User Experience Design I
(Interaction Design)

Simplicity and Design
Part One
“Great design is as much about prospecting in the past as it is about inventing the future.”

Bill Buxton
Design and Simplicity

• Bauhaus: History and Directors

• Bauhaus: Structure and Products

• From Bauhaus to Braun
Bauhaus
Key Dates:

founded 1919 in Weimar
closed down 1933 in Berlin

Key People - 3 Directors:

[3] Ludwig Mies van der Rohe (1930-1933)
Art and technology - a new entity.
Walter Gropius

The investigation of human needs should be based on science - not formalism.
Hannes Meyer

God is in the details.
Ludwig Mies van der Rohe
Design and Simplicity

- Bauhaus: History and Directors
- Bauhaus: Structure and Products
- From Bauhaus to Braun
Prototyping Design
Basic Shapes
Color Sphere

source: [7]
Marcel Breuer

http://www.boecker-buerogestaltung.de/images/designer/marcel_breuer.01.jpg

source: [8]
Chair B3 “Wassily”
Design and Simplicity

• Bauhaus: History and Directors
• Bauhaus: Structure and Products
• From Bauhaus to Braun
Requirements:

- Type(s) (variations of the original design)
- Basic shape(s) - few simple parts (industrial manufacturing)
- Functionality (design for human needs)

source: [7]
Charles and Ray Eames
Ray & Charles Eames

http://3.bp.blogspot.com/-E_alFu9Pakg/TdXlT6TkZI/AAAAAAAAA5I/dhm3kTe9VF4/s1600/Eames-Rocker-Chair-White.jpg

Dieter Rahms
Ten Principles: Good design...

1. **is innovative** – The possibilities for progression are not, by any means, exhausted. Technological development is always offering new opportunities for original designs. But imaginative design always develops in tandem with improving technology, and can never be an end in itself.

2. **makes a product useful** – A product is bought to be used. It has to satisfy not only functional, but also psychological and aesthetic criteria. Good design emphasizes the usefulness of a product whilst disregarding anything that could detract from it.

3. **is aesthetic** – The aesthetic quality of a product is integral to its usefulness because products are used every day and have an effect on people and their well-being. Only well-executed objects can be beautiful.

4. **makes a product understandable** – It clarifies the product’s structure. Better still, it can make the product clearly express its function by making use of the user’s intuition. At best, it is self-explanatory.

5. **is unobtrusive** – Products fulfilling a purpose are like tools. They are neither decorative objects nor works of art. Their design should therefore be both neutral and restrained, to leave room for the user’s self-expression.

6. **is honest** – It does not make a product appear more innovative, powerful or valuable than it really is. It does not attempt to manipulate the consumer with promises that cannot be kept.

7. **is long-lasting** – It avoids being fashionable and therefore never appears antiquated. Unlike fashionable design, it lasts many years – even in today’s throwaway society.

8. **is thorough down to the last detail** – Nothing must be arbitrary or left to chance. Care and accuracy in the design process show respect towards the consumer.

9. **is environmentally friendly** – Design makes an important contribution to the preservation of the environment. It conserves resources and minimizes physical and visual pollution throughout the lifecycle of the product.

10. **is as little design as possible** – Less, but better – because it concentrates on the essential aspects, and the products are not burdened with non-essentials. Back to purity, back to simplicity.

Braun SK6
Braun Radio

iPod (1st gen)

iPhone Calculator

Braun Calculator

Part Two
Graphical User Interface Design

• Principles

• Layout, Typography, Color & Contrast

• Controls and Widgets

• Simplicity
Like all forms of design, visual design is about problem solving, not about personal preference or unsupported opinion.

Bob Baxley
Interface design is only the **experienced representation** of the interaction, not the UX/interaction design itself.
User Interface (UI) Design focuses on anticipating what users might need to do and ensuring that the interface has elements that are easy to access, understand, and use to facilitate those actions. UI brings together concepts from interaction design, visual design, and information architecture.

source: [13, 14]
Users have become familiar with interface elements acting in a certain way, so try to be **consistent and predictable** in your choices and their layout. Doing so will help with task completion, efficiency, and satisfaction.

*source: [13, 14]*
User Interface

Visible

Behind the Scenes

Capturing

Connecting

Combining

Contextualizing

Transferring

Coordinating

Storing

source: [4]
Forms  
Text editors  
Graphic editors  
Spreadsheets  
Browsers  
Calendars  
Media players  
Information graphics  
Immersive games  
Web pages  
Social spaces  
E-commerce sites

source: [9]
• Desktop applications
• Websites
• Web applications or “rich internet applications” (RIAs)
  Professional products or embedded devices
• Software for mobile devices
• Turnkey systems like kiosks
• Operating systems
UI design communicates attributes such as reliability, excitement, playfulness, energy, calmness, strength, tension, and joy.

source: [9]
Littering a dark and dreary road lay the past relics of browser-specific tags, incompatible DOMs, and broken CSS support.

