



## User Experience

An Introduction to User Experience  
June 2017

Experiences such as those provided by Disney's Magic band or apps like Move rarely need to be even launched. The Disney Magic Band is just one example of how user experience design is about a lot more than a user interface.

<https://www.shopify.com/partners/blog/81091910-the-user-experience-delusion>

## Today

Introduction

UX Guiding Principles

UX Design Process

# Introduction

## What is User Experience?

- *A person's perceptions and responses resulting from the use and or anticipated use of a product, system or service.*
- An over simplification which is elaborated using Morville's *UX Honeycomb*



Defined by **International Organization for Standardization** as:

A person's perceptions and responses resulting from the use and or anticipated use of a product, system or service. <https://www.iso.org/obp/ui/#iso:std:iso:9241:-210:ed-1:v1:en>

### **Morville**

#### **Useful**

As practitioners, we must have the courage and creativity to ask whether our products and systems are useful, define innovative solutions that are more useful.

#### **Usable**

Ease of use remains vital, usability is necessary but not sufficient.

#### **Desirable**

Our quest for efficiency must be tempered by an appreciation for the power and value of image, identity, brand, and other elements of emotional design.

#### **Findable**

We must strive to design navigable applications and sites and locatable objects, so users can find what they need.

#### **Accessible**

Products should be accessible to people with disabilities (more than 10% of the population). Today, it's good business and the ethical thing to do. Eventually, it will become the law.

#### **Credible**

Design elements that influence whether users trust and believe what we tell them.

#### **Valuable**

It must contribute to the bottom line and improve customer satisfaction by helping them do their job, more efficiently and effectively.

[http://semanticstudios.com/user\\_experience\\_design/](http://semanticstudios.com/user_experience_design/)

There's a video

<https://www.nngroup.com/articles/definition-user-experience/>

## Usable Doesn't Always Mean Useful

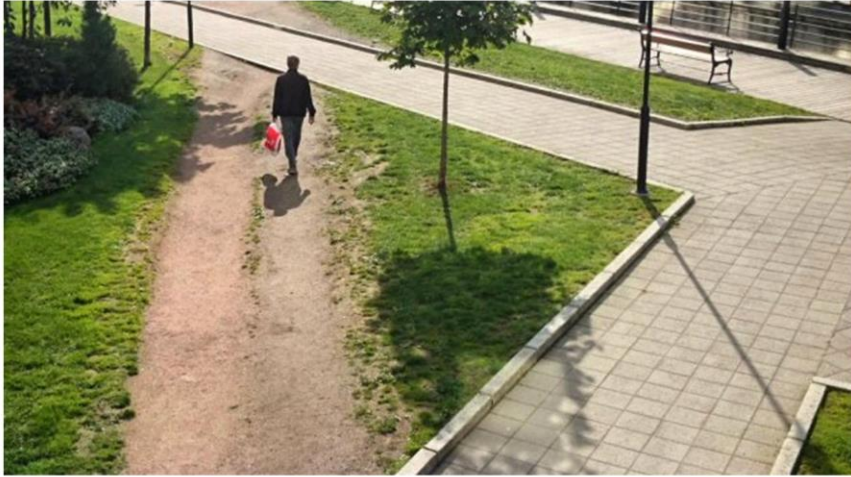


Image: <http://solidstuff.co.za/blog/user-experience-vs-design/>

## What is the Difference Between UI and UX Design?

### UI Responsibility

- Role is primarily related to graphic / visual front-end design
- Attention is on improving the overall feel of the product and the way it is presented
- Visually communicating the navigation elements
- Branding, style and consistency



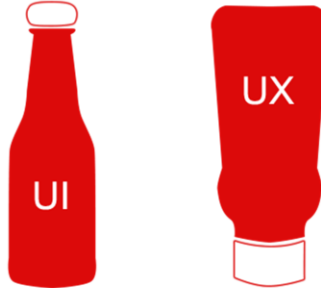
Major difference but depending on the role of the designer, there may be some UI issues that the UX designer handles, but the reverse isn't necessarily correct or possible. There are also some responsibilities that are known to be managed by both roles. For example both need to care about the overall customer experience.

Image recreated based on: <http://mediatemple.net/blog/tips/how-to-use-customer-feedback-to-improve-user-experience/>

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### UX Responsibility

- Concerned with understanding the current and potential users
- Determining the user journeys
- Developing wireframes and prototypes using best practice, design patterns or new, intuitive features
- Evaluating the designs with users

## What is Usability?

A measure of how easy a system is to use



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**Learnability** – How easy is it for users to accomplish basic tasks the first time they encounter the design?

