Lecture 10

FIT5152 - User Interface Design and Usability

Design Languages and Styles

Learning objectives

In this lecture you will learn about:

- Different design languages and styles (their strengths and limitations)
  - Skeuomorphic Design
  - Flat Design
  - Metro Design (MDL), MDL2, and Fluent Design
  - Material Design
  - iOS Design

Skeuomorphic Design

- Skeuomorph: "An object or feature which imitates the design of a similar artefact made from another material." Oxford Dictionaries

- Originally it was applied to physical object design but later it became a popular design approach in graphical user interface

Compass app iOS 6

Skeuomorphic Design (cont'd)

- A design concept and style where digital interface elements mimic real world physical objects
- It involves the use of textures and visual ornaments
  - E.g. gradients, shadows, and reflections
  - E.g. leather, wood, stitches, torn papers, and spiral bindings

Source https://www.dtelepathy.com/blog/inspiration/50-skeuomorphic-designs

Skeuomorphic Design (cont'd)

- Skeuomorphic design includes two parts:
  - Appearance
  - Behaviour
- It exploits familiarity of users with how the real world objects look like and how they work to make the interaction with UI objects easier and more intuitive
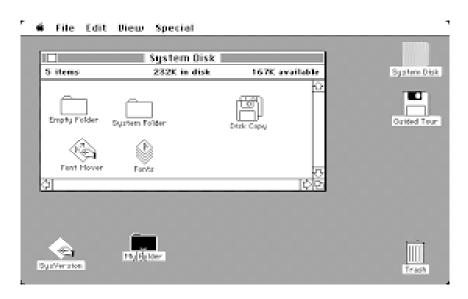
  (Stanković 2015)

An old telephone - <u>Source Image</u>

Source http://www.nonprofitcms.org/2013-web-design-trends-flat-design-vs-skeuomorphism/

Skeuomorphs and Metaphors

- Digital skeuomorphs can be traced back to mimesis and visual metaphors that imitate the real world

- Desktop metaphor in the Macintosh

- "Part of the reason we model our computers on metaphors like the desktop is that we can leverage this experience that we already have." Steve Jobs

Source Wikipedia

The Early Popularity of Skeuomorphic Design

- The skeuomorphic design strongly relies on 'affordances'
- Apple was one of the earliest adopters of skeuomorphic design
- "The main thing in our design is that we have to make things intuitively obvious…" Steve Jobs

iPhone OS 3.1.3
Source Wikipedia

The Early Popularity (cont'd)

- "It gives comfort and makes learning easier." (Norman, 2013, pg 159)
- Combining the knowledge in the world with the knowledge in the head and reducing short term memory load
  - Making use of existing knowledge
  - Using UI elements from known everyday objects that users can recognise

iPhone Notes app

Source ://www.karelvredenburg.com/home/2013/3/23/great-design-requires-skeuomorphic-and-flat-approaches.html

When Skeuomorphic design lost its popularity

- In the early days of the digital age, skeuomorphic design worked well by reducing the learning curve

- "it has its benefits in easing the transition from the old to the new." (Norman, 2013, pg 159)

- Yet, over time, users learned how to interact with computers and mobile interfaces, and skeuomorphic design was no longer necessary
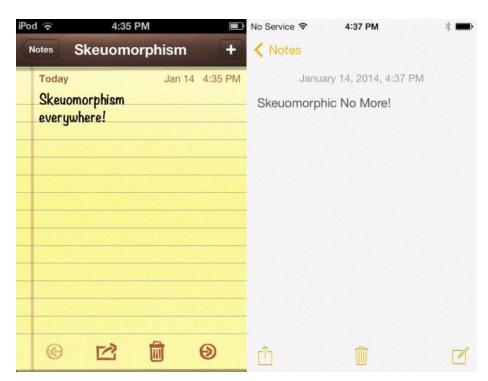
When Skeuomorphic design lost its popularity (cont'd)

- Skeuomorphic design might lead to **unnecessary visual clutter**

- **Obsolete** and **less appealing**

- The design could lead to **false affordances and confusion** e.g. 'pages that cannot be turned'

- Skeuomorphic interfaces include **many image files** that can **degrade performance**

'*When used sparingly*', skeumorphism has the potential to improve visual design (Stevens et al, 2013)

Towards Flat Design

- The shift from iOS 6 to iOS 7 (2013)

Source http://delphi.org/2014/01/skeuomorphic-no-more/   Source http://lunaweb.com/blog/tag/flat-design/