Today, we must clear the mind of past practices. Web enlightenment has been achieved thanks to the tireless efforts of folk like the W3C, WaSP and the major browser creators.

The css Zen Garden invites you to relax and meditate on the important lessons of the masters. Begin to see with clarity. Learn to use the (yet to be) time-honored techniques in new and invigorating fashion. Become one with the web.
The Beauty of CSS Design

A demonstration of what can be accomplished through CSS-based design. Select any style sheet from the list to see it in this page.

Download the example html file and css file

The Road to Enlightenment

Littering a dark and dreary road lay the potholes of browser-specific tags, incompatible DOMs, broken CSS support, and abandoned browsers.

We must clear the mind of the past. Web enlightenment has been achieved thanks to the tireless efforts of folk like the W3C, WebP, and the major browser creators.

The CSS Zen Garden invites you to relax and meditate on the important aspects of the internet. Begin to see with clarity. Learn to use the time-honored techniques in new and innovative fashions. Become one with the web.

http://csszengarden.com/
Tools

source: [4]
Graphical User Interface Design

- Principles

- Layout, Typography, Color & Contrast

- Controls and Widgets

- Simplicity
## Layout

LMU München – Medieninformatik – Alexander Wiethoff – UX1 – 2019
Grids
Welcome to Wikipedia,
the free encyclopedia that anyone can edit.
3,394,692 articles in English

Today's featured article

The Cross of Gold speech was delivered by William Jennings Bryan, a former congressman from Nebraska, at the Democratic National Convention in Chicago on July 9, 1896. In the address, Bryan supported bimetallism or "free silver", which he believed would bring the nation prosperity. He declared the gold standard, concluding the speech, "you shall not crucify mankind upon a cross of gold". Bryan's address helped catapult him to the Democratic Party's presidential nomination; it is considered one of the greatest political speeches in American history. For twenty years, Americans had been bitterly divided over the nation's monetary standard. Many Americans believed bimetallism (making both gold and silver legal tender) was necessary to the nation's economic health. Bryan's speech, delivered at the close of the debate on the platform, electrified the convention and is generally credited with getting him the nomination for president. However, he lost the general election to William McKinley and the United States formally adopted the gold standard in 1900. (more...)

Recently featured: Dendrocoelium – Killer7 – Calgary Stampede

Did you know...

From Wikipedia's newest content:

- ... that during the Antinomian Controversy, Anne Hutchinson (pictured) withstood two separate trials without counsel before being banished from Massachusetts?
- ... that Argentine nationalism sees José de San Martín, Juan Manuel de Rosas and Juan Perón as a line of historical continuity?
- ... that one of the most popular Polish cabarets, Pod Egida, performing since 1967, has faced persecution from the communist authorities in the People's Republic of Poland?
- ... that 2012 College World Series Most Outstanding Player Robert Refsnyder was born in South Korea and adopted by a California couple when he was three months old?
- ... that the print identity of UK music newspaper The Stool Pigeon is modelled on Victorian tabloids?
- ... that 2012 Australian Olympic canoeist Hannah Davis won a bronze medal in the sport at the 2008 Summer Olympics?
- ... that the starfish Anastasia rupicola feeds on the limpet Naella macquartiana, sometimes hunting it in groups?
Visual Clutter
Clutter creates visual noise and makes an application hard to use
Gestalt Psychology

• The Gestalt laws prescribe for us what we are to recognise as one thing’ (Köhler, 1920)

• How smaller objects are grouped to form larger ones

• Rules of the organisation of perceptual scenes (Heuristics)

source: [12]
Gestalt Laws

- Proximity
- Collinearity
- Co-circularity
- Continuity
- Parallelism
- Symmetry
- Closure
- Convexity

...
In summary the Gestalt Theory believes individuals use insight and their prior experiences to determine the response to stimuli...

...uses] Gestalt Theory to try to make sense of, and provide order to, information in their perception.

source: [12]
Proximity & Grouping

source: [12]
Alignment
By grouping similar elements together, the designer helps the user deal with a complex information display by reducing it to a manageable number of units.
Primary Action / Secondary Action
All form actions are not equal, and therefore the visual presentation of actions should match their importance to make it easier to complete a form. Visual distinction helps users make “good” choices.
Example: “Web Design, Filling the Blanks”

Yammer

source: [2]
Constraint
Constraints are closely related to **real affordances**: For example, it is not possible to move the cursor outside the screen: this is a physical constraint.