**Efficiency** – Once users have learned the design, how quickly can they perform tasks?

**Memorability** – When users return to the design after a period of not using it, how easily can they re-establish proficiency?

**Errors** – How many errors do users make, how severe are those errors and how easily can they recover from the errors?

**Satisfaction** – How pleasant is it to use the design?

Image recreated based on: <https://www.pinterest.com/pin/215328425904880229/>



## What is Accessibility?

Access to all, regardless of technological and physical means – ranging from people with screen readers to mobile phones or slow modems



### DISABILITIES

**Visual** – visual with no sound or alternative text, charts relying purely on colour

**Auditory** – Video with no close captioning/subtitles

**Physical** – mobility/dexterity – e.g. precision selection, drag n drop

**Cognitive** – reduced capacity to learn, pay attention: not breaking down content sufficiently, expecting users to remember where to find tools etc.

### Accessibility and the UK Law

There are ethical and commercial justifications for this, but there is also a legal reason: if your website does not meet certain design standards, then you could be sued for discrimination.

The Equality Act 2010 (EQA) which came into force in October 2010, replacing the Disability Discrimination Act 1995 (DDA) in England, Scotland and Wales, was introduced with the intention of dealing with the issue of disability discrimination.

While it is at your discretion whether you choose to conform to WCAG 1.0, WCAG 2.0, or to both; it is the W3C's recommendation that any new and updated content on websites comply with WCAG 2.0.

<http://www.out-law.com/en/topics/tmt--sourcing/e-commerce/disabled-access-to-websites-under-uk-law/>

Not much attention paid to Accessibility ... on or offline!



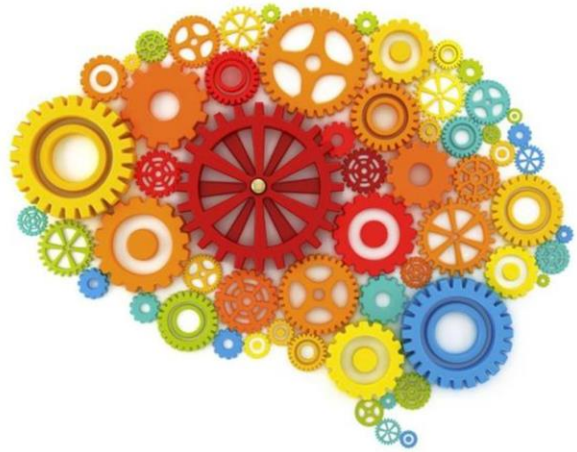
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Image: <http://www.universaldesignstyle.com/bad-design-style-case-68/>

# UX Guiding Principles

## Cognitive Psychology

- How the mind works – collection of mental processes and activities:
  - Perception
  - Learning
  - Memory
  - Thinking
- Key elements of cognitive psychology are valued and have informed user experience design
  - Mental models
  - Interface metaphors
  - Affordances



How you perceive objects  
How you remember facts and why you forget other information  
How you learn language

Image: <https://www.psychologytoday.com/blog/the-athletes-way/201403/eight-habits-improve-cognitive-function>

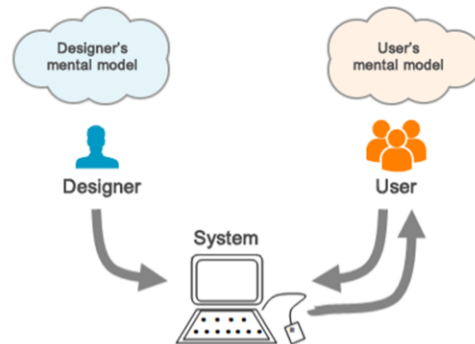
## Mental Model



**Mental models** are the images in a user's mind that inform their expectation of a certain interaction or system.

Image recreated based on: <https://www.safaribooksonline.com/library/view/mapping-experiences/9781491923528/ch12.html>

## Mental Model



By learning the user's mental model, interaction designers can create systems that feel intuitive.

Adapted image: <https://www.interaction-design.org/literature/book/the-glossary-of-human-computer-interaction/mental-models>

## Interface Metaphors



**Interface metaphors** make use of known actions to lead users to new actions. For example, the trash icon on most computers resembles a physical trash can, in order to alert a user to the expected action.