Flat Design

- It focuses on simplicity and minimalism

- Flat design was introduced in opposition to skeuomorphism

- Rather than imitating physical objects to connect with the user, flat design capitalises on simplicity to create cognitive connections
  - This can work because users have already learned how to interact with digital interfaces

- It was adopted in Microsoft's Metro Design in 2010

Source https://scratchstang.blogspot.com.au/2016/07/flat-design.html
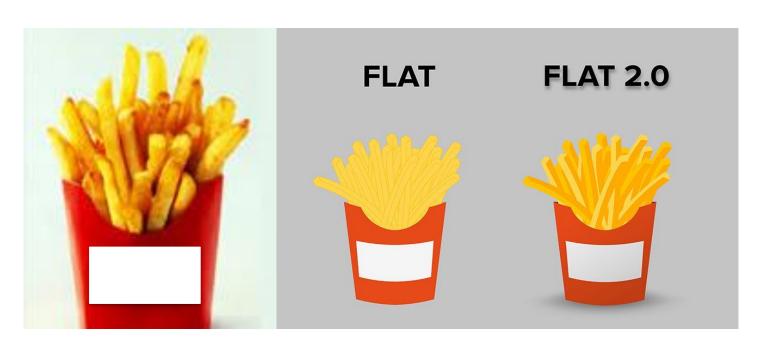
13

Flat Design Elements

- Flat design offers a refined, simple aesthetic
- It uses fewer objects (minimalism)
- It drops visual ornaments
- It uses simple typography and iconography
- It uses bold colours
- It drops shadows, highlights and gradients
- It uses flat shapes and tile menus in a 2D environment
- It increases the interface's efficiency and responsiveness (e.g. web pages loading faster)

(Page, 2014) and
https://www.nucleo.com.au/design-trends-flat-2-0/

Flat 2.0

- Flat design removes all visual clues
- The lack of the 3D effects and visual affordances undermines usability
  - E.g. it is not clear if an object is clickable or not
- Flat 2.0 adds shadows and highlights to create a 3D experience

Source https://www.nucleo.com.au/design-trends-flat-2-0/

Microsoft and Flat Design

- Metro Design aka MDL (Microsoft Design Language)
- MDL2
- Fluent design

Metro Design

- Introduced for Windows Phone 7 in 2010, also used in Windows 8

- Metro design moves away from skeuomorphic design and follows minimalism and flat design

- It avoids shadows, highlights and gradients

- It uses tile menus, large text, geometric shapes, simple icons, and animation

- It uses simple typography: the Segoe font family

Source http://blog.tmcnet.com/blog/ tom-keating/microsoft/whats-wrong- with-windows-phone-7.asp

17

Microsoft Design Style Principles (Windows 8)

- Pride in craftsmanship
  - All about maintaining consistency across all Windows 8 applications
- Be fast and fluid
  - Design for touch
  - Delight with motion
    - Use purposeful animations to communicate information or activity
  - Be responsive and ready
    - Importance of immediate feedback (specially with touch)
- Authentically digital
  - Avoid skeuomorphism
  - Use beautiful typography and bold colors
  - Be cloud connected

(Schooley 2013)

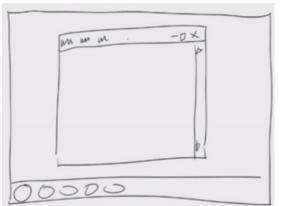# Microsoft Design Style Principles (Windows 8)

- Win as one
  - This principle focuses on completing scenarios across different devices and applications but under one common brand, and taking advantage of what users are familiar with

- Do more with less (limit your app to the core functionalities)
  - Be great at something
    - In your application, focus on achieving the main purpose
  - Inspire confidence
    - Following the same rules in applications inspires confidence in users
  - Put content before chrome

(Schooley 2013)
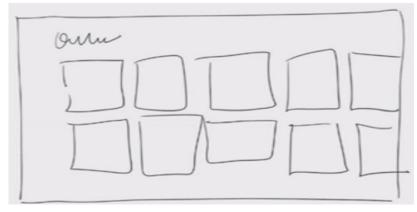
Put Content before Chrome

- What is chrome?
  - "Chrome is the user interface overhead" (Nielsen 2012)
  - E.g. navigation bars, logos, status bars and tab bars
- Chrome can distract the user from the content
- The principle of 'content before chrome' in Windows 8
  - A user study by Microsoft

