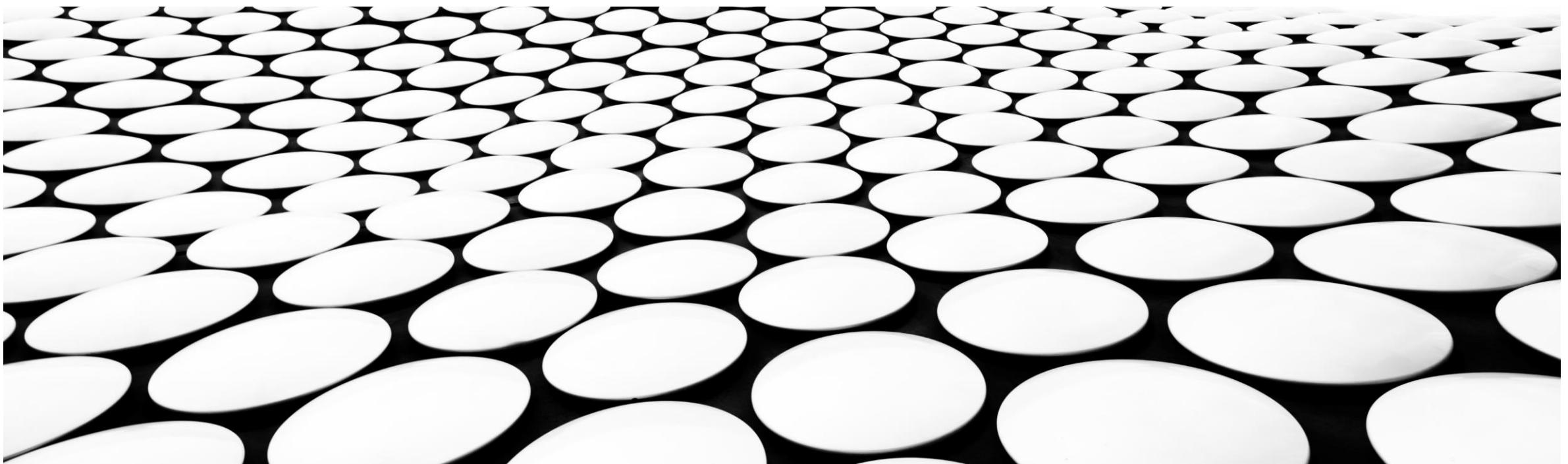


USER INTERFACE EVALUATION APPROACHES

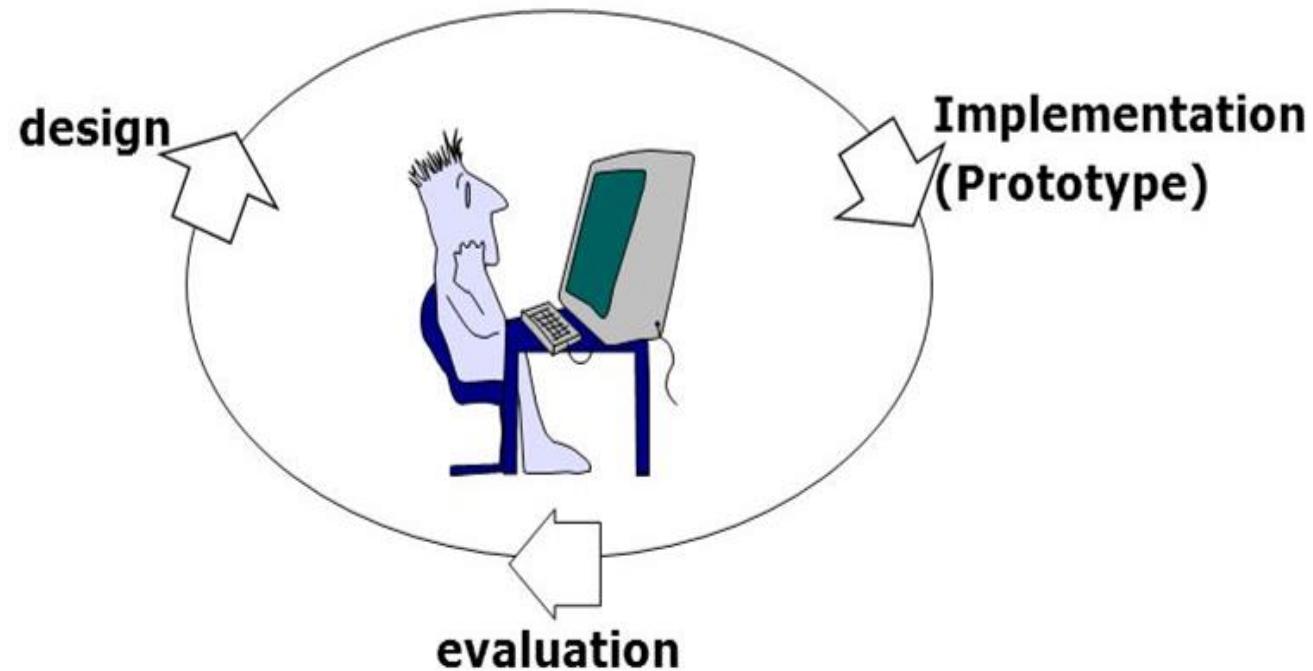




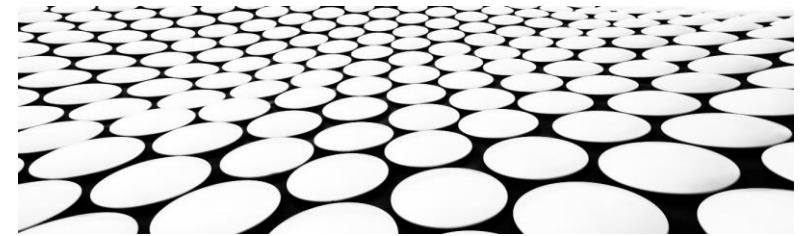
UI EVALUATION APPROACHES

- Introduction to evaluation
- Passive evaluation