Trash: <https://www.lowmanio.co.uk/blog/entries/hci-metaphors---the-windows-recycle-bin/>

Folder: [https://silichronic.wordpress.com/2013/09/26/ios7\\_metaphor/](https://silichronic.wordpress.com/2013/09/26/ios7_metaphor/)

Search: <http://www.iconarchive.com/tag/search>

## Affordances



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**Affordances** are things that are not only designed to do something, but that are designed to *look* like they are designed to do something. A button that looks like a physical object you can push, for example, is an affordance designed so that someone unfamiliar with the button will still understand how to interact with it.

Image: <https://www.quora.com/What-are-examples-of-affordances>



## Design Principles

Aside from patterns and best practice, good design considers the following (and much more)

### Efficiency

- Limit distractions
- Present few choices
- Use constraints appropriately
- Use appropriate defaults
- Provide feedback

### Display

- Group related objects together
- Create visual hierarchy matching the user needs
- Less is more
- Be consistent
- User familiarity

### Content

- Provide strong information scent
- Provide signposts and cues
- Provide context
- Avoid jargon / unnecessary text

Source: <http://www.designprinciplesftw.com/collections/20-guiding-principles-for-experience-design>

# UX Design Process

## Design Process

- User-Centered Design (UCD)
  - Based upon understanding of users, tasks and environments
  - Evaluated by user testing
  - **Users involved throughout the iterative design and development process**
- Easily incorporated into agile or waterfall development process
- **You are not the user**
  - Product owner is not the user
  - Development are also not the user



### Design thinking

The design-thinking ideology asserts that a hands-on, user-centric approach to problem solving can lead to innovation, and innovation can lead to differentiation and a competitive advantage.

#### Understand – Explore - Materialise

**1. User Research** -- Specify the context of use: Identify the people who will use the product, what they will use it for, and under what conditions they will use it.

**2. Analysis** – Identify the user requirements, user goals that must be met for the product to be successful and where these align with or affect the business requirements

**3. Design** – This part of the process may be done in stages, building from a rough concept to a complete design.

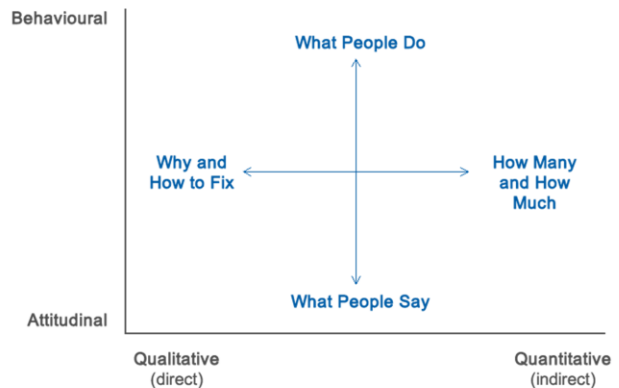
**4. Prototype** -- design to facilitate user feedback

**5. User testing** – Evaluation through usability testing with actual users - is as integral as quality testing is to good software development.

Image recreated based on: <http://visual.ly/ux-design-process-1>

## User Research Methods

- Range of research methods
  - Can be used in combination
- Dimensions when considering technique
  - What kind of data are you need?
  - Context of product use
  - Product development stage



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### Questions answered by research methods across the landscape

#### Behavioural vs. Attitudinal feedback

What people say versus what people do

#### Qualitative vs. Quantitative feedback

Qualitative generates data about behaviors or attitudes based on observing users *directly* – *the what and the why*

Quantitative studies, the data about the behavior or attitudes are gathered *indirectly*, through a measurement – *the what not the why*

**Qualitative** methods are much better suited for answering questions about **why** or **how to fix** a problem Whereas **Quantitative** methods do a much better job answering **how many** and **how much** types of questions.

**Context of product use during research:** not using, natural, scripted or a combination of both

Source: <https://www.nngroup.com/articles/which-ux-research-methods/>

# Research Methods During Development Process

## Strategise

### Research and Analysis

Goal	Inspire, explore, new directions and opportunities
Approach	Qualitative and Quantitative



User Interviews



Field Studies



Surveys



Diary Studies

#### Example Outputs

Personas, Customer Journey Maps, Empathy Maps, Scenarios, Task Analysis, User flows, Storyboards, Sketches

### Product development:

**Strategise:** Consider new ideas and opportunities for the future.

### STRATEGISE

**User interviews** structured or semi-structured, one-on-one interviews help researchers learn about users' attitudes and beliefs surrounding a website or application, and specific tasks that it supports.

**Field Studies** researchers meet with and study participants in their natural environment, where they would most likely encounter the product or service in question.