Previous Windows version: Users didn't remember the content, drew mostly chromes

Windows 8: users remembered the contents and drew them

Tschumy, W (2012). The Microsoft design language [Video file]. Retrieved from https://channel9.msdn.com/Events/Build/2012/2-116

Content before Chrome

- This principle tries to eliminate or hide distractions and visual noise that chrome can cause and immerse the user in their content
  - E.g. it uses the edges of the screen that are easier to hit by fingers or a mouse (based on Fitts's law) for displaying chrome

When you swipe from the right hand edge, the Charm bar appears

Source https://www.pcworld.com/article/2013022/master-windows-8-gesture-commands.html

Tschumy, W (2012). The Microsoft design language [Video file]. Retrieved from https://channel9.msdn.com/Events/Build/2012/2-116

21

Microsoft Design Language 2 (MDL2) for Windows 10

MDL2

In summary:

- It makes changes to UI elements such as buttons, sliders, and combo boxes

- Thinner borders and lines

- It uses textures and 3D effects

http://www.digitaljournal.com/tech-and-science/technology/microsoft-s-project-neon-to-give-windows-10-a-visual-make-over/article/480591

MDL2 & Metro Comparison

Microsoft's Fluent Design

- It is a design language developed in 2017 by Microsoft
- Principles of the Fluent Design System:
  - Adaptive: Fluent experiences feel natural on each device
  - Empathetic: Fluent experiences are intuitive (to behave the way the user expects it) and powerful (global and universal)
  - Beautiful: Fluent experiences are engaging and immersive (using light, shadow, motion, depth, and texture)
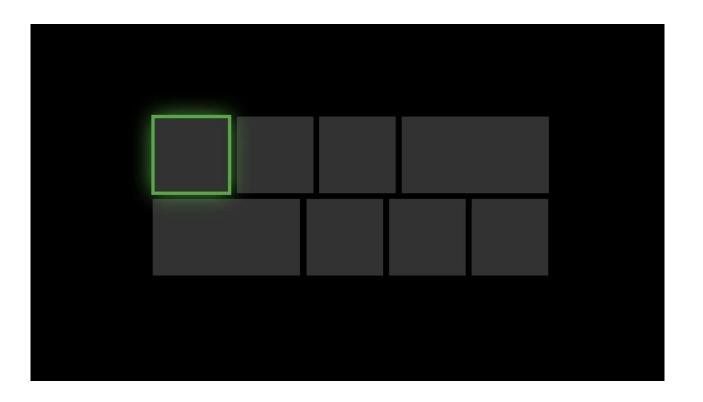
Video

https://docs.microsoft.com/en-us/windows/uwp/design/fluent-design-system/

Light

- Light is used to draw attention
- To make interactive elements stand out

Source https://docs.microsoft.com/en-us/windows/uwp/design/fluent-design-system/#principles

Depth

- The purposeful use of depth to create a 3D experience that matches our 3D world

- Representing the content in a visual hierarchy using z-axis and creating a feeling of depth

- Example: Parallax
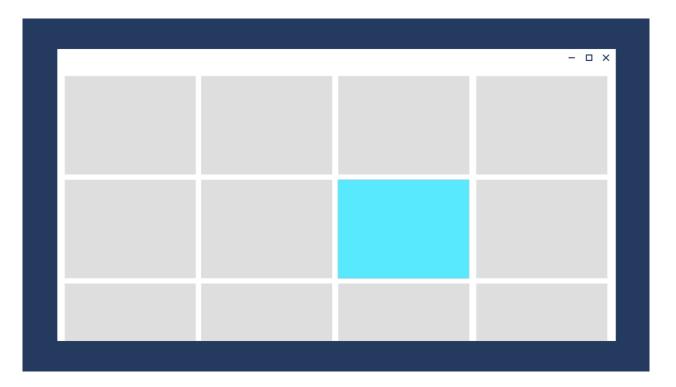 - The items closer to the viewer move faster than items in the background

Motion

- Incorporating seamless transitions helps the user to focus on the story
- It brings (pleasant) experiences
- E.g. Connected Animation

Source https://docs.microsoft.com/en-us/windows/uwp/design/fluent-design-system/#principles

Material

- Transferring and translating the qualities of real world material to digital environments

- To encourage the users to touch and interact with your design

- Example: Acrylic material

Source https://docs.microsoft.com/en-us/windows/uwp/design/fluent-design-system/#principles

Scale

- Makes an app feel natural on a variety of different devices.
- Adapts its layout to suit different screen sizes and devices.

https://docs.microsoft.com/en-us/windows/apps/fluent-design-system

The Universal Windows Platform (UWP)

