Student workbook

Unit code: **CUADIG402**

Unit name: Design user interfaces

TAFE NSW would like to pay our respect and acknowledge Aboriginal and Torres Strait Islander Peoples as the Traditional Custodians of the Land, Rivers and Sea. We acknowledge and pay our respect to the Elders, both past and present of all Nations.

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Contents

Icon legends

Icons	Descriptions
	**Practice activity** Learning activities are the tasks and exercises that assist you in gaining a clear understanding of the content in this workbook. It is important for you to undertake these activities, as they will enhance your learning. Activities can be used to prepare you for assessments. Refer to the assessments before you commence so that you are aware which activities will assist you in completing your assessments.
	**Collaboration** Whether you discuss your learning in an online forum or in face-to-face environment discussions allow you to create and consolidate new meaningful knowledge.
	**Self-check** A self-check is an activity that allows you to assess your own learning progress. It is an opportunity to determine the levels of your learning and to identify areas for improvement.
	**Readings (Required and suggested)** The required reading is referred to throughout this Student workbook. You will need the required text for readings and activities. The suggested reading is quoted in the Student workbook; however, you do not need a copy of this text to complete the learning. The suggested reading provides supplementary information that may assist you in completing the unit.
	**Assessment task** At different stages throughout the workbook after you have completed the readings and activities you will be prompted to complete one or more of your assessment tasks.
	**Video** Links to videos will be give you a deeper insight into subject matter discussed in this workbook. If you use the student workbook in a digital format you will be able to click on the link to the video. If you are working from a printed version, you will need to look these up using the URL provided.

Introduction

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This unit explores the skills and knowledge required to design user interfaces for interactive media products such as web environments, games or e-learning resources.

The workbook is broken up into three (3) main topics:

1. Identifying project requirements
2. Producing design specifications
3. Testing and finalising user interface designs

You will be required to complete one (1) project assessment task for this unit. The content and activities in this workbook will help you to complete the assessment tasks. Your trainer or workplace supervisor will also be required to monitor your progress and provide verification of completion of some of the tasks.

The content of this workbook will be presented in the form of a typical industry scenario. You are a freelance UI designer contracted to develop and produce a UI prototype for Appmakerz Studios. Steve is the product manager of Appmakerz studio and is your main contact there. You will also be communicating with Mark, UI developer, Sheryl, marketing executive and Briony, information architect.

You will be presented with different choices to select after the presentation of each scenario. Work through each of the choices in whatever order you wish, until you complete each of the topics.

Steve Sheryl Briony Mark

Topic 1

Identifying project requirements

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Scenario

Steve, Product Manager from Appmakerz, has contacted you in regards to a new mobile app they are developing to provide a fast and reliable food delivery service that can be tracked by a mobile device. The mobile app is to be compatible with both Apple and Android mobile users.

Steve has asked that you design:

- A five (5) page non-functioning mobile app prototype (One (1) landing screen plus four (4) other appropriate pages).

In addition, to the prototype, he has asked that you design;

- Company logo
- Company colours, font, look and feel of app
- Layout and additional specifications
- Paper prototype
- Finalised user interface design prototype.

Steve has arranged a meeting with the project team; Mark, UI developer Sheryl, marketing executive and Briony, Information architect and has asked you to come in to discuss the project requirements. He sends you the agenda for the meeting so you can prepare any relevant questions or required information.

Agenda

Select what you are going to do next.

- Discuss concept to clarify design briefs
- Confirm technical parameters of interactive media products including delivery platform

- Identify target audience and user characteristics
- Assess information architecture specifications

Discuss concept to clarify design brief

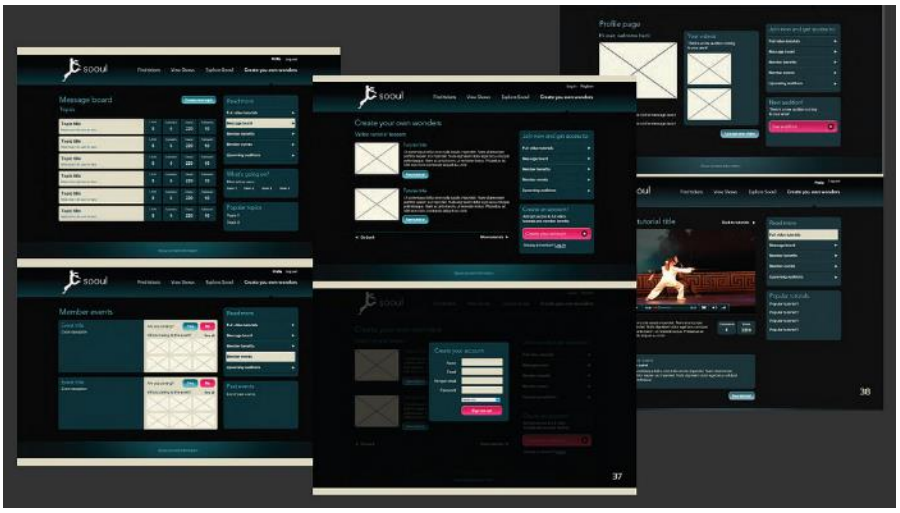


Image by VFS Digital Design at Flickr under creative commons licence

As a user interface (UI) designer you understand that your role is to design the graphical layout of an application. Any visual element, interaction or animation including buttons, text, images, sliders, text entry fields, screen layout, and transitions must be designed.

You know that the best way to achieve a successful design result, is to have a core creative concept that drives all the elements to the required outcome.

To establish a clear and simple message that the client will understand, you first need a clear understanding of what the concept needs to communicate. This process starts with a review of the design brief to evaluate what you have to work with and find out the 'what?'

- What product do you need to develop?
- What is the overall vision?
- What are the overall objectives? How will it be judged as successful?
- What are the stakeholder requirements?
- What are the technical and environmental constraints?
- What key functionality is required?
- What are the usability goals?
- What research do you need to do?

With this information and research of your target audience and user, you will be able to determine the 'how'.

Steve has drafted a design brief for the proposed UI prototype app project and presents it to the team at the meeting.

The design brief is a document that outlines the key elements and deliverables for creative work. It needs to be referenced throughout the design process to help you focus and clarify the project as it evolves.

Typically, it will contain a problem statement that needs to be resolved, the target audience, constraints and limitations to work around and with, format of the final design, a timeline, research and any other required details.

The objectives and goals

Clarifying the client objectives is crucial as it helps you to focus on the purpose of the project and bring it into reality.

Project scope

Definition of the kind of support and features to be implemented determines the effort and time that required to complete the project.

Project format

Identify the format of the deliverables e.g. file format, file size, resolution, screen size etc.

Available resources and style

Assessing existing resources, helps to identify the client's likes and priorities, clarifying what they actually want.

User

The target audience or who the client wants to reach provides you with important parameters in regards to style, navigation and content.

Budget and timeline

Every client will have their own way of working, in terms of communicating. Establishing clear communication guidelines and budgetary requirements from the start will avoid miscommunication and other issues at a later date.

Not in scope

Specify design elements that are not in the scope of work.

During the meeting you take notes as Steve goes through the design brief. This will help you to identify all the project requirements and confirm your understanding by clarifying the details back to Steve in a written document, called a **Return Brief**.

The return brief also provides you with an opportunity to suggest other options or approaches that the client may not have considered.

Return brief tips

1. **Understand the brief**

   Firstly, you need to make sure you fully understand the brief. You also need to understand who and what is driving the design brief within the company. Understanding priorities and goals as well as external factors driving the brief, will provide you with valuable tools to make alternative suggestions.

2. **Analyse needs**

   What needs to be met with the design brief?

3. **Define problems**

   Consider comparative 'benchmarks' e.g. similar projects that have encountered problems, issues that the client may not have accounted for. Discuss any problems in the design brief and provide alternative solutions.

4. **Design responses**

   Provide clear cut design solutions to problems that you can back up with research.

   Making sure you are clear on the feasibility of your proposed ideas.

5. **Provide options as added value**

   Providing the client with more than one option e.g. a conservative option and then a more radical option, shows the client you have considered a range of ideas.

6. **Be clear, concise but comprehensive**

   A clear succinct document that follows the original brief structure, should state your understanding of the brief and its objectives, general design specifications, your role, scope of work and the terms of the business.

Practice activity

Activity: Problem solving – how to draw toast

This is a group activity to help you think about problem solving and systems thinking. It is a three (3) minute exercise in which you need to sketch a diagram of drawing how to make toast.

Step 1: Prepare felt markers, thick paper, post it notes and masking tape. The end results will need to be posted onto a wall so a clear space will be required

Step 2: Everyone needs markers and paper to start with. You then need to draw a picture of **how to make toast**. A timer should be set for three (3) minutes to complete the drawing.

Step 3: Each person then holds up the drawing and places it on the wall. Using the Post It notes, each person needs to comment on the drawings, identifying which ones were simple or complex, had people etc.

Step 4: Watch the TED video Tom Wujec: Got a wicked problem? First, tell me how you make toast [https://www.youtube.com/watch?v=_vS_b7cJn2A] *(9:05 mins)* for an explanation on systems thinking. Once it is finished, review how many nodes you drew and what kind? Discuss this with the class group.

Step 5: How can this exercise be applied to designing a user interface for a website, app or other system? Write a paragraph of your reflection and post it to the blog platform with your toast drawing (trainer to confirm platform).

Technical parameters and delivery platform

As the UI developer, Mark explains to the team that interactive media is any media that responds to user input. The following, include commonly used types of interactive media:

Application software – software designed as a tool for users such as a knowledge management platform.

Apps – Application software for mobile devices such as a weather app.

Games – Entertaining and engaging software.

Virtual Reality – immersive digital experiences where users feel as if they are exploring real worlds.

Pervasive games – where virtual and physical environments are mixed.

Interactive video – video and television with interactive features such as streaming video, audiences help to create.

Publications – such as websites where users navigate, communicate and participate.

Social media – where digital communities allow media to be navigated, shared and created.

Advertising – digital and in store advertising with interactive elements that react to people who are in its proximity.

Cinema – interactive cinema that allows audiences to play a role in the film.

He goes on to explain that as a designer, there is a need to consider the constraints imposed by technical parameters of these interactive media, such as hardware, software and speed of connection to the internet.

Mark also discusses consistent design, or a multi device approach where the same experience with same content and features is available across a range of devices in a similar format.

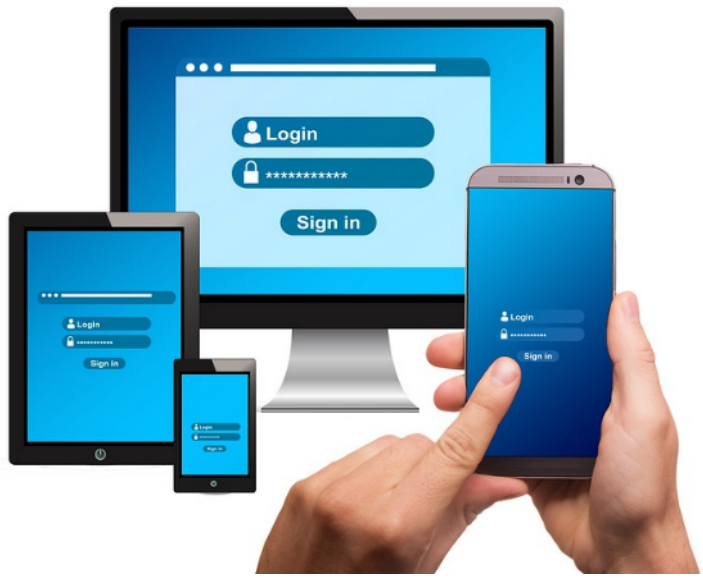


Photo by geralt on pixabay under Creative Commons CC0

Adjustments in each format are as a result of different factors, such as;

- Screen size
- Interaction (touch screen, keys, voice)
- Sensors (GPS, gyroscope)
- Visual, e.g. adaptive screen layout, grid and user interface
- Information architecture (IA)

For example, a common visual adjustment is when a desktop website layout shows multi-columns but is re-arranged as a single column for a smartphone to be able to fit on the smaller screen size.