**Surveys** are a good way to collect quantitative data for user opinions about an application or website.

**Diary Studies** are a form of longitudinal research (research that takes place over a long period of time with the same participants). Typically, users self-report their activities at regular intervals to create a log of their activities, thoughts, and frustrations.

Table: <https://www.nngroup.com/articles/which-ux-research-methods/>

Image: <http://userfocus.co.uk/resources/omnigraffle.html>

## Personas

**Meet Thomas, Senior Attorney**

Thomas has long since left behind the gruntwork of research. Now he's a master adviser to businesses that want to maneuver strategically in the quagmire of data privacy. Brilliant companies turn to him for guidance on how they need to handle their data privacy today, and what they should be thinking about for tomorrow.

Thomas is top notch at client handling and hand holding; he nails the tough job of feeling up advice in ways that clients can absorb and act on. He's a little less top notch at dealing with technology. Left to his own devices, he'd just use paper and email as his go-to tools.

**Superpower: Master Zoomer**  
He coolly homes in on the meat of an issue. If someone gives him 50 pages, he can take it, skim it and show you the one critical point in the whole thing.

**Tools**  
Google  
Microsoft SharePoint  
Microsoft Word  
Microsoft Excel  
Email  
Staff Member

**How AI Will Help**

Current Awareness	Jurisdiction Compare	Risk Rater	Tracking	Community	Issue Spotter	Research Workflow Escalator
██████████	██████████	██████████	██████████	██████████	██████████	██████████

**Frustrations**

- I absolutely, completely detest laziness. There's no excuse when junior associates under-research something and then come waste my time asking for help. Total rubbish.
- I read constantly, but it's painful reading on screens - except the iPad. That's OK.
- I like paper. I need to doodle to think, and I hate trying to deal with rigid systems.

**Challenges**

- I'm usually the one who ends up teaching basic technology here in the firm. We need to know it to do our jobs, but nobody seems to learn it in school.
- My madness makes complete sense to me, but I've been told that I'm rather disorganized as a boss.
- I want to visualize risk, we have diagrams we use internally. I'm afraid to show them to the clients, though. I'm afraid they'll think we are horribly out of date.

**Motivations**

- I get to be part of the world's future. Data privacy is on the very edge of how the world is moving and evolving.
- Maintaining my reputation and status as an expert. If I don't stay on top of all the global themes that impact data privacy, I can't maintain my reputation as somebody who axes high-stakes issues.

██████████ CORPORATION 88

### What

A persona is a representation of a type of customer.

### Why

Personas answer the question, "Who are we designing for?" and they help to align strategy and goals to specific user groups.

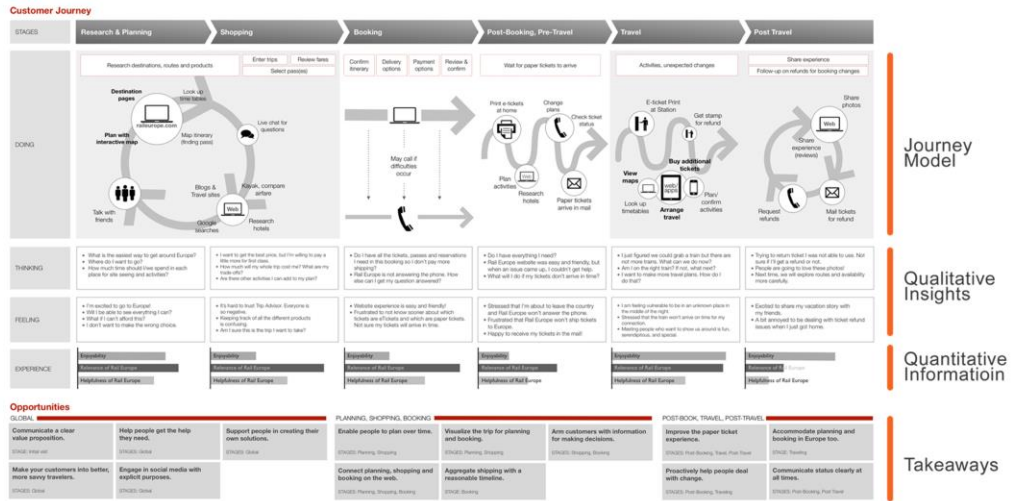
### When

Early, before you get into product requirements.

### How

Some of this can be through desk research, but for the most accurate personas you need to interview real users or potential users. This has little value if it is made up. Ideally several users in the same role or with the same goals are interviewed to provide an archetype of that user. . In addition to a typical day as this person you identify their frustrations, challenges, motivations.