- The Universal Windows Platform design guidance is designed to adapt to the Microsoft Fluent Design

- It provides guidelines about controls, layout, screen size and pixels, styles, universal usability and accessibility
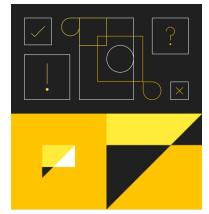

https://docs.microsoft.com/en-us/windows/uwp/design/basics/design-and-ui-intro

Material Design

- It was introduced by Google (2014)
- It is a design language and system
- It is a living document, with supporting open source code
- It provides unified guidelines to support all types of devices (mobile phones, smart watches, tablets, TV, laptops)
- The guidelines are not just about the shapes and colours, but also about interactions, user behaviour, and accessibility
- It is expandable, and cross-platform
- All in one place is Material.io

Sources Google Developer Videos and
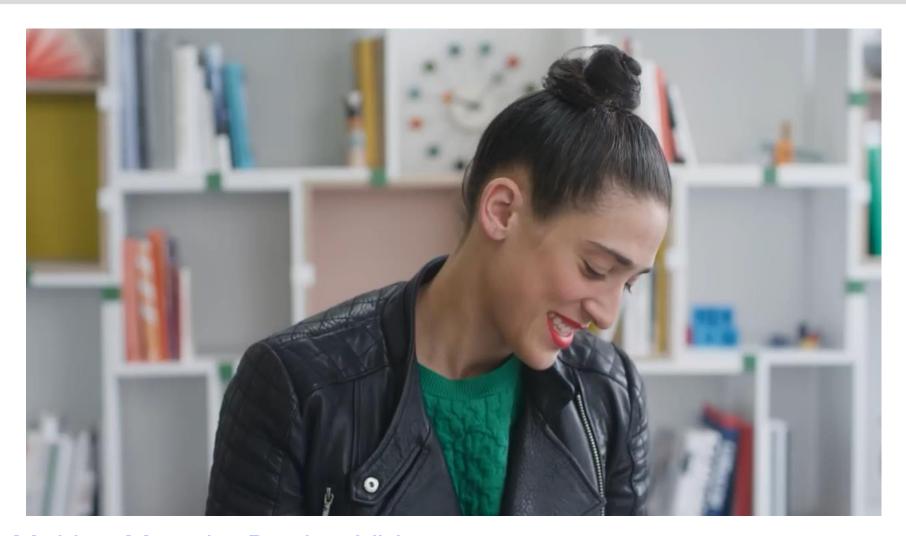https://material.io/guidelines/#introduction-principles

What is material design?

- Starts with 'a quantum paper', 'a smart paper'
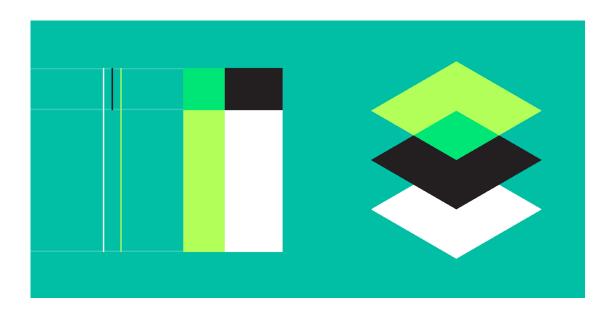- Based on the laws of physics and metaphors

What is material design?

[Making Material Design Video](#)

Source Making Material Design Video by Google Developer

Principles of Material Design
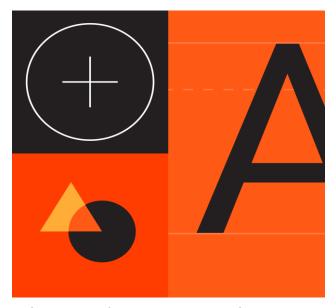
Material is the metaphor

- Inspired by physical world
- Use of shadows, light, movement, surfaces and edges to provide users with visual cues (affordances and visual signifiers), how real objects move and interact

Source: https://material.io/design/introduction/#principles

Principles of Material Design

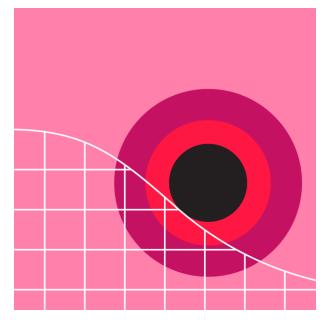**Bold, graphic, intentional**

- This principle is about using typography, space, scale, colour, and imagery to create hierarchy, meaning, and focus