Many mobile devices use the 'hamburger icon' located at the top left corner of a page to house the navigation menu for site content.

Optimising for layouts to suit each device involves changing screen layouts and adapting UI elements, so that they are suitable for the range of device screen sizes, resolutions and orientation. The adjustments will affect:

- Screen grid
- Image size
- Button size
- Font size
- Spacing
- alignment

This summary table outlines some of the main differences between a range of devices.

	Smartphone	Tablet	Desktop/laptop	Television
Display size	100-150mm	175-250mm	375-675mm	800-1500mm
Proximity	150 - 300mm	250 – 450mm	300 - 550mm	125 – 375mm
Where used	Everywhere	Mostly at home but out as well	Mostly at office/ home	Home
Use mode	Mobile	Mobile	Mostly stationary	Stationary
Viewing mode	Lean back and lean forward	Lean back	Lean forward	Lean back
Interaction model	Touch and direct manipulation on screen. Voice interaction	Touch based and direct manipulation on screen	Keyboard and mouse	Standard remote controls, four way arrow and selection

Attention pattern	Short interactions consistently – check email and texts	Longer engagement, consume content	Longer engagement in the work environment and search / exploration tasks at home	Longer engagement, consumption of media
Device sharing	Private device not typically shared	Shared device, usually among family or in a learning environment	At work, typically private. Maybe shared in home environment	Shared between family or social
Main features and sensors	GPS, proximity, gyroscope, accelerometer, compass, WIFI, camera, microphone, Bluetooth, ambient light sensor,	GPS, proximity, gyroscope, accelerometer, compass, WIFI, camera, microphone, Bluetooth, ambient light sensor,	Varies, WIFI, webcam, microphone, Bluetooth, ambient light sensor	Nothing on standard TV. Smart TV's have WIFI, ambient light and motion

Source: Designing Multi-Device Experiences by Michal Levin 2014 O'Reilly Media Inc. California 1st edition

For more information on different user interfaces view the following websites:

- iOS Design Guidelines [https://ivomynttinen.com/blog/ios-design-guidelines]
- iOS Human Interface Guidelines [https://developer.apple.com/design/human-interface guidelines/ios/overview/themes/]
- Design for Android [https://developer.android.com/design]

Identify target audience and user characteristics

Sheryl, marketing executive brings up the need for the identification of the target audience and creation of some personas.

She explains that the purpose of identifying the target audience or 'persona' is to create a realistic interpretation of your key users, based on research of their behaviours, needs and motivation. The types of user research that should be performed, depend on the type of site, system or app to be designed, the timeline and the environment.

Effective target audience information should:

- Focus on the major needs and expectations of the major user group
- Clearly identify user expectation and how they are likely to use the site
- Describe real people, their demographic, goals and values
- Assist in guiding functionality and universal features

Creating a persona or typical identity helps in making design decisions by adding real life context. It is easier to test and identify priority features when a set of guidelines provided by the persona is available.

They can help by:

- Assisting stakeholders and managers to make informed evaluations on site features
- Providing valid information for Information architects in creating wireframes, labelling and behaviour of the interface
- Providing graphic designers key elements in designing the overall look and feel
- Providing developers insight into user behaviour
- Providing writers, the appropriate tone, and style of content for the particular audience

To create accurate personas based on your target audience, a simple process should be followed:

Step 1: Conduct user research: by answering the following questions.

- Who are the users?
- Why are they using the system?
- What are their expectations of the site/app/system?
- What are the behaviours and assumptions of the users?

There are a number of user research methods that can assist you in your research. The Comprehensive Guide to UX Research website provides a series of different methodologies to be used at different stages of a design / development project.

Step 2: Condense the research: Identify key themes and characteristics that are specific and relevant to the system and its users.

Step 3: Brainstorm: Organise the elements you have identified into a group of personas who represent your target market.

Step 4: Refine: Organise your personas by combining and prioritising them. Separate them into primary, secondary and complementary categories. This should provide you with around three personas with clearly defined characteristics.

Step 5: Make them realistic: Develop the descriptions of your personas, including background, motivations and expectations. Don't include personal information, but ensure information is relevant.

Sheryl has developed a series of questions that she uses when creating personas.

Creating a persona - questions

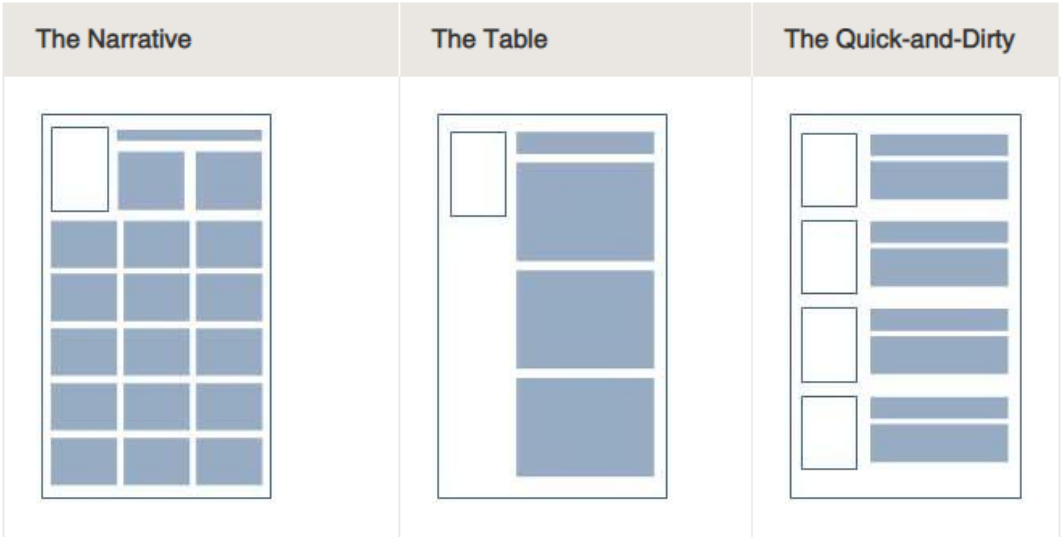
Objective	Questions
The purpose / vision of the site/ system / app	What is the purpose of the site/system/app? What are the goals of the site?
User characteristics	**Personal** What is the age group of your user? What is the gender? What level of education have they completed? **Professional** How much work experience does the person have? What is their professional background? What are their needs, interests and goals? Where does the user get information about your product? Who are the competitors, are their similar products available the user accesses? **Technical** What technological devices does the person use regularly? What software/ applications does the person use? Through what device does the user access information? How much time does the person spend online each day?
User motivation	What is the person motivated by? What are they looking for? What is the person looking to do? What are his needs?

The persona information should then be organised into an easy to read and logical format. Key information should include:

- Fictional name
- Persona group
- Job title and responsibilities
- Demographics such as age, education, ethnicity and family status
- The goals and tasks to be completed using the site
- Physical, social and technological environment
- A quote defining how this persona relates to the site/app/system you are developing
- Image representing the group

Creating a template format for your persona profile will help you present your information effectively.

The following templates can provide you with some guidelines of setting up the persona profile.



Source: https://www.usability.gov/how-to-and-tools/methods/personas.html

The Narrative format – provides essential information for stakeholders and managers who may not be as interested in the technical needs of the user.

The table format is best for designers who need to clearly identify designs against the user needs.

The **quick and dirty format** is a concise format where inadequate research provides only basic information.

Practice activity

Activity: Persona profile

To familiarise everyone with personas, Sheryl suggests an activity where everyone on the team has to create a persona by interviewing another team member. The persona profile should include just enough details to be able to understand a user's mindset, desires and tasks.

You will be creating a persona profile on another class member. Interview the class member using the questions discussed in topic: Identify target audience and user characteristics.

Create your own A4 or A3 template or use one you can download from Fake Crow's blog [https://fakecrow.com/free-persona-template/]

Include as a minimum the following fields:

Name and photo: Use a quick sketch for your first draft, but for the final submission, ask that they provide you with a photo or that you have their permission to take a photo.

Job title: Include their role and the company. (If not working, indicate status e.g. unemployed, student)

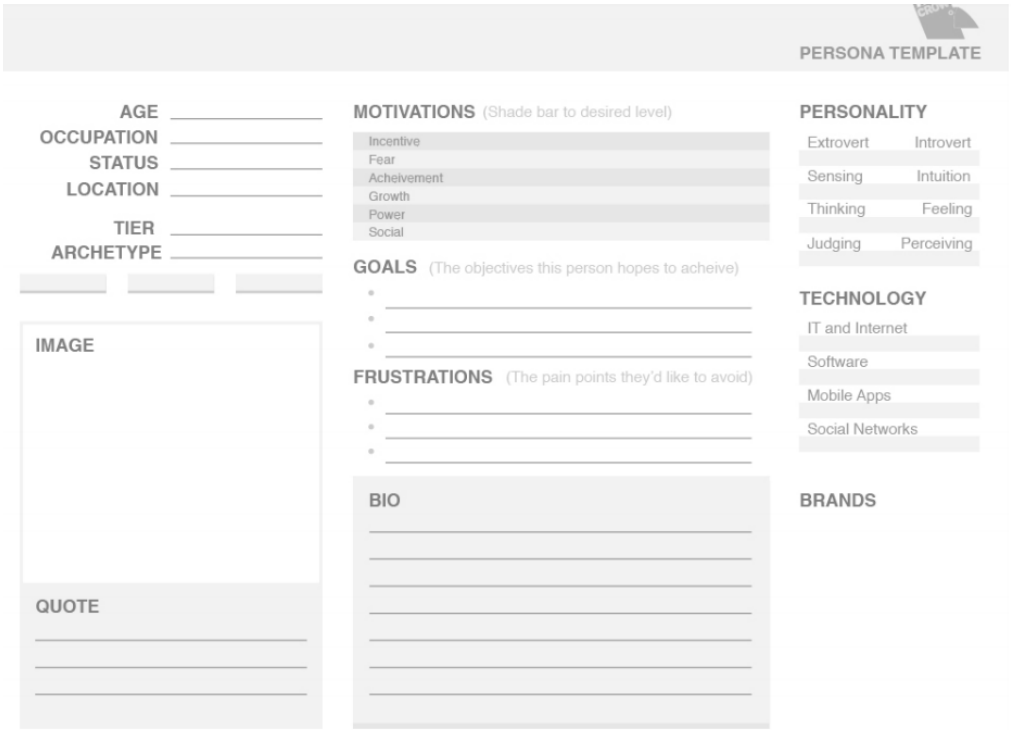
Goals / needs: What are their goals, needs and requirements?

Behaviours and beliefs: Make sure details are relevant.

Characteristics: Attributes that define the person

Quote: that defines that person's values.

Submit the printed template as a PDF document on A4 or A3 paper.



Assess information architecture specifications

Briony is the information architect on the team. Her role focuses on the organisation, structuring and labelling of content in an effective and sustainable way. She focuses on helping the end users find the required information and complete tasks. To do this effectively, she needs to understand how all the pieces fit together and how they relate to each other within the system.

In simple terms Briony explains, the purpose of information architecture is to help the user understand:

- where they are
- what they have found
- what is around
- what to expect

Briony is involved within the wireframing and prototyping processes, providing information for the development of content including text, images and multimedia.

The key components of information architecture include:

- **Structure and categorisation** of information and schemes.
- Representation of information through **labelling**.
- **Navigation systems** and how users browse and move through information.
- **Search systems** and how users look for information.