# Customer Journey Maps



## What

Customer Journey mapping is a strategic process of capturing and communicating complex customer interactions.

It may focus on a particular part of the story or give an overview of the entire experience. What it always does is identify key interactions that the customer has with the organization. It talks about the user's feelings, motivations and questions for each of these touchpoints.

It often provides a sense of the customer's greater motivation. What do they wish to achieve, and what are their expectations of the organization?

## Why

The activity of mapping builds knowledge and consensus across the product development team, A customer journey map helps to identify gaps, points in the customer experience that are disjointed or painful. These might be:

- gaps between devices, when a user moves from one device to another;
- Gaps between finding information and doing something with the information
- gaps between departments, where the user might get frustrated.
- gaps between channels (for example, where the experience of going from social media to the website could be better).

## When

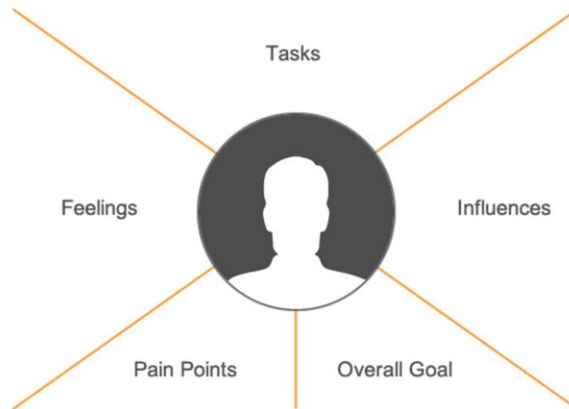
Early, this is part of the preliminary research that helps you understand the use cases and context of use.

## How

There are two types of research: analytical and anecdotal. typically appears as some type of infographic.

Image: <http://uxmastery.com/ux-marks-the-spot-mapping-the-user-experience/>

## Empathy Maps



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### What

An empathy map is a collaborative tool teams can use to gain a deeper insight into their customers. Much like a user persona, an empathy map can represent a group of users, such as a customer segment.

### Why

Empathy maps can be used whenever you find a need to immerse yourself in a user's environment, elaborating on the user persona. Before you get into product requirements.

### When

Early, before you get into product requirements.

### How

Assemble your team and have them bring any personas, data, or insights about the target of your empathy map. Print template on a large piece of paper or whiteboard. Hand each team member sticky notes and a marker. Each person should write down their thoughts on stickies. Ideally everyone would add at least one sticky to every section.

This version is adapted from the traditional because participants always struggle with what is being asked by the usual segments of Hear, Say/Do, See, Think/Feel.

**Tasks.** What tasks are users trying to complete? What questions do they need answered?

**Feelings.** How is the user feeling about the experience? What matters to them?

**Influences.** What people, things or places may influence how the user acts?

**Pain points.** What pain points might the user be experiencing that they hope to overcome?

**Overall Goal.** What is the users ultimate goal? What are they trying to achieve?

Image recreated based on: Ref: <https://boagworld.com/usability/adapting-empathy-maps-for-ux-design/>



## Storyboards



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### What

A storyboard is a graphic organizer in the form of illustrations or images displayed in sequence for the purpose of pre-visualizing a scenario

### When

Early on when you are exploring, understanding the problem, sharing knowledge and generating ideas.

### Why

By understanding the fundamentals of the story and deconstructing it to the building blocks, we can present it in a more powerful and convincing way. Win over stakeholders through improved understanding of the challenges. Clients tend not to be conceptual thinkers like us; they need us to connect the dots.

It helps see the triggers that occur, the channels that are used, the process that is followed and decisions that have to be made along the way. More than that, the action of sketching out role-play tests our concepts, lets us experiment at little or no cost, allows for fluid team-based brainstorming, reveals more ideas, and scrutinises them for authenticity.

### How

Start from the character with the goal in the particular context and walk him through the inciting moment, struggles and crisis, to the final changed state.