- Bold colours, large font, and intentional blank spaces

- Emphasising actions and making them visible to users

Source https://material.io/design/introduction/#principles

Principles of Material Design
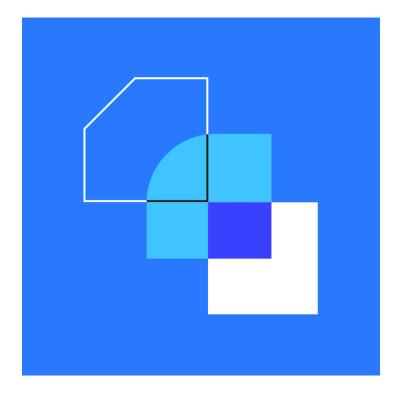
Motion provides meaning

- Users perform actions and actions create motion
- Motion should be meaningful and appropriate
- Transitions should be coherent
- Feedback should be subtle

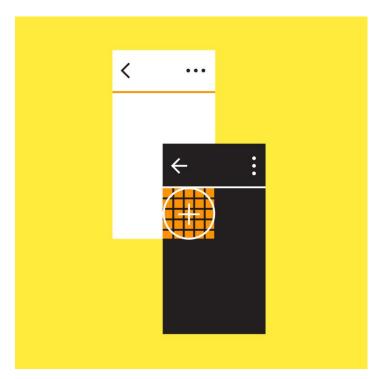Source https://material.io/design/introduction/#principles

Principles of Material Design

Flexible foundation

- The material design system provides a custom code base to implement the components, plug-ins, and design elements

Principles of Material Design

Cross-platform

- Material design supports different platforms and keeps the same UI across them (including Android, Flutter, iOS and the web)

Source https://material.io/design/introduction/#principles

iOS Design Themes

- Clarity
  - Text is legible
  - Icons simple and easy to understand
  - Highlighting important contents using colour, negative spacing, fonts or graphics

- Deference
  - Fluid motion
  - Beautiful interface
  - Minimal use of gradients and shadows

- Depth
  - The use of visual layers
  - Providing a sense of depth through transitions

https://developer.apple.com/ios/human-interface-guidelines/overview/design-principles/

iOS Design Principles

- Aesthetic Integrity
  - To design the appearance and behavior of an app according to its function
- Consistency
  - To use familiar standards, well-known icons, and uniform terminology
- Direct Manipulation
  - Direct manipulation of contents, e.g. by rotating the device or using gestures, and seeing immediate feedback
- Feedback
  - Acknowledging user actions and informing users of results
- Metaphors
  - Based on familiar experiences (e.g. toggle switches)
- User Control
  - The balance between 'Locus of control' and avoiding actions that could have unwanted consequences

https://developer.apple.com/ios/human-interface-guidelines/overview/design-principles/

References

- Schooley B. (2013) Microsoft Design Style Principles. In: Designing for Windows 8. Apress, Berkeley, CA, Chapter 2
- Page, T. (2014). Skeuomorphism or flat design: future directions in mobile device User Interface (UI) design education. *International Journal of Mobile Learning and Organisation*, *8*(2), 130-142.
- Verve (August 17, 2015) http://www.verveuk.eu/news/history-of-flat-design-infographic/
- Kate Meyer Flat Design: Its Origins, Its Problems, and Why Flat 2.0 Is Better for Users https://www.nngroup.com/articles/flat-design/
- Skeuomorphism is dead, long live skeuomorphism https://www.interaction-design.org/literature/article/skeuomorphism-is-dead-long-live-skeuomorphism
- Stanislav Stankovic (2015) Virtual Reality and Virtual Environments in 10 Lectures, Morgan & Claypool
- "Design Language of Windows Phone 7". .Microsoft, Archived
- "Microsoft to drop 'Metro' name for Windows". BBC News Online, 2012
- Browser and GUI Chrome, Nielson, https://www.nngroup.com/articles/browser-and-gui-chrome/
- Jeremy Foster (2013) CSS for Windows 8 App Development. Apress
- Stevens, J. E., Robinson, A. C., & MacEachren, A. M. (2013). Designing map symbols for mobile devices: challenges, best practices, and the utilization of skeuomorphism. In *26th International Cartographic Conference*.
- https://www.nucleo.com.au/design-trends-flat-2-0/
- (HUCULAK 2017) https://www.windowscentral.com/whats-new-microsoft-fluent-design system-wave-one-windows-10