Watch

Understanding Information Architecture

Available at https://prezi.com/aafmvya6bk7t/understanding-information-architecture/ [Accessed 19 Feb 2019]

https://prezi.com/aafmvya6bk7t/understanding-information-architecture/

Information ecology

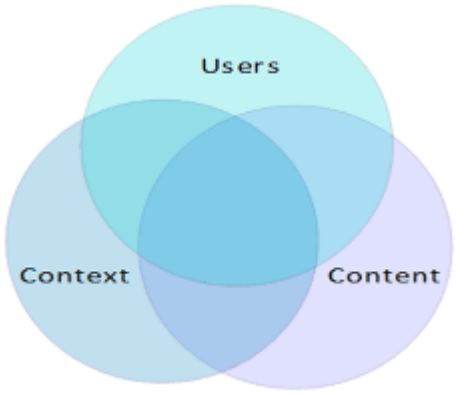


Diagram reproduced by ©TAFE NSW 2019

This diagram is used to show the interdependent nature of users, content and context, where each element refers to:

Context: goals, budget, politics, technology, resources and constraints

Content: Objectives, document and data types, volume, structure, governance and ownership

Users: audience, tasks, needs, experience, how content is sought

Information architecture principles

Briony discusses her research into designing good site structures and mentions an information architect Dan Brown [https://www.designprinciplesftw.com/collections/eight-principles-of-information-architecture] and his eight principles. She finds these eight principles are a great guide to improving structure.

1. **The principle of objects**: content should be treated as a living, breathing thing. It has lifecycles, behaviours and attitudes
2. **The principle of choices**: More is less. Keep the number of choices to a minimum
3. **The principle of disclosure**: Show preview of information, so that users understand the type of information available if they look deeper
4. **The principle of exemplars**: Show examples of content when describing content of categories
5. **The principle of front door**: Assume that at least half of users will use a different entry point than the front landing page.
6. **The principle of multiple classifications**: Offer users different classification schemes to browse content
7. **The principle of focused navigation**: Keep navigation simple and never mix different things
8. **The principle of growth**: Assume that the content on the site will grow. Make sure the site is scalable.

Products of the information architecture process

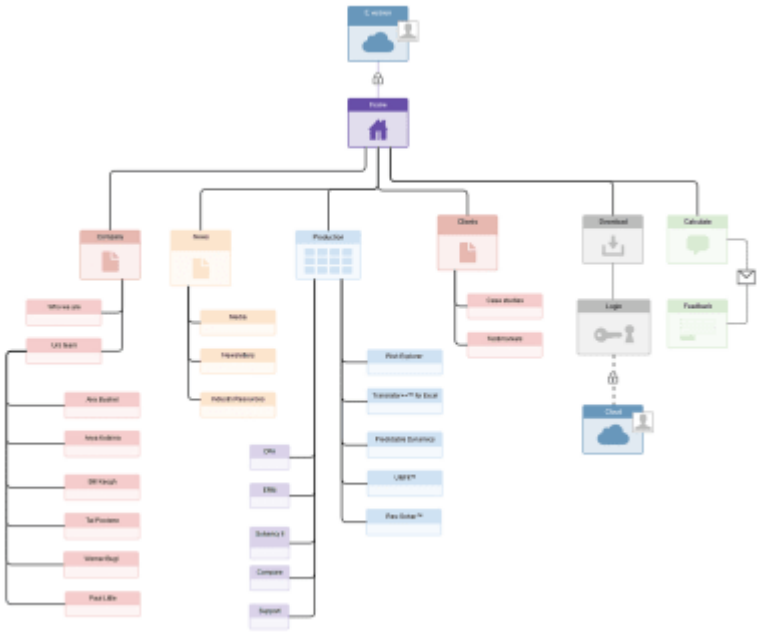
There are a few methods an information architect will use to detail specifications. These include:

- Site maps
- Page layouts with annotations
- Content matrices
- Page templates

Site map

These are the most widely understood processes of defining information architecture. A site map is a high-level diagram showing the hierarchy of a system.

It reflects the overall information structure but does not necessarily indicate the navigation structure.



Source: https://www.smashingmagazine.com/2018/01/comprehensive-guide-product-design/

Annotated page layouts

Page layouts define page level navigation, content types and functional elements. Annotations are used to provide guidance for visual designers and developers who use the page layouts to build the site.

Content matrix

A content matrix lists each page in the system and identifies all the content that will appear on the page.

Page templates

These may be required when defining large scale websites/systems. A page template defines the layout of common page elements, content and navigation. Page templates are often used when developing content management systems.

User interface designers will work with the information architect to develop personas, prototypes and storyboards.

When creating the structure and flow of user interaction on a website/app/system, designers use visual vocabulary in the form of symbols to create diagrams and visual descriptions.

To read in detail how visual vocabulary is used and to download various resources, visit the website A visual vocabulary for describing information architecture and interaction design. [http://www.jjg.net/ia/visvocab/]

Download this useful one page Visual Vocabulary Quick Reference for a description of all the elements used in process diagrams.
[http://www.jjg.net/ia/visvocab/files/garrett_ia_quickref.pdf]

Navigation

One task of the information architect and user interface designer is to design the navigation of the site/app/system, Briony explains.

The navigation menu determines the usability of a site/app/system so if visitors are unable to locate information/content easily they are likely to leave. Essentially the navigation menu should list the main content and features of the site/app/system with a set of links or icons in a visual style that is very different to the other content on the site/app/system.

The most important factors to consider when assessing specifications for navigation include:

- The navigation menu should be easy and quick to find. It should be different in colour, font and size to the content and should be prominent and consistent in size on every page.
- Menu options to be large enough to allow for clicks. If the menu is too small, it will create issues for mobile users.
- All elements of the navigation need to be clickable.
- Consistency is the most important principle in navigation design. If the site has a different mode of navigation menu on other pages, users will become confused
- Text should be clear, short, descriptive and focused.
- As a rule, don't use more than 8 items in the main menu
- The visual design of the navigation menu should be unique to the content but still be harmonious and unified in style and design.
- Website accessibility is important for screen reading technology.

The Apple Developer Human Interface Guidelines for navigation outlines the three main styles of navigation used for app navigation.

Hierarchical navigation – where the user makes one choice per screen until reaching a destination.

Flat navigation – where the user can switch between multiple content categories

Content driven or experience driven navigation – where the user moves freely through content, or the content defines the navigation.

Read through this content before you complete Practice Activity 1.3.

Practice activity

Activity: Card sorting

As an information architect, Briony explains that Intuitive navigation doesn't just happen by accident. There are many techniques designers use to determine the best information architecture, menu structure, workflows and website navigation paths.

Card sorting is a technique that helps you work out where people would want to find something. It helps you to recognise patterns in how users expect to find content and functionality.

This is a group activity, break up into groups of three or four. You will need different coloured post it notes for different groups, pen and paper.

In this activity you will required to organise topics and content for a **retail fashion app** targeting 30-50 year old business women, into groups that make sense to you and then name each group created in a way that you feel accurately describes the content.

Step 1: Break up into groups and brainstorm all the content you think should be in a retail fashion app. Write each content topic heading on a new Post It note. Limit it to around 40 topics. Number each of the notes in the bottom right corner. This will help when analysing the topic notes.

Step 2: Arrange the cards into groups that will represent categories of information to go on the homepage of the app.

Step 3: Use blank post it notes to add topics if required and remove any you don't think are required.

Step 4: Using a different coloured Post It note, name all the categories and place above each of the groups of post it notes.

Step 5: Once you have finished sorting, assess if there are too many categories for the home page. Can any of them be combined?

Step 6: Consider what words you would expect to see on the second level page that would lead you to a particular group of content items.

Photograph and record the categories you have created for the home page, as they will be used for another activity.

Self-check

How did you go?

Check the boxes for the tasks you feel you could confidently complete.

- ☐ I can clarify design briefs with relevant personnel through the discussion of concepts.
- ☐ I can confirm technical parameters of interactive media products, including delivery platforms.
- ☐ I can describe what is included in architecture and design specifications.
- ☐ I can identify target audience and user characteristics considered in design and development of interfaces.
- ☐ I can assess information architecture specifications.

Assessment task

Project Assessment 1, Part 1, Identify project requirements

You should engage with the following sections:

- **1. Clarify the design brief.**
- **2. Short answer questions.**

Topic 2

Produce design specifications

Photo by Med Badr Chemmaoui on Unsplash under Creative Commons CC0

Scenario

With the design brief clarified, your target users and personas established and working with Briony to assess the information architecture specifications, you feel ready to tackle the production of design specifications.

You arrange with the team (Steve, Mark, Briony and Sheryl) to meet in a few days for an ideation session and then again in a week to discuss progress.

Design specifications

Select what you are going to do next.

- Visualise concepts and develop preliminary sketches
- Visual design principles
- Metaphors, look and feel of user interfaces
- Review interfaces with relevant personnel
- Write user interface design specifications
- Adopt safe ergonomic practices

Visualise concepts and develop preliminary sketches

Sketching for UI design is an important part of the design process. It is the point at which you start to explore the different paths the final design might take, visualising your ideas. Sketches are crucial because:

They are cheap

Sketching is a fast way of expressing yourself and refining your ideas before moving on to a higher fidelity and wireframes. If you make a mistake, it is easy and quick to just create another sketch.

They help you to explore

Sketching Is used as a thinking tool, where an idea can be pinpointed and then adjusted as many times as required. Constraints and alternatives can be explored and compared.

It prevents perfectionism

Sketching helps you to explore multiple directions so that you don’t get too focused on just one idea. It enables you to explore the potential of combining ideas and evolving them into a new one.

They invite conceptual feedback

It is important to seek feedback on your initial concept, before you start developing your detailed design, as other input can help you to refine or possibly adapt your ideas.

They engage others

Sketching allows you to translate abstract ideas into a tangible, visual language you can share. Sharing your sketches with team members for feedback, gives you the opportunity to solve any issues or improve your idea before you start work on higher fidelity design.

Anyone can do it

Group sketching, where all team members express their ideas on pen and paper can lead to great new ideas and is fun!

Start Sketching

Having the right equipment will help you to create sketches that look purposeful and clear. Assemble a sketching kit for yourself that includes:

Fine tip black marker – for roughing out a sketch.

https://www.jacksonsart.com/

Fine tip red marker - for annotations and notes

https://www.newegg.com/

Thick black felt tip marker – for creating thicker lines to emphasise parts of your sketch

https://www.officeworks.com.au

Non – photo blue pencil – for creating a first draft before you ink it in. These are useful as any marks on paper are not visible to camera or scanners.

https://www.paperblogging.com/stories/non-photo-blue-and-you

Warm grey chisel tip marker – for creating drop shadows

https://www.jacksonsart.com/

Sketching paper - Copier paper works well or else use a printed template for a specific type of device or screen resolution.