1. Who is involved?
2. What is the environment in which the story takes place?
3. What are the tasks being accomplished?

Image: <https://kathybateman.files.wordpress.com/2013/08/mary-jos-story.jpeg>

## Research Methods During Development Process

### Execute

#### Design and Testing

Goal	Inform, optimize design, reduce risk improve usability
Approach	Mainly Qualitative (formative)



Card Sorting



Participatory Design



User Testing

#### Example Outputs

Information Architecture, Site Maps, Wireframes, Prototypes, User Testing Insights

### Product development:

**Execute:** Research in this phase is mainly formative and helps you reduce the risk of execution.

### EXECUTE

**Participatory design** exercises engage stakeholders and end users in the process of solving a design problem.

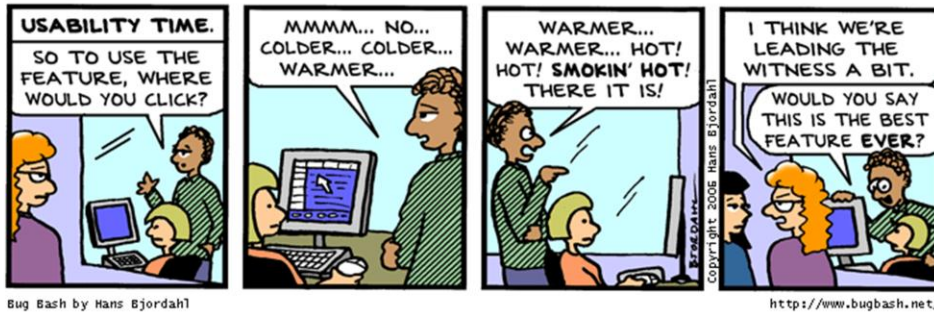
**Card sorting** is a useful tool to determine how users categorize the information that will appear on a website.

**Usability testing** is the best way to understand how real users experience your website or application. Unlike interviews or focus groups that attempt to get users to accurately self-report their own behaviour or preferences, a well-designed user test measures actual performance on mission-critical tasks.

Table: <https://www.nngroup.com/articles/which-ux-research-methods/>

Image: <http://userfocus.co.uk/resources/omnigraffle.html>

## User Testing



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### **What**

Usability testing is a technique used in user-centered interaction design to evaluate a product or feature by testing it on users. Empirical evidence is the most valuable in user-centered design, since it gives direct input on how real users use the system.

### **Why**

You want people to use your product - financial benefits

Link the utility aspect to the user experience of an application. The goal is not just about provide a quick solution, you want to make users love your solution.

Doing user tests will also help you identify issues early on. It ensures a more promising result and makes all your resources well worth its spend.

### **When**

All stages. If an existing design you want to 'baseline' it find out what the current issues.

Formative: If a new development, you want to test before development starts building.- validate the design with users before investing time to build it.

Summative: At the end of the build for an understanding of the full user experience – you should never rely on only summative testing. Testing should be an on-going activity.

### **How**

You will need a prototype that is ready for testing. This can be paper, click-through or fully interactive.

A script is created – treat as a scientific experiment – all participants receive the same information.

Always aim for at least 5 users. There is a diminishing return for testing with more than 5 users (<https://www.nngroup.com/articles/why-you-only-need-to-test-with-5-users/>)

The feedback can tell you how intuitive a design is, whether it's in-line with the participants current workflow, whether it is enough or if there are steps missing. These insights can help refine the feature ahead of development. Although you should re-test an iterated design to ensure you improved the design.

Image: <http://blog.markswipe.com/>

Content: <http://altitudelabs.com/blog/user-testing-why-is-it-important/>

## Research Methods During Development Process

### Assess

Post-Development

Goal	Measure performance against itself or competition
Approach	Mainly Quantitative (summative)

#### Example Outputs

Heuristic Evaluations, Usability Reports



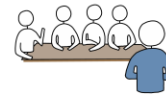
Surveys



A/B Testing



Usability Benchmarking



Focus Groups

### Product development:

**Assess:** At some point, the product or service will be available for use by enough users so that you can begin measuring how well you are doing. This is typically summative in nature.

### ASSESS

**A/B Testing** a method of scientifically testing different designs on a site by randomly assigning groups of users to interact with each of the different designs and measuring the effect of these assignments on user behaviour.

**Focus groups** are best utilized as an evaluative tool, rather than a generative one. A Moderator facilitates a small group of 4 to 8 participants, by showing them or demonstrating a product or concept.