- Active evaluation
- Predictive evaluation

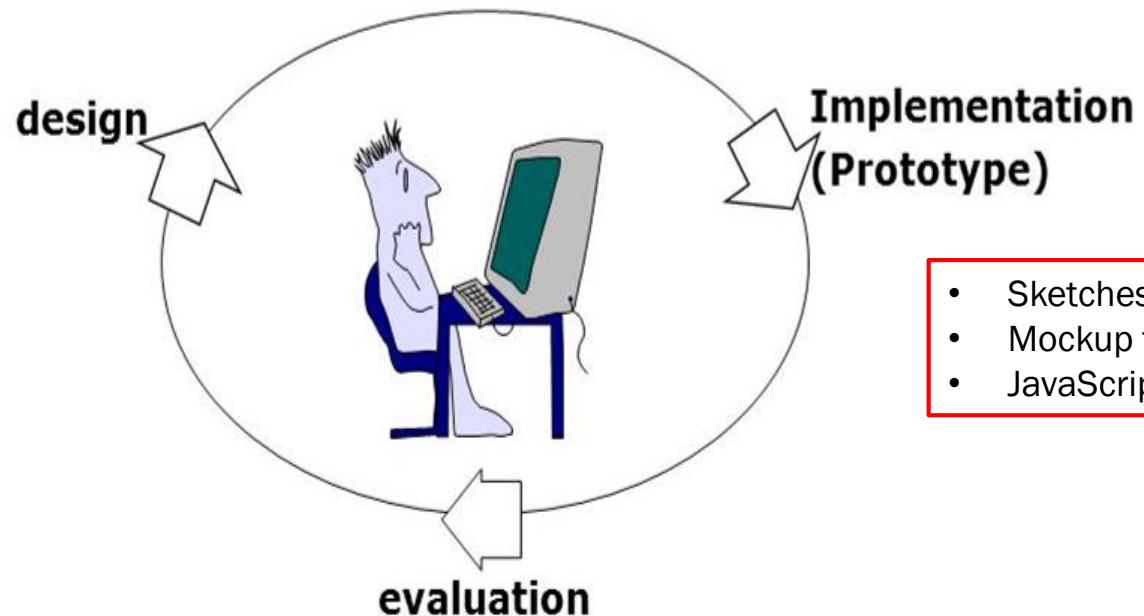
Introduction



Iterative process

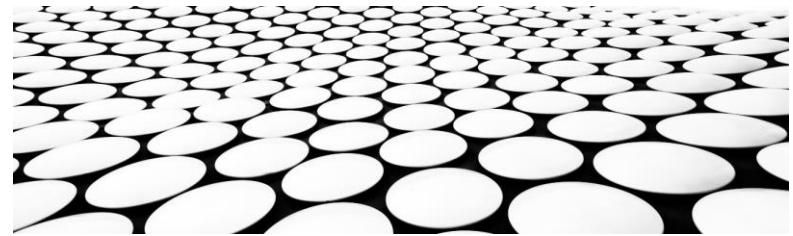


- User Centered Design (persona, scenarios)
- Visual/Verbal Communication
- Human Cognition