Download these free templates from Sketchize [https://sketchize.com/]

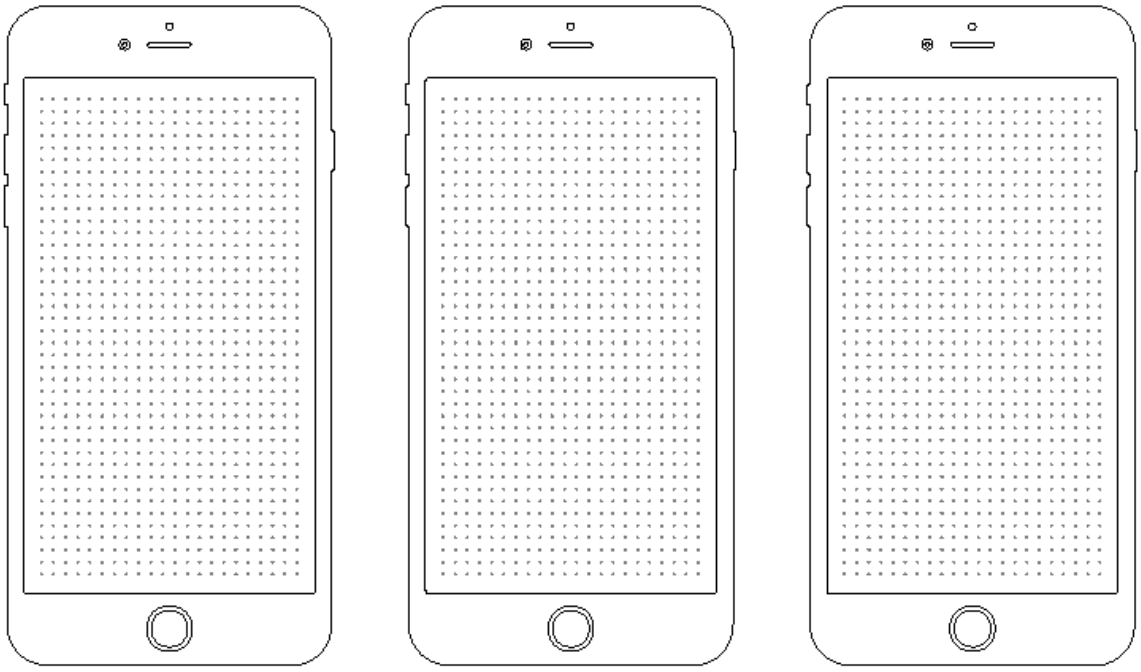


Image source: ©Sketchize.com

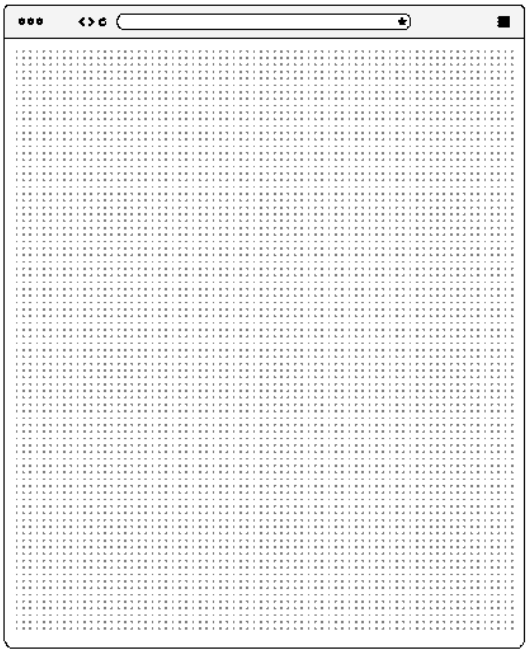
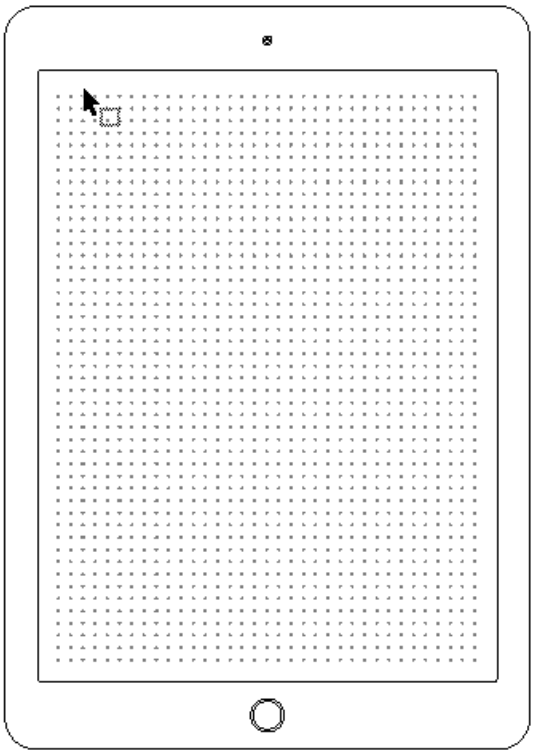


Image source: ©Sketchize.com



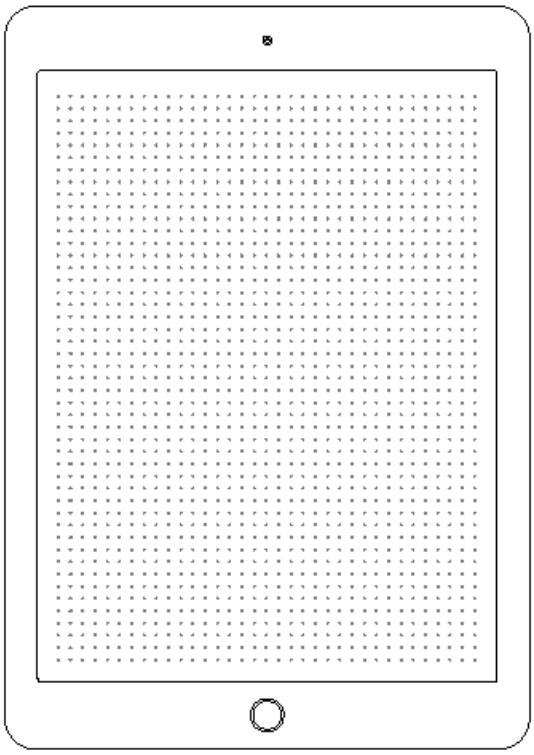


Image source: ©Sketchize.com

Set a time limit

When you are ready to start sketching, set yourself a limit of around 30 minutes. This helps you to work quickly to produce many ideas rather than focus on just one.

Start with the key elements

Think about what the most exciting or key elements of the product are. Start by sketching these.

Sketch alternatives

Once you have sketched one or two ideas for a particular key element, force yourself to sketch it a few more different ways, so that you have a range of two or three ideas for each screen.

Pick the best ideas

Once you are happy with your sketch exploration, identify the best ideas that you want to develop further. Now you can start detailed design. Consider mixing and matching ideas. The sketches should help you to come up with design solutions that are better than any one single idea.

During your briefing meeting Steve expressed his desire to use the '**parallel design technique'** an ideation technique where a few people create an initial design concept from the same set of requirements. Each person works independently to create their own concept and then shares the concept ideas with each other, using feedback to further improve on their own design.

Steve explained that this method of working is great for generating a range of diverse ideas quickly with all the best ideas coming together into one final concept. The advantages including several approaches being able to be explored at the same time, with a reduction in time in the concept development schedule.

For this method to work effectively, Steve suggested that several parameters are first set. These include:

- Identification of the layouts to be addressed
- The expectation in regards to the **fidelity** (how the prototype is conveyed in terms of look and feel – the level of detail and realism) of the designs
- Team members have equivalent skills
- Evaluation criteria is established

Mark mentioned some other ideation techniques he uses in ideation sessions. He explained that for the best results the ideation technique should combine both the conscious and unconscious mind where rational thinking fuses with creative thinking. The technique needs to match the sort of ideas required, and the participants experience with ideation.

He recommends the following techniques:

Brainstorming – good ideas are built from a wide range of ideas, whether wild or tame

Braindumping – same as brainstorming, but done individually

Brainwriting – similar to brainstorming, but everyone writes down and passes ideas for others to add to before discussing

Brainwalking – same as brainstorming but members walk around the room adding to others' ideas

Worst possible ideas- an inverted brainstorming approach, where individuals produce bad ideas to start discussion

Mindmapping – a graphical technique involving connecting ideas to problems

SCAMPER – questioning problems through action verbs to produce solutions

- Substitute
- Combine
- Adapt
- Modify
- Put to another use
- Eliminate
- Reverse

Provocation – an extreme lateral thinking technique that challenges established beliefs

Cheatstorm – using previous concept ideas as stimuli.

Read How Google approaches the process of ideation.

https://uxdesign.cc/how-google-approaches-the-process-of-ideation-f2fc00091f32

Practice activity

Activity: Parallel design

You meet with the team for the ideation session.

Steve suggests that the fashion retail app, targeting 30-50 year old business women, be used for the parallel design activity.

Based on the home page and categories your group came up with in the card sorting activity, create a concept sketch of the home page and category pages for the app.

- Concept sketches are to be kept to a low level (low-fi) of prototyping.
- Consider the following elements when creating your concept:
    - Link elements, navigation and layout
    - logical flow – user interactions
    - visual elements – (graphics and display mechanisms)
    - text elements - dialog boxes, error messages and onscreen user assistance
- The concept sketches are then to be posted on a wall and reviewed by everyone, with comments made as to how the concept can be modified and improved.
- Using Post It notes add comments to other people's sketches.
- You then need to create a **new concept idea** that includes at least one idea from another person's concept design and an idea that no one has proposed.

Post to the blog platform the following:

- original concept sketches
- the feedback you received
- the new concept sketches
- a paragraph on how you used the feedback to improve your ideas

Visual design principles

Design principles are what help you to define the characteristics, the personality and feeling of the product. They are also used to direct the user's attention.

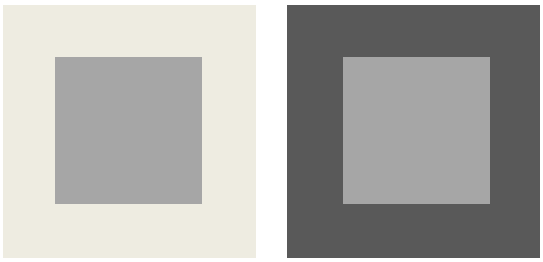
All visual principles are about comparing a design element to whatever is around it.

Visual weight (contrast and size)

This refers to elements in a layout that appear ‘heavier’. Your attention is drawn to them, making this an important principle for the UI designer, as you want users to notice things that matter.

For more details on visual weight, check out this website, Design Principles: Visual Weight and Direction. [https://www.smashingmagazine.com/2014/12/design-principles-visual-weight-direction/]

Contrast



Contrast diagram. ©TAFE NSW 2019

Contrast shows the difference of something to its surroundings. For example, the two squares showing a lighter tone combined with a darker tone are displaying contrast.

Depth and size

When things are closer to us, we notice them more. In the digital world you generally want more important things to appear bigger. This creates ‘visual hierarchy’ where bigger elements attract attention with the smaller objects being less noticed.

For more details on visual hierarchy, check out this website 12 Visual Hierarchy Principles Every Designer Should Know. [https://digitalsynopsis.com/design/visual-hierarchy-graphic-design-principles/]

Colour

The colour wheel is a visual model of colour hues around a circle and helps to explain colour temperature and colour harmonies.

The hues are broken up into three main groups;

- Primary colours (red, yellow, blue)
- Secondary colours (orange, green, violet)
- Tertiary colours (red-orange, yellow-orange, yellow-green, blue-green, blue-violet, red-violet)

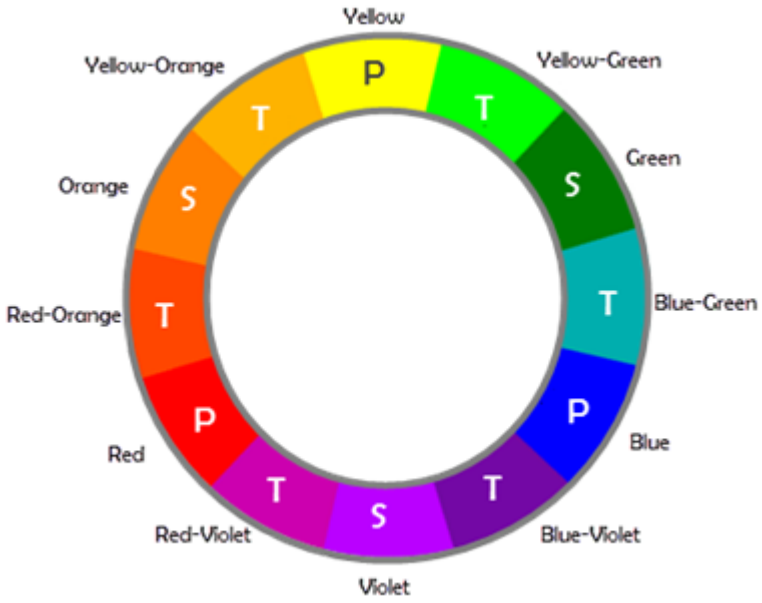


Image source: https://www.usability.gov/how-to-and-tools/methods/color-basics.html creative commons licence

Colour temperature

Image source: https://www.usability.gov/how-to-and-tools/methods/color-basics.html creative commons licence

Warm colours include:

- red, orange and yellow and variations of these
- warm colours appear closer to the viewer.