Table: <https://www.nngroup.com/articles/which-ux-research-methods/>

Image: <http://userfocus.co.uk/resources/omnigraffle.html>

## UX Deliverables

### Typically

Prior to development

- Personas, Customer Journey Maps, Empathy Maps, Scenarios, Task Analysis, User flows
- Storyboards, Sketches

During development

- Information Architecture, Site Maps, Wireframes, Prototypes
- User Testing Insights

Application evaluation

- Heuristic Evaluations, Usability Reports

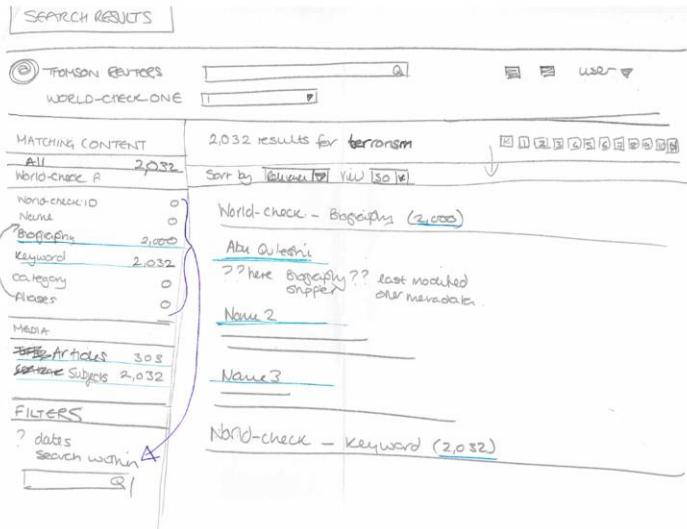
### Depending on the team size/skills

- Content Models
- Process Diagrams
- Style guides
- Visuals, including iconography

Image: <http://userfocus.co.uk/resources/omnigraffle.html>

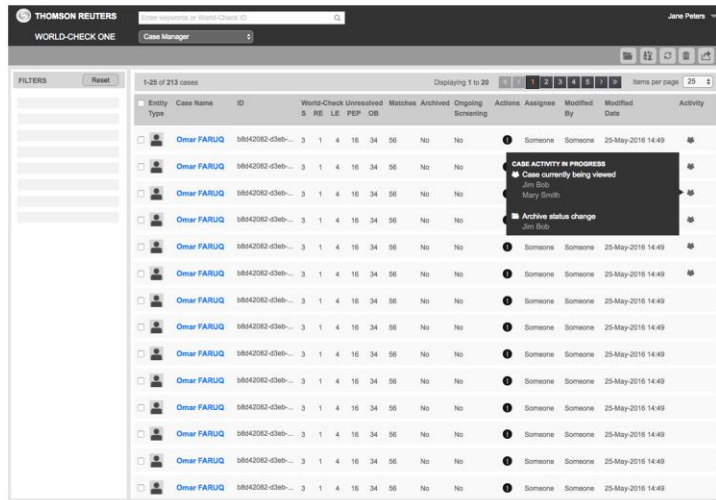
# Interaction Design Stages

## Sketch



# Interaction Design Stages

## Wireframe



# Interaction Design Stages

## Hi Fidelity Visual

The screenshot displays the Thomson Reuters World-Check One Case Manager interface. It features a search bar at the top, a filter sidebar on the left, and a main table of cases. A modal window is open over one of the cases, showing its activity log.

Entity Type	Case Name	ID	World-Check Unresolved	Matches	Archived	OGS	Actions	Assignees	Modified By	Modified Date	Activity
AL QA/DA	al892933...	19	53	19	8	39	106	No	No		CASE ACTIVITY IN PROGRESS Archive status change Jim Bob
Omar FARUJ	4c5d29c...	7	6	62	71	99	235	No	No		Currently being viewed Jim Bob Mary Smith
osama	c4189dc...	6	11	20	51	88	164	No	No		Ongoing Screening status change Jim Bob
Bin Laden	b8d4208...	4	1	4	22	39	65	Yes	No		
osama bin laden	da70acc...	3	3	5	29	32	84	Yes	No		Richard Neves 2017-10-17 15:31
flower	4c5d79b...	2	6	2	5	8	22	No	No		Richard Neves 23-Jan-2017 16:47
alquaeda	05275df...	2	2	2	0	5	5	No	No		Richard Neves 15-Jul-2016 16:48
Khalid Saeed DEEK	fed55ab...	2	0	2	0	3	6	No	No		Richard Neves 30-Jul-2015 11:06
osama bin laden	1227d8b...	1	1	1	0	0	0	No	Yes		Richard Neves 24-Apr-2017 07:07
cyber	46d8b11...	1	18	5	3	41	64	No	No		CASE ACTIVITY IN PROGRESS Ongoing Screening status change Jim Bob
Jimmy Nelson	c12be1e...	1	7	36	22	32	97	No	No		Richard Neves 22-Feb-2016 17:22
city bank	70d628b...	1	64	2	0	18	80	No	No		Richard Neves 03-Feb-2016 11:21
osama bin laden	alsdaghd	1	2	4	1	25	34	Yes	No		Richard Neves 24-Sep-2015 11:56
osama bin laden	094025c...	0	0	0	0	0	0	No	Yes		Richard Neves 24-Apr-2017 07:07
BTIC	7e193dc...	0	0	0	0	3	3	No	No		Richard Neves 07-Apr-2017 16:03

