

Module_2

Conceptualization of User Interface Design

CS 4712 UIE

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Introduction & Background

Our Interaction Changes as technologies advances

This part of the course is set in two different topics:

- **Conceptualization** - is the process of clarifying and developing of terms at arriving at precise definitions (“Conceptualization excerpt”, 2012). While most people have a different idea/confuse when a *concept is presented the conceptualization process should have ideological differences cleared up.*
- **User Interface (UI) Design** - should take into account how certain frameworks work within and how certain designs should be noted. This section will name out certain UI designs that are notable and how individuals use them on a day to day basis.

Conceptualization

- Conceptualization is the process of clarifying and developing of terms at arriving at precise definitions.
- When using concepts, conceptualization is the clear and concise way of writing definitions to the various concepts so that nothing becomes confused when carrying out said concepts.
- Conceptualization can be viewed as the stage where interface designs are prototyped.

User Interface Design

- User Interface Design is the process of making interfaces in software or computerized devices with a focus on looks and styles.
- User Interfaces generally refer to graphical interfaces, but voice-control interfaces are also included.
- Every website on the internet has a User Interface Design.

Conceptualization

- In order for a service to be popular, it is necessary that **user clearly recognize** the value of the service in order to engage to take action, this is the Key to achieving the goal of UI (User Interface).
- **UI is the bridge between User and tool/technologies with well-designed UI.**
- One of the methods of Conceptualization is to **apply a development methodology known as User-Centered Design (UCD).**

Conceptualization Cont...

- Since User is the Final viewer of product, **UI goal is to keep the User in mind.**
- UCD-based development is one way to **minimizing the common pitfalls** of product/service that providers, developers /designers produce.