Locking the mouse button when clicking is not desired would be a physical constraint. Restricting the cursor to exist only in screen locations where its position is meaningful is a physical constraint.
Visual Constraint
Scalability of Interfaces / Flexibility
80/20 rule
A principle for setting priorities: users will use 20% of the features of your product 80% of the time. Focus the majority of your design and development effort (80%) on the most important 20% of the product.
Overcrowded Widget
Users are overwhelmed by options, limitless flexibility

Only show me what I need to see

Implement one easy to discover and easy to learn core pattern for common actions across the platform.
Adjust to users’ preferences.
Make less common actions harder to reach.
Aesthetic-Usability Effect

source: [1]
Aesthetic-Usability Effect
Aesthetic designs are perceived as easier to use than less-aesthetic designs. Aesthetic designs look easier to use and have a higher probability of being used, whether or not they actually are easier to use.

source : [1]
The flexibility-usability tradeoff is exemplified in the well known maxim “jack of all trades, master of none”.

Flexible designs can perform more functions than specialised designs, but they perform the functions less efficiently.
Fonts

https://typografie.de/produkt/detailtypografie/
Rule of thumb

- two general groups: serif & sans serif
- sans serif can be scanned quickly
- avoid very heavy or light typefaces for UIs
- avoid combining too similar typefaces
- stick with standards first
• On computer displays, sans-serif fonts often work better at very small point sizes, unlike print, in which the serifed fonts tend to be more readable as body text.

• Avoid italicised, cursive, or otherwise ornamental fonts;

• Highly geometric fonts tend to be difficult to read at small point sizes, as the circular letters (e, c, d, o, etc.).
• All-caps is too hard to read for body text, though it works fine for headlines and short texts. Capital letters tend to look similar, and are hard for a reader to differentiate.

• Set large amounts of text in a medium-width column when possible—say, around 10 to 12 English words on average.

http://bytescout.com/files/images/examples/bytescoutpdf/standard_fonts.png

source: [4]

**Didot**


**Georgia**


**Futura**


**Verdana**


**Arial Narrow**

Roboto

SUNGLASSES
Self-driving robot ice cream truck
Fudgesicles only 25¢

ICE CREAM
Marshmallows & almonds
#9876543210

Music around the block
Summer heat rising up from the sidewalk

source: [5]
Color
HSV Color Space
-three main properties: hue, saturation (or intensity) and value (or brightness)
hue refers to the color itself (the particular color within the optical (visible) spectrum of light), saturation refers to the brightness, value refers to the amount of black in a color

-color can provide cues for use
-color can establish a relationship
-color can indicate importance
-consider human factors such as color blindness and cultural differences
Warm versus cool
Dark versus light background
High versus low contrast
Saturated versus unsaturated
Combinations of hues
Colors
Questionable Website
Googles Search Page
Contrast

Region: Custom

Dates

Saturday, 5 January 2008

5 January 2008

5 Jan 2008

source: [2]
Effective design creates no more contrast than necessary.

This allows the viewer to easily identify the elements in question as a strongly defined subset of the available information.
Effective design creates no more contrast than necessary. This allows the viewer to easily identify the elements in question as a strongly defined subset of the available information."
Symmetry
Symmetry ensures **balance and clear organisation**, if sometimes at the expense of visual interest. While this may be a drawback for a poster or retail packaging, it is perfectly appropriate for a user interface.
UI Kits
Developing Apps for iPhone
Explore Over a Million Color Palettes

You'll find over 1,666,088 user-created color palettes to inspire your ideas. Get the latest palettes RSS feed or use our color palette maker to create and share your favorite color combinations.

Browse Palettes

Giant Goldfish by manekineko

Thought Provoking by Miss_Anthropy

Terra? by GlueStudio

ColorSchemer Studio 2

RECENT PALETTE COMMENTS

huege

LOVELY PATTERN DAWN! After a few minutes of looking at it, I realized she had a cigarette :) American Women wrote:

Smoking Lady by American Women

huege wrote:

I love it! I don't know why, but to me this looks like the palette should be on a package of cigarettes. I don't even smoke, but I love the palette so much that I think it's making me want to start smoking?!!
Graphical User Interface Design

• Principles

• Layout, Typography, Color & Contrast

• Controls and Widgets

• Simplicity
Drop-down menu  Multiple Selection List  Text Box  Spin Box
Controls

source: [4]
Controls

source: [4]
Mapping of Representation and Control

23 °C  
58 %  
2:30 h  
80 km

Temperature  
Ladezustand  
Restladezeit  
Reichweite
Graphical User Interface Design