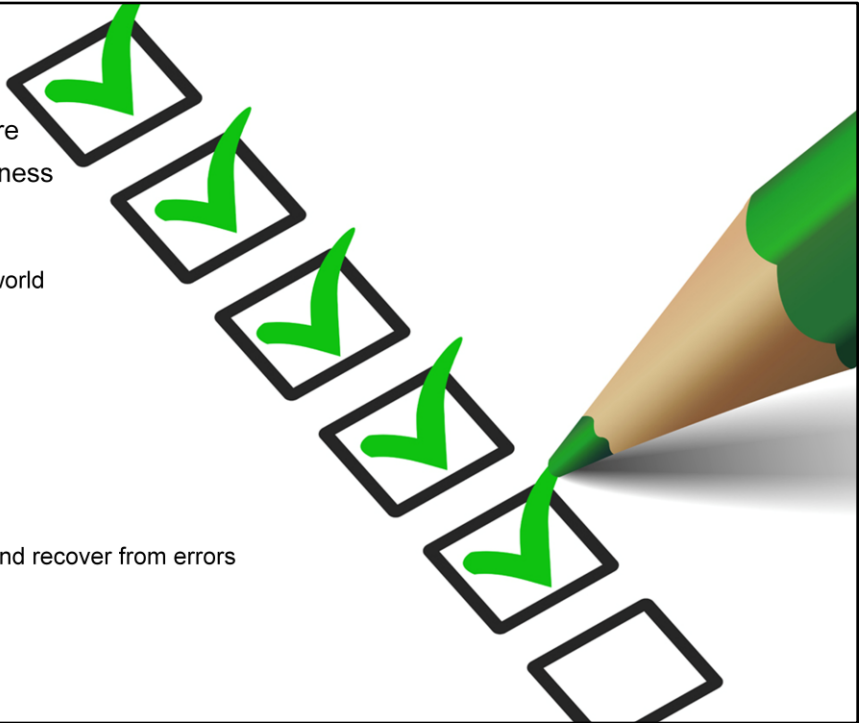


## Heuristic Evaluation

Ten evaluation factors to measure usability, efficiency and effectiveness

- Visibility of system status
- Match between system and real world
- User control and freedom
- Consistency and standards
- Error prevention
- Recognition over recall
- Flexibility and efficiency of use
- Aesthetic and minimalist design
- Help users recognise, diagnose and recover from errors
- Help and documentation

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### **What**

A heuristic evaluation is a usability inspection method for software that helps to identify usability problems in the user interface (UI) design.

### **When**

Can be during the development process, but generally you are reviewing an existing application, site and using the review as a way of improving the existing product.

### **Why**

The product has not been successfully adopted, the product has received a lot of negative feedback including usability issues.

### **How**

It specifically involves one or more practitioners examining the interface and judging its compliance with recognised usability principles. Can be page by page or typically following one or more recognised user journeys.

Image: <http://laraveldaily.com/checklist-8-things-launching-laravel-project-live/>

## Benefits of UCD

- Decreased development cost
- Improved user productivity
- Reduced training costs
- Better customer loyalty
- Reduced customer service costs
- Increased revenue

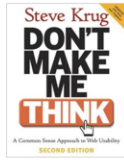


# Further Reading

## Learn More About UX ... Online

- <http://www.uxmatters.com/>
- <http://boxesandarrows.com/>
- <http://uxmag.com/>
- <http://www.uxbooth.com/>
- <http://www.userfocus.co.uk/>
- <http://www.usabilityfirst.com/>

## Learn More About UX ... Books



**The Design of Everyday Things**  
Donald A. Norman

**Don't Make Me Think**  
Steve Krug

**Information Architecture: Blueprints for the Web**  
Wodtke and Govella

**100 Things Every Designer Needs to Know About People**  
Susan M. Weinschenk

**Universal Principles of Design**  
William Lidwell

**Measuring the User Experience: Collecting, Analyzing, and Presenting Usability Metrics**  
Tullis and Albert

**Web Form Design: Filling in the Blanks**  
Luke Wroblewski

Thank You