Image source: https://www.usability.gov/how-to-and-tools/methods/color-basics.html creative commons licence

Cool colours include:

- green, blue and purple with variations of these
- greens take on some yellow characteristics and purple takes on some red characteristics
- they are typically more subdued than warm colours
- cool colours appear further away from the viewer.

Neutrals

Image source: https://www.usability.gov/how-to-and-tools/methods/color-basics.html creative commons licence

Neutrals include black, white, brown and beige. They can be used on their own or mixed with other accent colours.

Colour theory

Understanding the effects of colour on people is a valuable skill for the UI designer. To find out more on the meaning of colour check out these websites;

Colour theory for Designers, Part 1: The Meaning of Colour
[https://www.smashingmagazine.com/2010/01/color-theory-for-designers-part-1-the-meaning-of-color/]

What Meanings are Associated With the Various Colours
[https://www.lifewire.com/color-symbolism-information-1073947]

Repetition and patterns

Patterns are used to direct the viewers eye to important elements. To create a pattern, visual weight and colour should remain consistent. This directs the viewer's eye to start at one end and follow the pattern to the other end. To break the pattern and attract attention to a particular element, apply a change to the element you want to focus on.

For example, in a row of buttons, applying an unexpected colour, size, shape or style to one of the buttons will draw attention to it.

Space

Space in a design, helps the viewer's eye to rest and absorb the information. It can also increase readability and create illusion.

Read this article for more details on design principles and Mobile UX Design: Key Principles.
[https://uxplanet.org/mobile-ux-design-key-principles-dee1a632f9e6]

Metaphors, look and feel of user interfaces

After the ideation session, you meet up with Mark the UI developer to discuss metaphors and the look and feel of the app you are working on.

Mark provides you with some valuable advice. He explains that when designing user interfaces, the 'look' includes screen layout, graphics, wording, colours and style, the 'feel' describes the behaviour and processing of the interface. Look is pixels, feel is code. He goes on to define an interface metaphor as a group of visuals, actions and procedures relating to different user interfaces that a user already has. It is the process of intuition, he says, where the user is able to draw from their existing knowledge on how to interact with a user interface to understand a new unfamiliar process.

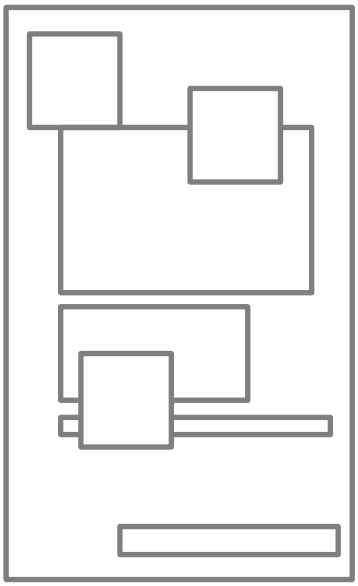
He points out that good screen layout helps to increase readability, it organises information so that it is usable, accessible and logical to the user.

The three fundamental principles of user interface design:

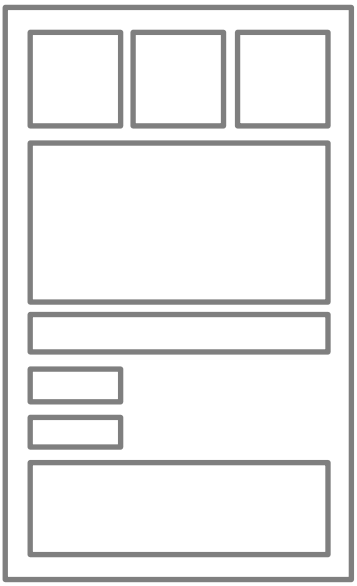
- **Organise** – provide your user with a clear and consistent structure
- **Economise** – do the most you can with the least amount of cues
- **Communicate** – match the presentation to the capabilities of the user

Organise

Organisation involves the concepts of consistency, screen layout, relationships and navigation.



Chaotic screen

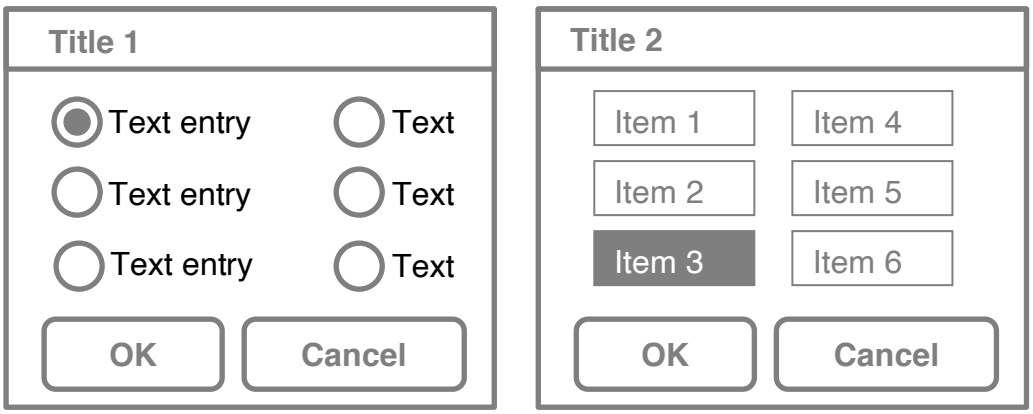


Ordered screen

Consistency

Consistency for user interface design, can be broken up into four views:

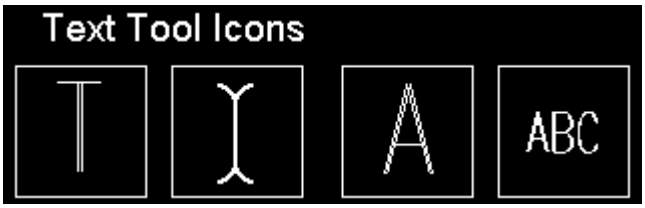
Internal consistency, where the same conventions and rules should be applied to all elements of the user interface.



Example of Internal Consistency - dialog boxes

Here the same kinds of elements are shown in the same place. The elements with different kinds of behaviour have their own unique appearance.

External consistency, where the existing platforms and cultural conventions should be followed across user interfaces

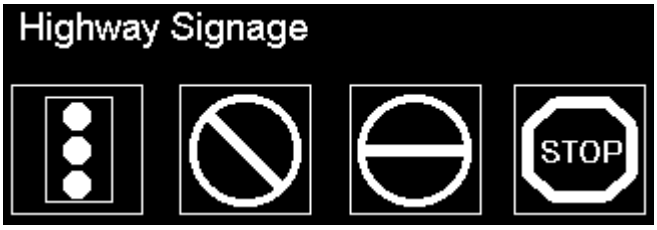


Source: http://web.cs.wpi.edu/~matt/courses/cs563/talks/smartin/int_design.html

Example of External Consistency – Text tool icons

Here a range of icons from different desktop publishing applications represent the text tool.

Real world consistency where conventions should be made consistent with real world experiences, observations and perceptions of the user.



Source: http://web.cs.wpi.edu/~matt/courses/cs563/talks/smartin/int_design.html

Innovation, or when not to be consistent. Deviations from existing conventions should only happen if they are of benefit to the user.

Screen layout

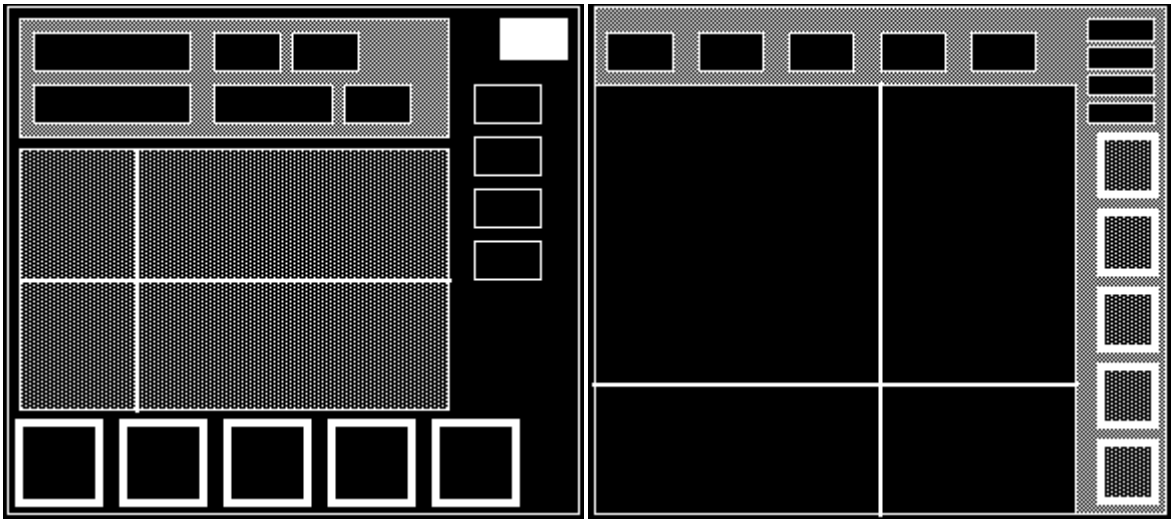
Screen layout can be designed using three essential techniques:

- Grid structure
- Standardising screen layout
- Group related elements

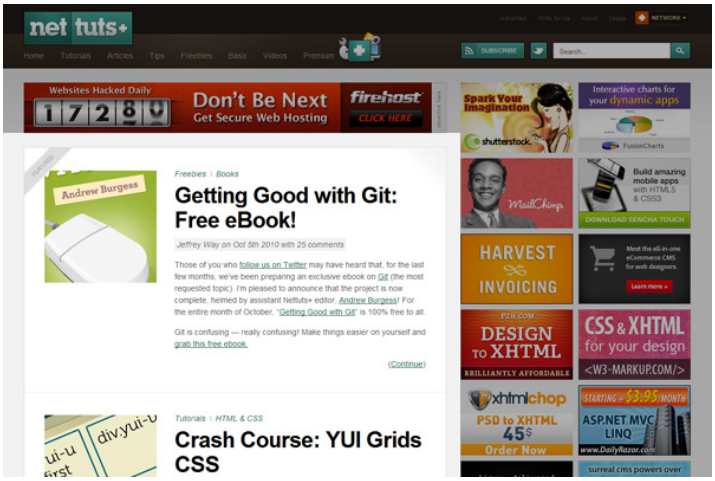
A grid structure can help you to locate the menus, dialog boxes and control panels. Ideally the number of horizontal and vertical divisions should not exceed eight in number, to prevent overcrowding and clutter.

Relationships

Visual organisation can be achieved by linking related elements and disassociating unrelated elements. This is also referred to as 'proximity'. Proximity is the quickest way to associate similar content.