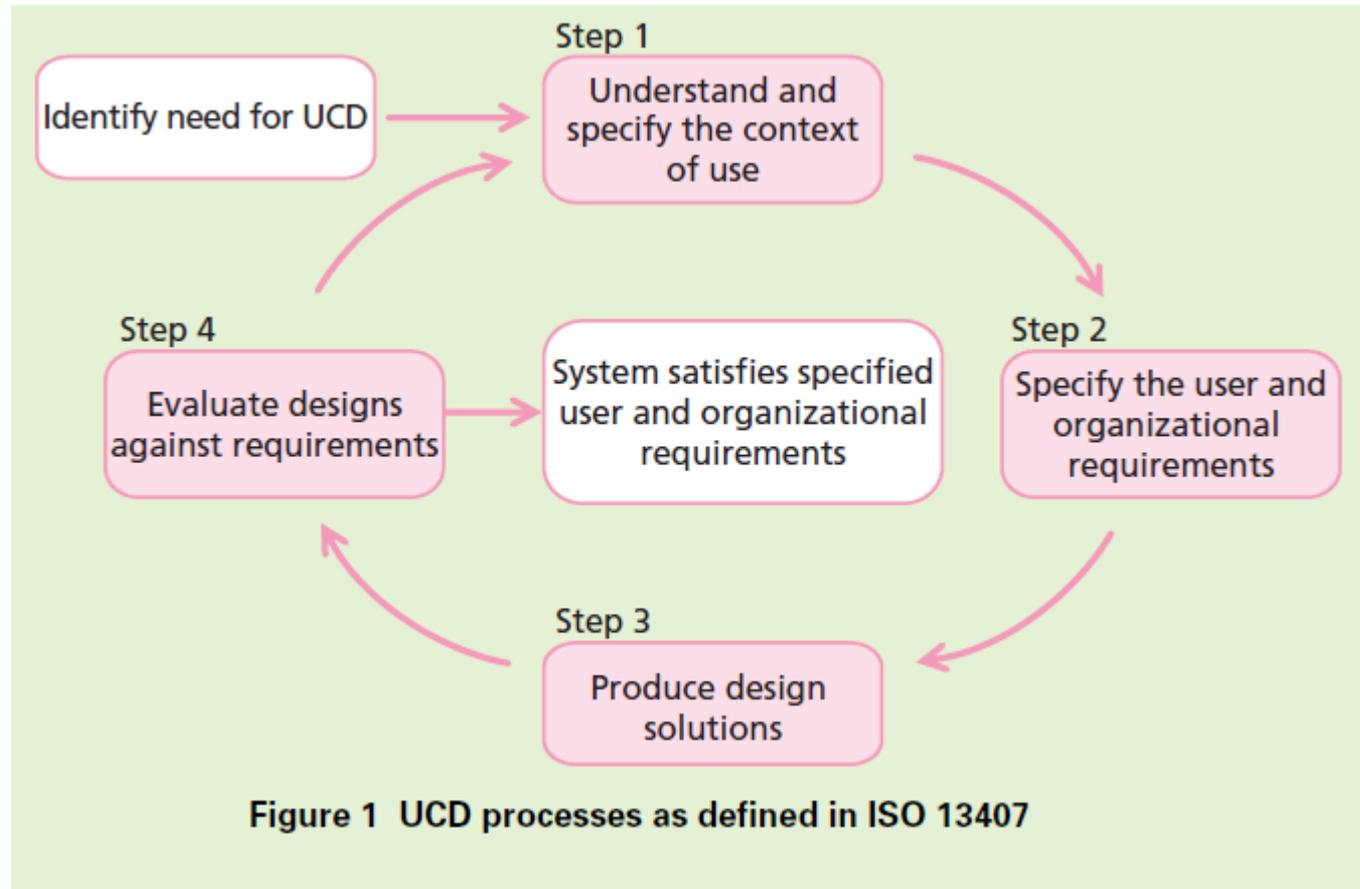


Figure 1: The UCD processes consist of the four steps

Figure 1 UCD processes as defined in ISO 13407

Conceptualization Phase

- The goal is to visualize several UI concepts and design appeal to User and advanced the design.
- Four Steps correspond with UCD processes in Figure 1
 1. Gather information
 2. Synthesize and determine focus areas
 3. Visualize several UI Concepts
 4. Screen the visualized UI to prototyping phase.