• Principles
• Layout, Typography, Color & Contrast
• Controls and Widgets
• Simplicity
**Approachability**
Simple designs can be rapidly apprehended and understood well enough to support immediate use or invite further exploration.


source: [2]
**Recognisability**
Simple designs can be recognised more easily than their more elaborate counterparts. Because they present less visual information to the viewer, they are more easily assimilated, understood and remembered.

source: [2]

Immediacy
Simple designs have a greater impact than complex designs, precisely because they can be immediately recognised and understood with a minimum of conscious effort.
Usability

Improving the approachability and memorability of a product necessarily enhances usability as well. Simple designs that eliminate unnecessary variation or detail make the variation that remains more prominent and informative.

source: [2]
Reduction through successive refinement is the only path to simplicity
Reduction means that you eliminate whatever isn’t necessary. This technique has three steps: (1) decide what essentially needs to be conveyed by the design; (2) critically examine every element (feature, label, UI widget, etc.) to decide whether it serves an essential purpose; (3) remove it if it isn’t essential.
GRAPHIC
DESIGN

PRODUCT
DESIGN

INTERACTION
DESIGN

SERVICE
DESIGN

2D

3D
+Z-axis
(spatial depth)

4D
+T-axis
(temporal dimension)

5D
+W-axis
(multi-local simultaneity)

Model: Benjamin N.N. Schulz; Icons: Dima Yagnyuk, Daphne Espinosa, George Agpoon / The Noun Project
UX Tool #1: Experience Blueprints
What is an Experience Blueprint?

An experience blueprint is a diagrammatic representation of the user journey that maps processes, touch points, people and support activities involved in creating the experience.

It helps in visualising the correlation between the front stage (user end) and the back stage (provider end). It also helps to interconnect the tangible elements with intangible and deal with them more objectively.

source: [2]
History and Use

Blueprinting services was pioneered by G. Lynn Shostack, former VP of Citibank, in the 1980’s as a way to plan the cost and revenue associated with operating a service.

Ever since it has been interpreted in many different ways and used by many leading design and management consultancies.

source: [2]
Definition

In the British Standard for Service Design (BS 7000 -3, BS 7000 -10, BS EN ISO 9000), blueprinting is described as the mapping out of a service journey identifying the processes that constitute the service, isolating possible fail points and establishing the time frame for the journey.

We interpret this in a much broader sense. We look at it as an experience blueprint which covers both the service elements as well as the product interactions.

source: [2]
Front Stage

User Touch points

Provider Touch points

Time

User Journey

Entry

Exit

Support Processes

Back Stage

source: [2]
<table>
<thead>
<tr>
<th>BACKSTAGE</th>
<th>TOUCHPOINTS</th>
<th>USER ACTIONS</th>
<th>USE CASES</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAKEHOLDER 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAKEHOLDER 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAKEHOLDER 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAKEHOLDER 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAKEHOLDER 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAKEHOLDER 6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

UX Blueprint Template
Example: FoodSense® Connected Kitchen
Professional Foodservice Equipment
Ideation: Sketching out Experience Blueprint(s)
Reagieren auf Information zu Events
Ofen mit zusätzlichen Produkten bestücken
Werbung an digitale Werbeflächen in unmittelbarer Nähe senden (Guerilla-Kurzwerbe-Aktion/Promo-Aktionen)
Sich über neue Events informieren
Information erfassen (Endkunde)
Vom Smartphone in den Shop leiten lassen (Endkunde)
Mit Eintrittskarte Rabatt erhalten (Endkunde)
Produkte verkaufen und über das Kassensystem registrieren
Bargeldlos bezahlen (z.B. per Smartphone / NFC)

Auswertung von Kosten und Nutzen der Kurzwerbe-Aktion mit Partnern
Planung

Data verarbeiten
Information bereitstellen
Über erhöhte Nachfrage informieren
Standortermittlung

Daten verarbeiten
Daten verarbeiten und grafisch aufbereiten (Dashboard)

DATA verarbeiten und grafisch aufbereiten (Dashboard)
Werbekosten („ABO Sekunden-Ad“) mit Partner abrechnen auf Grundlage der zusätzlich verkauften Produkte

Selection: Refined Experience Blueprint
UX Tool #2: Video-Prototypes
Why Video-Prototypes?

Representing complex relationships, new behaviours and attitudes are an integral part of user experience design.

These can be represented through many means including sketching and making physical prototypes.

However, capturing a journey over time and at multiple locations requires a linear medium like video.
Example: 2 Video-Prototypes for IoT Kitchen Services
WARNING
CLEANING NEEDED!
Proceed to first cleaning step
UX Tool #3: IoT Prototyping Wall
Sketching in Technology: IoT Prototyping Wall
References (Books):

References (Books):