Source: http://web.cs.wpi.edu/~matt/courses/cs563/talks/smartin/int_design.html



Source: https://webdesign.tutsplus.com/articles/understanding-visual-hierarchy-in-web-design--webdesign-84

This example shows the left content column clearly separated from the sidebar widget space. The metadata within each of the blog posts is in close proximity to the appropriate post to reinforce a sense of 'belonging'.

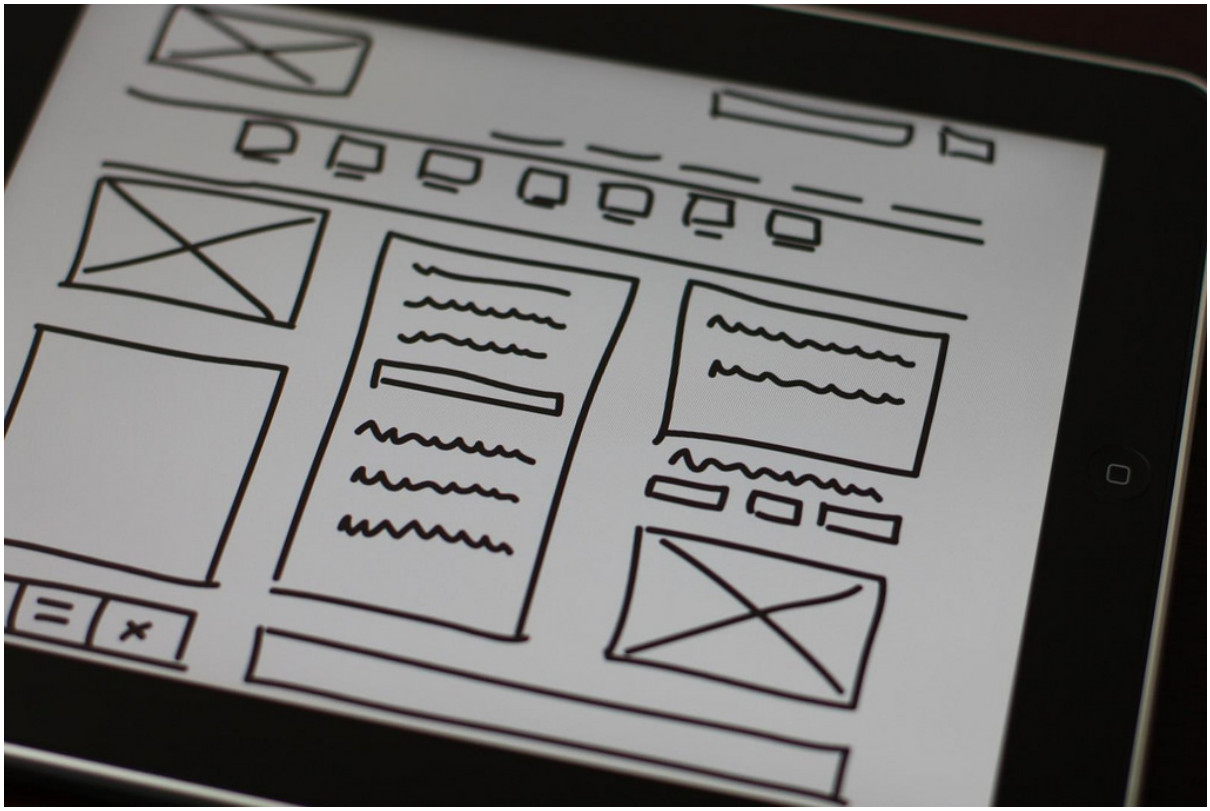


Image by baldiri on flickr licence CC by 2.0

Prototyping and wireframing

Prototypes are the best way of involving everybody in the design team involved in the design process. They can be built in a wide range of fidelities, using a wide range of tools, including:

- Rapid sketched paper prototypes
- Lo-fi, monochromatic wireframes
- High-fidelity, clickable mock-ups

As the fidelity increases, more detail is added, such as colour, typography, interactions and animations. Final prototypes are typically built using HTML, CSS and JavaScript.

Low fidelity prototypes are a rough representation of your concept helping designers validate them early on in the design process. They are limited in function and interaction. They are typically created using sketching techniques as they are a faster way of working than a computer and force you to think through your process, defining flows and mapping.

A high fidelity prototype is an interactive prototype that simulates the real website or app's functionality and design details. It brings a product to life and helps the user 'fee' the product not just react to it.

Unlike wireframes, which often look much the same, prototypes can look very different. They come in all forms of shapes and sizes. The main goal of the prototype is to simulate the interaction between user and interface.

While it may not have all interactions operational it should demonstrate to the user how the product will work. This enables users to test how it works and experience the usability and feasibility of the features.

Lo-fi wireframes

The wireframe is a low fidelity outline of a basic visual interface that describes the structure and relationship of pages for an app/website/system.

These are created before any design work is commenced and serve as a guideline for the structure, content and functionality, using lines, rectangles and other basic shapes. The idea is to focus on the layout without any other distractions such as colour and visual elements.

Wireframes are easily drawn by hand and are useful during brainstorming sessions when it is necessary to visualise different ideas. They are used by a wide range of people on a project including:

- Project team: to discuss different ideas and approaches
- Subject matter and content authors: to evaluate where the content fits into the site and parts of the page are available
- Managers: to assess if the business needs have been met
- Developers: to see how the site works and how they will implement it.

They can also be created using graphic design software, such as Adobe Photoshop [https://www.adobe.com/products/photoshop.html] or Illustrator [https://www.adobe.com/au/products/illustrator.html].

UX design software such as Adobe XD [https://www.adobe.com/au/products/xd.html] a digital prototyping tool provides the advantage of moving seamlessly from wireframe to lo-fi prototype.

The wireframe specification should include all the main elements, including:

- Title: this should be at the top of every wireframe. It describes the purpose of the wireframe
- How to get here: this topic describes how the user got to the panel
- Concept/ purpose/ objective: describes the objective and purpose of the panel
- Content area sections: describes all the content on the panel including buttons or icons

- If/then: this describes the user behaviour and the result of that behaviour
- Navigation links/buttons: describes any navigation links on the page
- Error conditions: this section describes any errors that may occur from a user behaviour and then what message panel they receive.

Wireframing Tips

- Keep them simple – they should be created quickly to show the structure of the page design. Details come later
- Short to the point annotations – essential when presenting to a team, they help to create context and quickly deliver key ideas.
- Encourage feedback – sharing your wireframes and seeking feedback from other team members will only improve your product.
- Use a wireframe kit – there are many online 'kits' [https://www.behance.net/gallery/55462459/Wires-wireframe-kits-for-Adobe-XD] available to help you produce your wireframes.

Read How to make your first wireframe [https://www.invisionapp.com/inside-design/how-to-wireframe/] for more details on creating wireframes.

3flab inc.s' printable PDF templates [http://3fl.jp/d/pp]

Wireframes and prototypes differ in terms of functionality but are both useful during the design process. The user should always be the main focus of the design, and user testing to assess interaction flow conducted throughout the process.

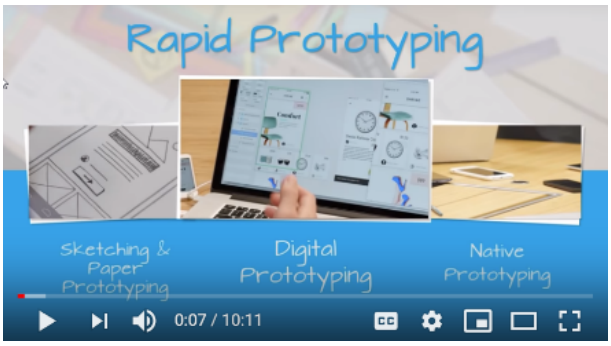
Watch

The following videos demonstrate different forms of prototyping for UI design.

Rapid prototyping 1 of 3: Sketching and Paper Prototyping *(7:31 mins)*

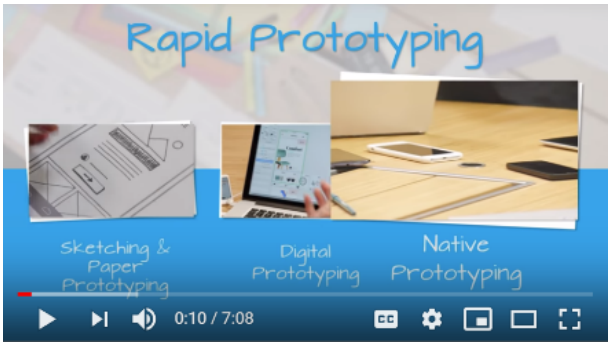
https://youtu.be/JMjozqJS44M

Rapid prototyping 2 of 3: Digital Prototyping *(10:11 mins)*



https://youtu.be/KWGBGTGryFk

Rapid prototyping 3 of 3: Native Prototyping *(7:08 mins)*



https://youtu.be/lusOgox4xMI

Eva-lotta Lamm: Sketching User Experience (46:45min)

https://vimeo.com/78120391

In this video, Eva-Lotta talks about how you can refine your sketching skills and how to apply them more effectively, both on your own as well as when working with a group.

Read

Material Design [https://material.io/design/]

Material is an adaptable system of guidelines, components and tools that support the best practices of user interface design.

Review interfaces with relevant personnel

Steve had often expressed that design is an iterative process involving multiple stakeholders. Better communication throughout the design process, makes for a better product.

He points out that when reviewing the interface with relevant personnel, you must firstly identify the target audience and the desired outcome, and then focus on how the user experience can be improved.

The key issues when reviewing user interfaces means identifying:

- Usability problems related to the layout, logical flow and structure of the interface and any inconsistencies in design
- Non-compliance with standards
- Ambiguous wording in labels, dialog boxes, error messages and onscreen user assistance
- Functional errors

For more detail and guidelines, read Reviewing User Interfaces [https://www.uxmatters.com/mt/archives/2009/02/reviewing-user-interfaces.php] by Rhonda Bracey. [https://www.uxmatters.com/authors/archives/2009/02/rhonda_bracey.php]

Write user interface design specifications

The wireframe is a useful tool to communicate information architecture, content and layout considerations to the developer. The design specification consists of user flow and task flow diagrams that outline the functionality and style requirements of the product. (See Topic 1 – Page Templates) They also describe the processes and graphical assets needed to make a working product.

User interface design specifications and instructions are housed in what in industry is referred to as a ‘style guide’. A style guide is like a one stop shop for the whole team involved, including product owner, producer, designer, information architect and developer providing a reference point of all the elements and their visual style. The document is a ‘live document’ to be used as a reference when discussing any changes or additions to the website/app/ system.

The style guide is useful for the following:

- Consistency: visual unity builds trust in the target audience with brand identity
- Shared vocabulary: work is collaborative as all team members refer to one document
- Onboarding: new designers can make design decisions based on the reference document
- Code standardisation: UI style guides help create consistent HTML, CSS and JavaScript code so front- end developers can follow the same standards as designers.

What is included?

Grid system – UI designers use lines, columns and margins to layout a web page or app. Every process will start with a grid.

