-user experience indicator and the goal of the human-computer interaction.

Open set: other may be added, according to the application domain and expected user experience.