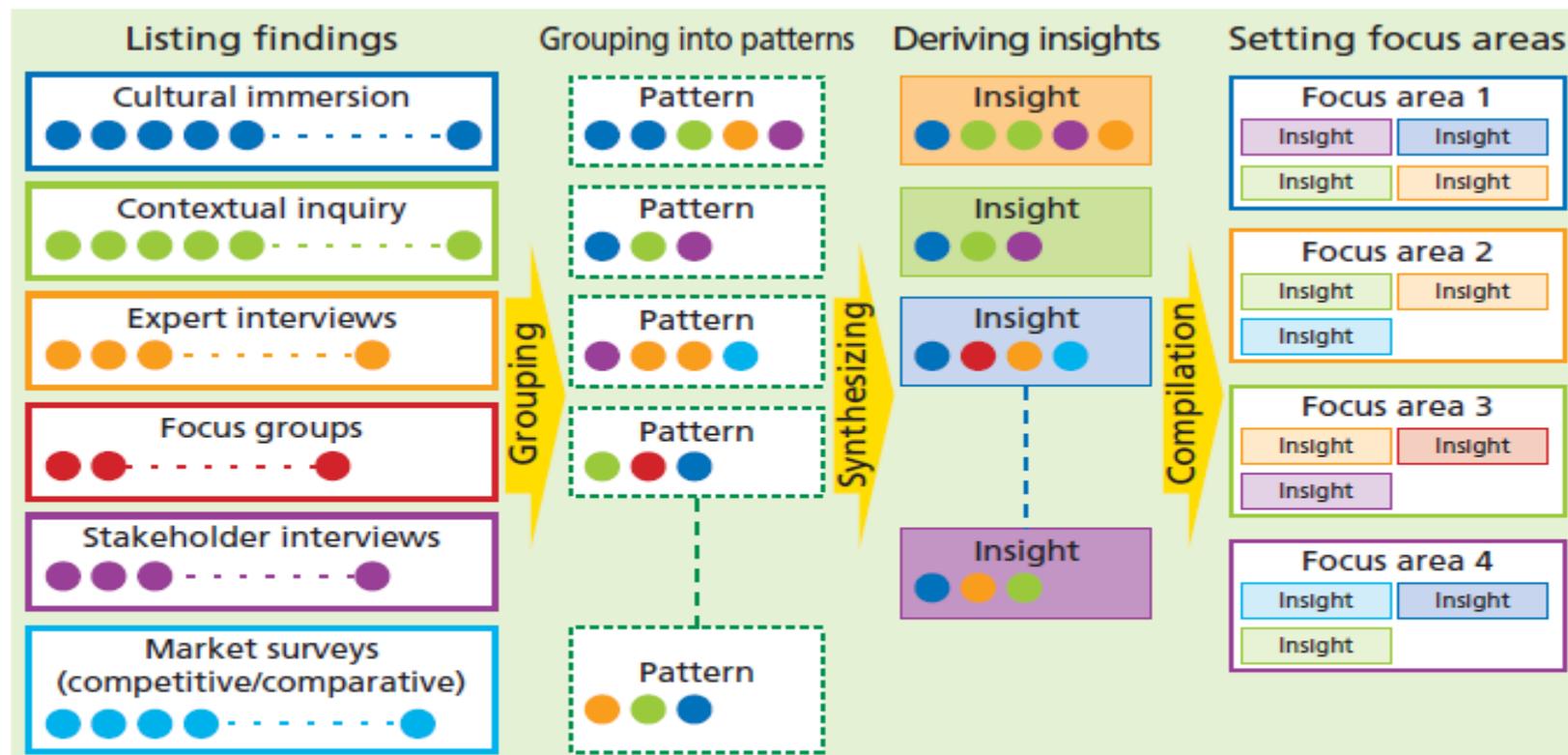


Figure 2 General flow of procedures used to define focus areas

1. **Extract Findings**
2. **Define Users**
3. **Create** a UI prototype that present a solution
4. **Evaluate** the UI prototype

Focus areas	Corresponding insights	
<p>Streams</p> <p>What does it mean to activate mobile phones with a constant stream of people, rich-media, and information?</p>	 <p>Streams of information</p>	 <p>Streams of people</p>
<p>Specialization</p> <p>How can we enable multi-tasking through multi-devices in the mobile ecosystem?</p>	 <p>Specialty stores</p>	 <p>Many specialized devices</p>

Figure 3 Example focus areas and corresponding insights

Introduction to the Prominence of UI Design

- Today we live in an age in which people can effectively use some of the most advanced pieces of technology without a complete because of the many developments of User Interface Design.
- **UI Design:**
 - is a sub-set of interaction design primarily dealing with the **interactions involving people and machinery.**
 - “Designing interactive **products to support the way people communicate and interact in their everyday and working lives**” (Sharp, Rogers, Preece, 2015).
 - became a prominent design focus because it allowed these advance machineries to become *wanted* instead of solely being *needed*.

Table 2 Check items used in heuristic evaluation

1	Is the system always keeping users informed about what is going on, through appropriate feedback within reasonable time?
2	Is the system speaking the users' language, with words, phrases and concepts familiar to the user?
3	Is there a clearly marked "emergency exit" to easily return the user to the previous state in case he/she makes a mistake?
4	Is there a consistent set of rules (in operative structure and interface) from beginning to end in the system?
5	Is there a careful design which prevents a user error from occurring in the first place?
6	Are there designs in place so that the user doesn't have to remember information while using the system?
7	Are there shortcuts or can users tailor frequent actions so that expert users can use the system efficiently?
8	Are unneeded dialogues eliminated, and is the design minimalist and aesthetic?

Problem and Design Environments and Models



The Main Problems Plaguing Graphical User Interfaces (GUI)

- **Appear elements are not appealing**
 - A byproduct of bad user interface is having unappealing elements
- **Elements' on GUI is not functions obvious**
 - One should try and make the element obvious for the user so the user can properly navigate the user interface
- **Architecture is not well planned**
 - A poor architecture can be heavily detrimental to user engagibility
- **Incorrect requirement assumptions**
 - User Interfaces that does not properly meet the client's requirements will lead to poor business relationships.

User Experience (UX) is a *person's emotions and attitudes about using a particular product, system or service*. It includes the practical, experiential, affective, meaningful and valuable aspects of human–computer interaction and product ownership.