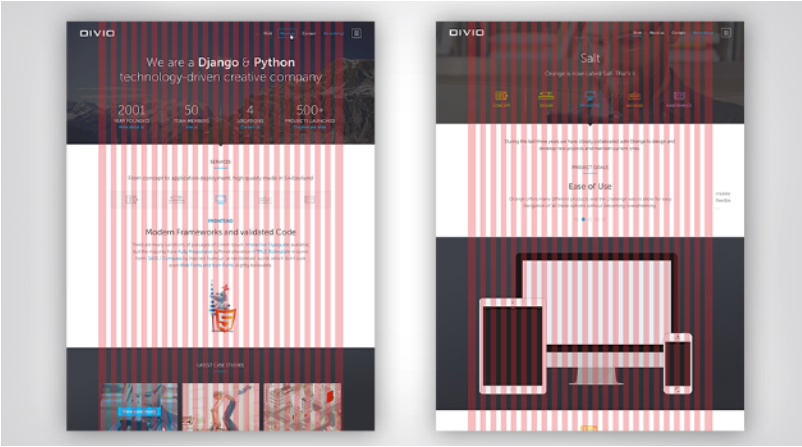


Image: https://www.divio.com/blog/twitter-bootstrap-a-stunning-open-source-framework/

A basic grid system consisting of:

- Units- the building blocks
- Gutter- white space that separates the units
- Column or container – blocks of interface

The style guide’s information would include for example:

12 units with 50px width, 18px gutter, 900 px total width

For more detail on column variate grid layout specifications read: Material Design: Layout Grid [https://material.io/develop/web/components/layout-grid/]

Layout

Typical web pages consist of elements such as header, footers, sidebars and the main content area. They are built using a grid, width, height and purpose of each section determined by you.

The style guide will include:

- Size of each layout element for every type of screen
- A use case for each layout
- Minimum width of the main area for best readability
- What layout blocks to omit for mobile interface
- Element behaviour during scrolling

Colour palette

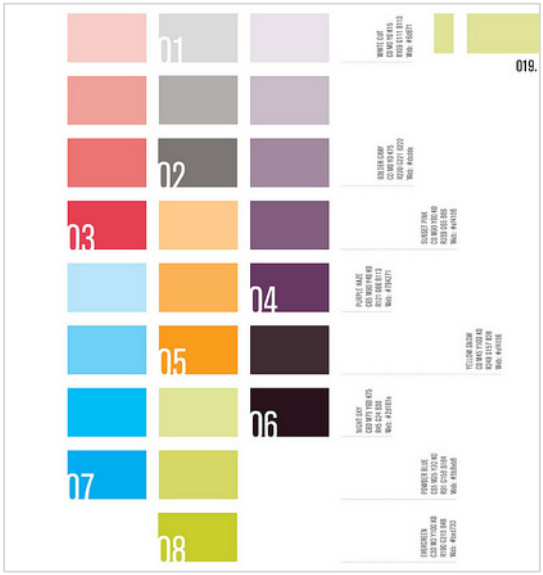


Photo Credit: "Switch." VFS Digital Design.Creative Commons.

Colour organisation in a style guide, should:

- Provide colour definition is a range of codes: Hex, RGB, CMYK
- Specify the opacity levels of each colour
- Identify background colours
- Define text and link colours and their uses
- Include a separate grey palette

Typography

Typography characteristics should include:

- Font
- Hierarchy
- Size
- Weight
- Line height
- Letter spacing
- Colour

Check out Frontify Brand Guidelines [https://brand.frontify.com/d/qAiubNBytHKf/style-guide#/brand-design/typography] for useful tips.

Iconography

Icons help communicate common ideas through visual cures. The style guide should document icons by:

- Providing a ready-made downloadable group
- Provide detailed instructions for creating new icons, including size, line width, radius of rounded elements, colour and hue, fills and outlines.

Logos

Logo usage should include:

- Colour scheme that works with the logo
- Font and colour for text
- Do's and don'ts of any logo changes
- When secondary logos are to be used

Imagery

When specifying imagery for UI design, photo sizes and dimensions along with general recommendations about usage of text in photos.

The style guide should:

- Provide a list of sources of suitable imagery
- Include default elements that can be incorporated into illustrations

- Provide a preferable colour palette
- Indicate background to be used for imagery

Accessibility

The WCAG 2.0 checklist [https://www.wuhcag.com/wcag-checklist/] provides guidelines for designing for inclusivity.

The style guide should also:

- Outline Web accessibility guidelines such as WebAIM [https://webaim.org/] and the World Wide Web Consortium [https://www.w3.org/WAI/]
- Provide links to suggested screen readers, text analysers and colour blindness imitating software for developers to test out
- Reinforce that accessibility will bring value to design not constraints

For more details on creating style guides, read the website, How to Create a Style Guide From Scratch. Tips and Tricks. [https://medium.muz.li/how-to-create-a-style-guide-from-scratch-tips-and-tricks-e00f25b423bf]

Practice activity

Activity: Style guide and specifications

Using desktop publishing software, (Adobe InDesign, PowerPoint, Word) create a **Style Guide template and specification document** for your project brief.

Include as a minimum the following:

- Grid system
- Colour palette
- Layout
- Navigation
- Typography
- Iconography
- Logos
- Imagery
- Wireframe
- Wireframe specifications

Print out the document in A4 or A3 in PDF format.

Adopt safe ergonomic practices

With all the work you have been doing on the prototyping and specifications you are feeling that using the computer equipment over long period of time is affecting your posture and general health. You contact Les, the Work, Health and Safety Representative that you have worked with previously and ask him to check your workspace and to give you some strategies in working safely.

Les decides firstly to assess the ergonomics of your workstation to see how it could be improved for better productivity and to prevent any forms of ergonomic complaints. Les has a checklist for safe work practice, as he finds this the most efficient way of recording the information and analysing it for any improvements to be made.

Les carries out an inspection of your place of work, a laptop and monitor, located at a desk in your home office and assesses them to see if you have a safe work environment.

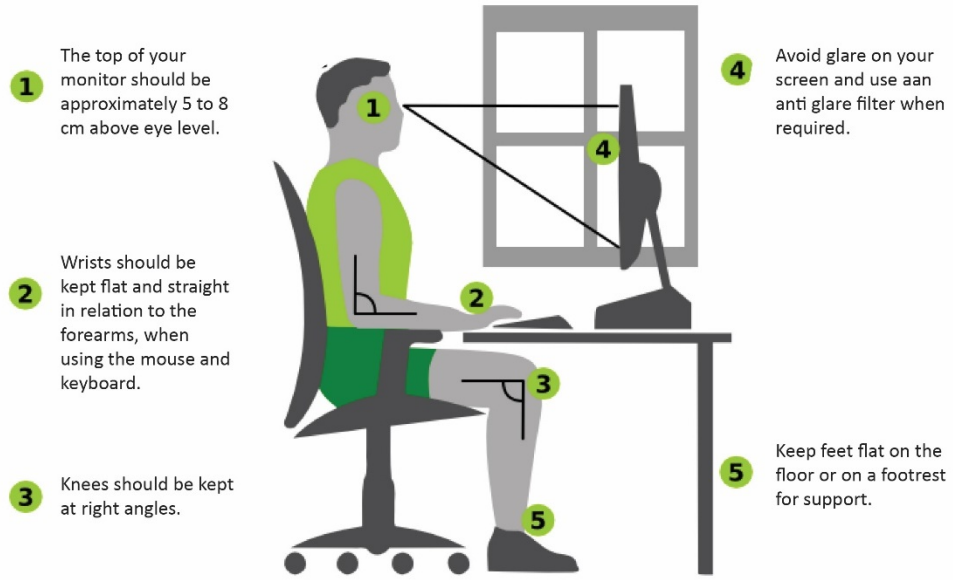
Computer and workstation positioning

After assessing your seating and desk situation Les has some tips on how to create a more comfortable work environment and reduce strain on your muscles and repetitive strain injuries. You mention to Les that you have experienced some tingling and pain in your wrist when working for a length of time. He observes your sitting position and has noted that you are not holding your wrists flat and straight in relation to your forearms and that your keyboard is not in the most ergonomic position.

Les readjusts your keyboard and mouse onto a raised pad and checks your monitor height.

This minor adjustment already makes you feel much more comfortable and less tense. Les mentions that Musculoskeletal Disorders or MSDs caused by poor seating and working conditions are the largest category of workplace injury. Some of the common injuries affecting the human body's movement include:

- Carpal Tunnel Syndrome
- Tendonitis
- Muscle sprains and strains
- Trigger Thumb



To help remind you about your posture, Les suggests you print out the diagram Ergonomic workstation.

Work periods and breaks

With your workstation and posture now adjusted for maximum comfort, Les discusses an exercise and break regime that can be built into your working day, to help increase circulation, maintaining wellbeing and productivity. He recommends some stretching exercises for your hands and wrists, neck and shoulders, back and eyes, but wants you to consult a general practitioner if you are experiencing pain or discomfort before or whilst doing the stretches. By completing these exercises every 1-2 hours, Les reassures you that your muscle fatigue will be greatly relieved.

Les suggests frequent, brief rest breaks by practicing the following:

Micro breaks – a micro break (less than two (2) minutes) for the specific muscles you were using e.g. your fingers if typing. Standing, stretching and taking on a different task will all provide some respite.

Rest break – this is a slightly longer break to be taken every 30-60 minutes. Moving the body, making a cup of tea or water will also help muscles to rest and revive and help reduce fatigue.

Exercise break – completing a set of stretches every 1-2 hours is an effective way of reducing muscle fatigue.

Eye break – eyes focusing on a computer screen, tend to not blink as often. This causes the eyes to dry out more. Resting the eye by blinking rapidly helps to clear the eye duct. Eye strain can be reduced by changing the viewpoint you are looking at to something in the far distance. This will help to rest the eye muscles.

Ergonomic prompting – a variety of programs are available to be installed onto your PC to prompt you to take a break or do some exercises, for example: Big Stretch Reminder - http://monkeymatt.com/bigstretch/ (a free simpler reminder tool prompting the user to take regular breaks to prevent the symptoms of Repetitive Strain Injury)

Monkeymatt.com. (2019). Big Stretch Reminder. [online] Available at: http://monkeymatt.com/bigstretch/ [Accessed 5 Jan. 2019].

For some practical tips and exercises visit Office Ergonomics 101 [https://ergo-plus.com/office-ergonomics-tutorial/#tutorial-4]

Results, C., In, S. and Consultation, S. (2019). Office Ergonomics 101 | ErgoPlus. [online] ErgoPlus. Available at: https://ergo-plus.com/office-ergonomics-tutorial/#tutorial-4 [Accessed 5 Jan. 2019].

Work Health and Safety acts, regulations and codes of practice

For future reference, Les provides you with links to the relevant WHS acts, regulations and codes of practice. He advises you that Safe Work NSW - https://www.safework.nsw.gov.au/ is a great resource for both employers and employees in regards to making the workplace safe. This body develops policies related to work health and safety but does not regulate or enforce WHS legislation.

Work Health and Safety Act 2011 (NSW) - https://www.legislation.nsw.gov.au/#/view/act/2011/10/part14/div2 is a general overview of how workplaces are to be made safe and healthy, outlining legal responsibilities and duties of employers.

Work Health and safety Regulation 2017 (NSW) - https://www.legislation.nsw.gov.au/#/view/regulation/2017/404/full sets out the standards the employer needs to meet for specific hazards and risks, e.g. noise, machinery and manual handling. It also outlines what licences are required, records to be kept and reports to be made.

Self-check

How did you go?

Check the boxes for the tasks you feel you could confidently complete.

- ☐ I can visualise concepts and develop preliminary sketches based on content architecture and audience characteristics.
- ☐ I can use visual design principles to sketch screen layouts showing main spatial zones.
- ☐ I can specify functional areas within screen layouts.
- ☐ I can specify metaphors if required and look and feel of user interfaces.
- ☐ I can develop final detailed sketches taking into consideration all ideas generated.
- ☐ I can review interfaces with relevant personnel and modify design if required to meet requirements of brief.
- ☐ I can describe and write user interface design specifications and instructions in an appropriate format for development teams to use.
- ☐ I can adopt safe ergonomic practices when using screen and keyboards for extended periods of time.

