

# UCD - User-Centered Design

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## Overview:

**User-Centered Design (UCD)** is both a design philosophy and a process in which the needs, wants, and limitations of the end user of an interface or document are given extensive attention at each stage of the design process. It can be characterized as a **multi-stage problem solving process** that not only requires designers to analyze and foresee how users are likely to use an interface, but also to test the **validity** of their assumptions with regards to user behaviour in real world tests with actual users. Such testing is necessary as it is often very difficult for the designers of an interface to understand intuitively what a first-time user of their design experiences, and what each user's learning curve may look like.

The **chief difference** from other interface design philosophies is that user-centered design tries to **optimize the user interface** around how people **can, want, or need to work**, rather than forcing the users to change how they work to accommodate the system or function.

## Models and approaches:

The goal of UCD process models is to help software designers create a product engineered for the convenience of its users. In these models, **user requirements** are considered right from the beginning and included into the whole product cycle. Their major characteristics are the active participation of real users, as well as an iteration of design solutions.

There are dozens of different models and approaches for UCD, and also an ISO standard which some of the methods follow (ISO 13407 - Human-centered design processes for interactive systems). Some of these methods were mentioned in the lecture and described in Mohammad's summary.

I found a great link which contains the descriptions of many of the methods. There is also a table there which divides the methods into groups according to the part in the product's life cycle where these methods are most effective (it also allows to filter the

groups according to some parameters such as direct access to users, limited resources and so on).

#### A Typical UCD Methodology:

Most user-centered design methodologies are more detailed in suggesting specific activities, and the time within a process when they should be completed.

Following is a typical UCD process. In this version, the UCD activities are broken down into four phases: Analysis, Design, Implementation and Deployment, with suggested activities for each phase.

#### **Analysis Phase**

- Meet with key stakeholders to set vision

- Include usability tasks in the project plan

- Assemble a multidisciplinary team to ensure complete expertise

- Develop usability goals and objectives

- Conduct field studies

- Look at competitive products

- Create user profiles

- Develop a task analysis

- Document user scenarios

- Document user performance requirements

#### **Design Phase**

- Begin to brainstorm design concepts and metaphors

- Develop screen flow and navigation model

- Do walkthroughs of design concepts

- Begin design with paper and pencil

- Create low-fidelity prototypes

- Conduct usability testing on low-fidelity prototypes

Create high-fidelity detailed design

Do usability testing again

Document standards and guidelines

Create a design specification

### **Implementation Phase**

Do ongoing heuristic evaluations

Work closely with delivery team as design is implemented

Conduct usability testing as soon as possible

### **Deployment Phase**

Use surveys to get user feedback

Conduct field studies to get info about actual use

Check objectives using usability testing

"Usability testing" appears several times throughout the process, from the first phase to the last.

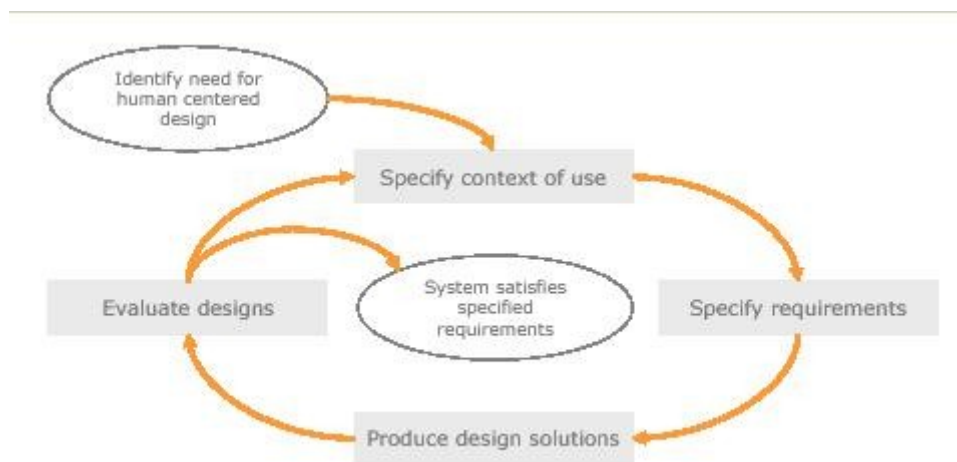
### **ISO 13407:**

There is an international standard that is the basis for many UCD methodologies. This standard (ISO 13407 - Human-centered design processes for interactive systems) defines a general process for including human-centered activities throughout a development life-cycle, but does not specify exact methods.

In this model, once the need to use a human centered design process has been identified, four activities form the main cycle of work:

1. **Specify the context of use:** identify the people who will use the product, what they will use it for, and under what conditions they will use it.
2. **Specify requirements:** identify any business requirements or user goals that must be met for the product to be successful.

3. **Create design solutions:** this part of the process may be done in stages, building from a rough concept to a complete design.
4. **Evaluate designs:** ideally through usability testing with actual users. This is the most important part of this process - it's integral as quality testing is to good software development.
5. The process ends - and the product can be released - once the requirements are met.



### **References:**

[http://en.wikipedia.org/wiki/User-centered\\_design](http://en.wikipedia.org/wiki/User-centered_design)

<http://www.usabilitynet.org/tools/13407stds.htm>

[http://www.upassoc.org/usability\\_resources/about\\_usability/what\\_is\\_ucd.html](http://www.upassoc.org/usability_resources/about_usability/what_is_ucd.html)

<http://www.usabilitynet.org/tools/methods.htm> - this is a great link which presents most of UCD methods and assigns each method to the part in the product's life cycle in which it is most effective.

[http://www.upassoc.org/usability\\_resources/guidelines\\_and\\_methods/index.html](http://www.upassoc.org/usability_resources/guidelines_and_methods/index.html)