User interface (UI) design is the process of making interfaces in software or computerized devices with a focus on looks or style. Designers aim to create **designs** users will find easy to use and pleasurable.

UI design typically refers to graphical user interfaces but also includes others, such as voice-controlled ones.

What makes up a good UI?



UX-DESIGN

UI-DESIGN

Common Characteristics of GUI

- Simplistic
- Concise
- Responsive
- Intuitive
- Efficient

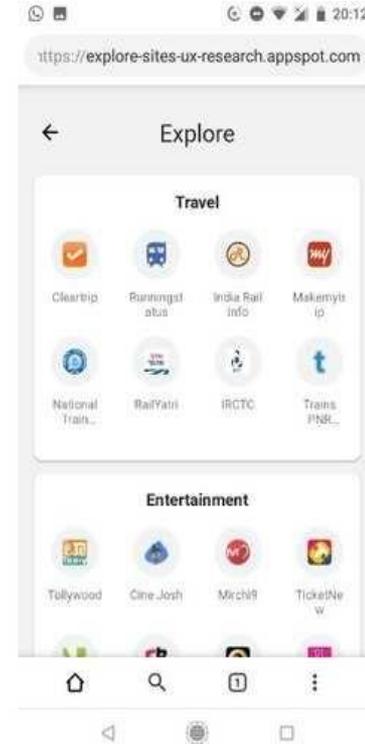


Image courtesy: Android Police

Principles of User Interface Design

- **A good UI should be able to**
 - properly capture and hold the user's attention and guide them to their desired goal.
 - hand off control to the user.
 - The feedback principle (an equal amount of output feedback for input) should be properly followed.
 - located on one screen when possible.
 - then the information should be located on as few screens as possible.

Principles of User Interface Design (cont.)

- The appearance of the interface should be consistent with its behavior.
- One should keep in mind critical incident technique, a method of gathering facts from domain experts and lesser experienced users to identify difficulties with the system, in order to create the best possible user interface interaction.
- Lastly, an emphasis should be placed on pleasing the largest possible amount of users, rather than focusing on the specific needs of each user.

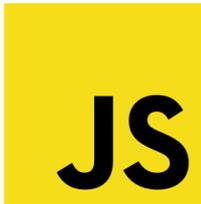
Characteristics of User Interface Design (cont.)

- Visualization is a major aspect that can make or break a program in both the eyes of the consumer and the eyes of a customer.
- Poor visualization can lead to an overcrowded user interface or even an interface that visually is unappealing.
- Poor visualization also leads to poor user retention.
- An unresponsive design can lead a consumer to think the website/device is not functioning properly.

Guidelines, Theories, Principles, Models, and Frameworks



Ruby on Rails, or Rails, is a server-side web application framework written in Ruby under the MIT License. Rails is a model-view-controller framework, providing default structures for a database, a web service, and web pages.



JavaScript (JS) is a lightweight, interpreted, or just-in-time compiled programming language with first-class functions.

Django is a Python-based free and open-source web framework, which follows the model-template-view architectural pattern. It is maintained by the Django Software Foundation, an independent organization established as a 501 non-profit.

Django's primary goal is to ease the creation of complex, database-driven websites.



django

Proper Guidelines for User Interface

- The user interface should **properly scale** with the computer competency of the average user.
 - *A computer literate user will not need as many buttons and bars compared to a computer illiterate user.*
- Any corporation should make sure they're appropriately meeting their established style guidelines.
 - *Every major corporation shall have a style guideline so that all corporate products have a similar look and design*
- There should be a clear and concise outline for the flow of the user interface.
 - *This will help reduce the number of lost consumers when navigating the website.*



GUI Frameworks

- A framework
 - refers to the the software tools used to build software programs that run on the web.
 - used by both front-end and back-end developers.
 - provide longevity and enforce good coding practices.
 - have great community support which can heavily reduce the amount of debugging needed.
- Most common languages that use frameworks are:
 - Javascript and Ruby.

Conclusion

- Create prototypes before implementing
- Appeal to a wide variety of users
- Make a user interface that directs the user to their intended goal
- Correctly follow all style guidelines established
- Create a simplistic, yet elegant user interface