Assessment task

Project Assessment 1, Part 1, Identify project requirements

You are now ready to begin the following assessment tasks:

- Assessment 1, Part 1: Identify project requirements
- Assessment 1, Part 2: Design specifications
- Assessment 1, Part 3: Develop prototype

Topic 3

Test and finalise user interface designs

Photo by David Travis on unsplash.com under Creative Commons CC0

Scenario

Image by rawpixel at freepik.com under Standard Freepik licence under Creative Commons CC0.

You have provided your low fi interface design prototypes, specifications and visual style guide for Steve, Mark, Sheryl and Briony to review. This resulted in another ideation session where you made some further tweaks before you can move onto the hi-fi prototype. The feedback has been really positive and you are keen to test it on some sample users.

You consult the target user group and personas you researched and provide a selection of users you think will be suitable to be invited to participate as user testers. Sheryl organises the documentation for digital recording release forms and some other staff members to act as facilitators and observers.

You arrange dates and are keen to get your prototype finished for development with Mark and then ready for testing.

Finalising user interface design

Select what you are going to do next.

- Develop prototype for user interface
- Designing a test plan
- Evaluate results of testing
- Obtain final agreement

Develop prototype for user interface

You have completed the wireframe and early paper prototypes, but are now ready to validate the prototype and finalise your idea, user interface and workflow.

When creating your high-fidelity prototype, users will expect it to be like a real app, so it is important to avoid confusion and let them know that some features are not going to work as it is a prototype.

These are some prototyping tools that are currently being used in industry.

InVison- https://www.invisionapp.com

Framer- https://framer.com

Flinto- https://www.flinto.com

Principle- http://principleformac.com

Axure- https://www.axure.com

JustInMind- https://www.justinmind.com

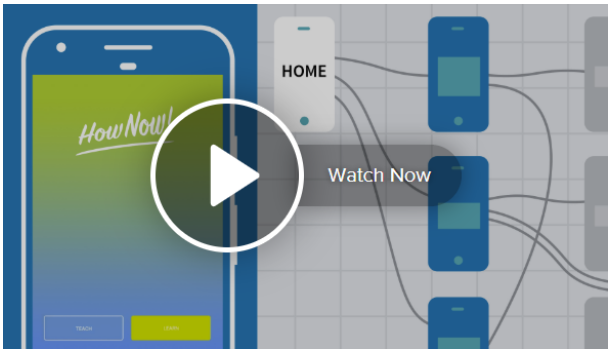
Marvel- https://marvelapp.com

Pop (Paper Prototyping)- https://marvelapp.com/pop

Watch and do

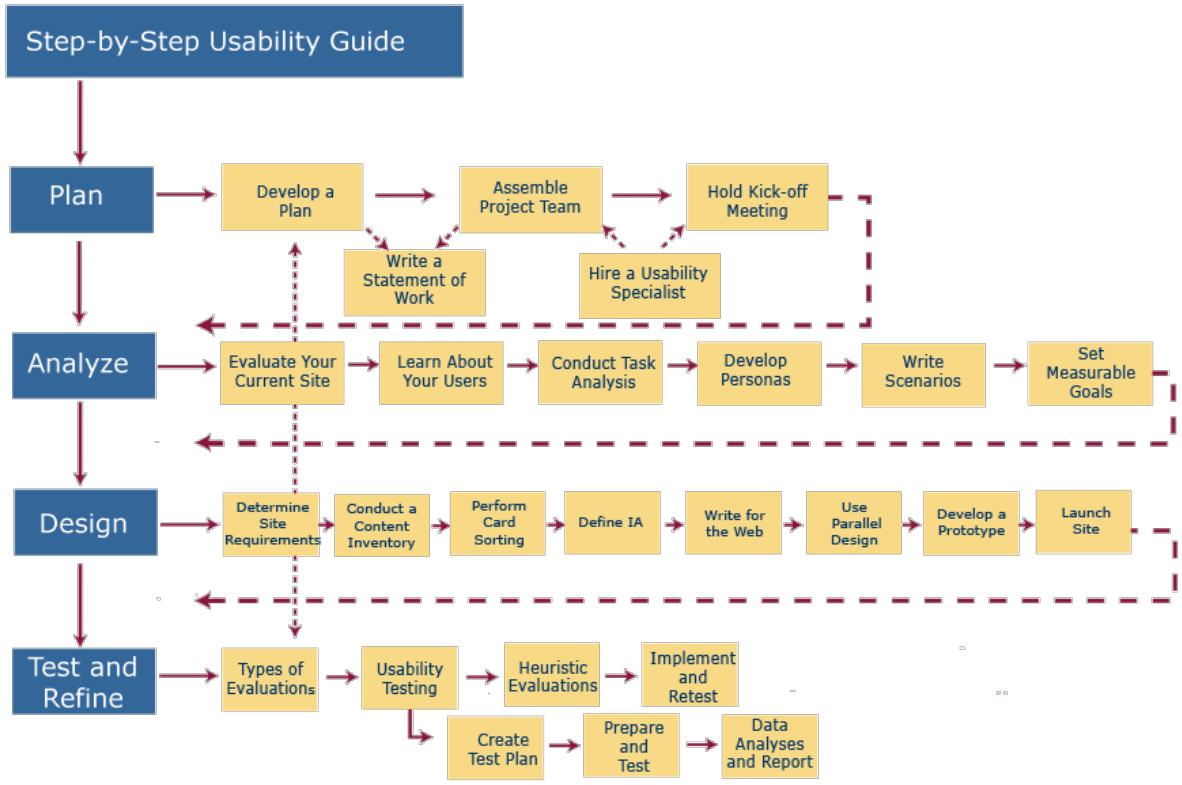
Video: Adobe XD Essential Training: Design

LinkedIn Learning: Adobe XD Essential Training: Design (2019) (1h: 43mins)



https://www.linkedin.com/learning/adobe-xd-cc-essential-training-design-2018/welcome?u=57684225

Designing a test plan



Source: https://www.usability.gov/how-to-and-tools/resources/ucd-map.html

The purpose of creating a test plan is so you can document consistent and measurable testing across your sample users.

The test plan should address the following issues:

- **Scope**: What is to be tested? Provide the name of the site, app or other product. Specify how much of the product the test will cover.
- **Purpose**: Identify concerns, questions and goals for the test. They can be broad or specific. Your concerns should drive the test scenarios.
- **Schedule and location**: When is testing to occur? Specify how many sessions and what time they will be.
- **Sessions**: Describe the sessions, the length of the sessions (typically one hour)
- **Equipment**: Indicate what type of equipment you will be using. e.g desktop, laptop, mobile/ smartphone, browser. Indicate if you are planning on recording the test sessions or using any specialty / accessibility tools.
- **Participants**: Indicate the number and types of participants.
- **Scenarios**: Indicate the number and types of tasks to be conducted in testing.

- **Metrics**: Include the questions you are going to ask participants before the session, (background questionnaire), after each task (how comfortable were they) and after the session (overall satisfaction and likelihood to use).
- **Quantitative metrics**: Indicate the quantitative data e.g. error rates, time, completion rates
- **Roles**: Include a list of employees participating on the testing and the role they will play e.g. facilitator, note taker, observer.

What do you check?

Typically, during a test, the participants complete typical tasks while observers, watch, listen and take notes. The aim is to identify usability problems collect data and observe the participant's satisfaction with the product.

During the testing, the following metrics will be useful.

Successful task completion: Each scenario requires participant to obtain specific data used in a typical task.

Critical errors: The participant deviates from the scenario targets.

Non-critical errors: Where participants recover after an error but complete the task less efficiently

Error free rate: The percentage of test participants who complete the task without errors.

Time on task: The amount of time required to complete the task.

Subjective measures: The evaluations are self reported on a scale.

Likes, dislikes and recommendations: Participants provide what they like least and most about the site.

The following checklist provides you with a starting point:

- ☐ All the UI elements for size, position, width, length, and acceptance of characters or numbers, e.g. inputs for text etc. should be operational.
- ☐ Successful execution of the intended functionality of the application using the user interface.
- ☐ Error messages are displayed correctly.
- ☐ There is clear demarcation of different sections on screen.
- ☐ The font used in an application is readable.
- ☐ The alignment of the text is correct.
- ☐ The colour of the font and warning messages are aesthetically pleasing.
- ☐ The images have good clarity.
- ☐ The images are properly aligned.
- ☐ The positioning of UI elements for different screen resolution.

For a more comprehensive checklist, view the Web Application UI Testing Checklist [https://www.raveinfosys.com/Doc/Web%20App%20UI%20Testing%20Checklist%20-%20Web%20App%20UI%20Checks.pdf]

Selecting test participants

The test participants should be similar to site users (your target market). You may select multiple potential user groups.

Five (5) users is around the best number for usability tests.

Choosing a moderating technique

Selecting the best technique will depend on your end goal. Some techniques include:

Concurrent think aloud (CTA) is used to understand a user's thoughts as they interact with the product by having them think aloud while they work.

Retrospective think aloud (RTA) the moderator asks participants to retrace their steps when the session is complete.

Concurrent probing (CP) required participants to work on tasks and when something unique or interesting happens the researcher asks questions.

Retrospective probing (RP) requires waiting until the session is complete and then asking questions about the participant's thoughts and actions.

Pilot testing

Before conducting the test, all materials and documentation should be prepared and checked. The pilot test should be conducted a couple of days before the first test session to make sure any technical issues or scenario changes should be corrected.

The pilot test helps you by:

- Testing equipment
- Providing practice for the facilitators
- Ensuring the scenarios are correct
- Making any last-minute adjustments

Evaluate results of testing

At the end of testing you will have a range of data depending on the metrics you used. Read through the data carefully and look for patterns, adding a description for each of the problems.

As you review the data, consider if the problem is a global one throughout the site and how serious it is. As an example, it may be that participants could not find what they needed on a page because of text density, so it would be beneficial to check this on other pages too.

Some problems may have caused participants not being able to complete scenarios. To help assess this a scale in terms of severity can be applied, for example

- Critical – if this isn't fixed, users will not be able to proceed with the task
- Serious – many users will be frustrated if this isn't fix and may leave the site
- Minor – users are irritated, but they can complete the task. This should be revised at a later stage

Implement and retest

Once you have documented all your findings, you need to assess what you are able to implement, based on schedule, budget, availability of staff and the required changes. If all the changes are unable to be made, the most global and serious problems should be implemented as a minimum.

The debriefing process after evaluation of the test results should produce two outcomes:

- Prioritisation of the issues
- An action plan for addressing the issues

A technique called an Affinity diagram is useful for identifying patterns in the qualitative data. It involves people involved picks their top observations from the test results and writes them on individual post it notes and sticks them to the wall. Everyone then reads the notes and sorts them into groups. The groups are named and then a vote is made on which group/s will have the greatest impact on the success of the next release.

Obtain final agreement

You have completed usability testing on your product and re-evaluated your prototype, adjusting it to incorporate the critical improvements. It is time to obtain the final agreement on your finished designs from Steve, the product manager at Appmaker studios.

You outline to Steve how you have developed the design to suit the business requirements, you have implemented feedback provided by Steve and other stakeholders, (including Briony- information architect, Sheryl – marketing executive, Mark, Ui developer) and you are able to support your design decisions with research and data provided by the user testing.

With the overwhelming evidence on the success of your app design Steve is happy to sign the final agreement to release it to development!

Self-check

How did you go?

Check the boxes for the tasks you feel you could confidently complete.

- ☐ I can develop prototypes of a user interface.
- ☐ I can implement testing of interface design with sample users.
- ☐ I can evaluate results of testing and adjust information architecture in design specifications if required.
- ☒ I can obtain final agreement on finished design from relevant personnel.

Assessment task

You are now ready to complete the following assessment tasks:

- Project Assessment 1, Part 1: Identify project requirements
- Project Assessment 1, Part 2: Design specifications
- Project Assessment 1, Part 3: Develop prototype
- Project Assessment 1, Part 4: Testing and finalising design

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