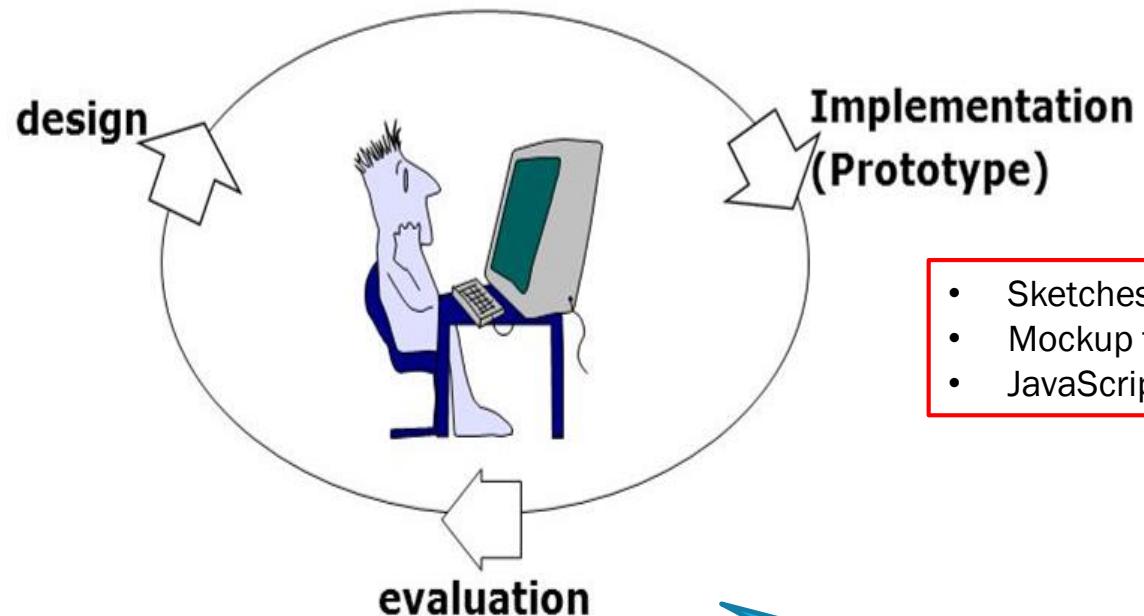


- Informal assessment of adherence to design principles
- Qualitative evaluation

Iterative process



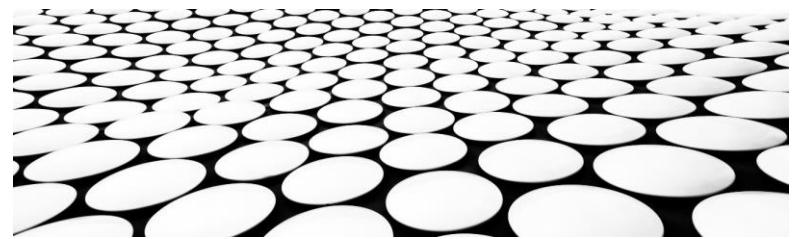
- User Centered Design (persona, scenarios)
- Visual/Verbal Communication
- Human Cognition

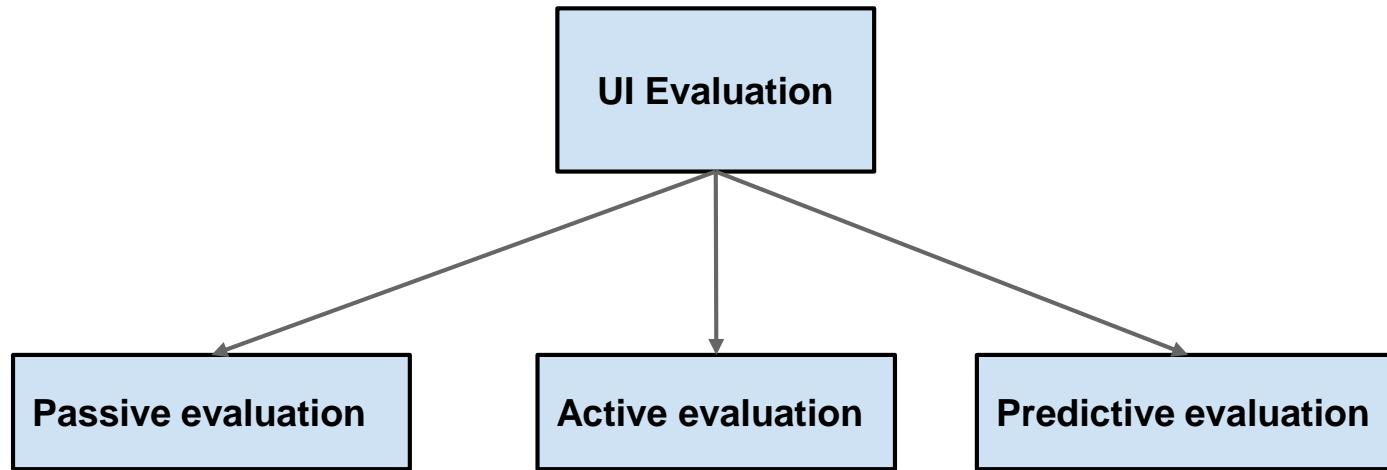


- Informal assessment of adherence to design principles
- Qualitative evaluation

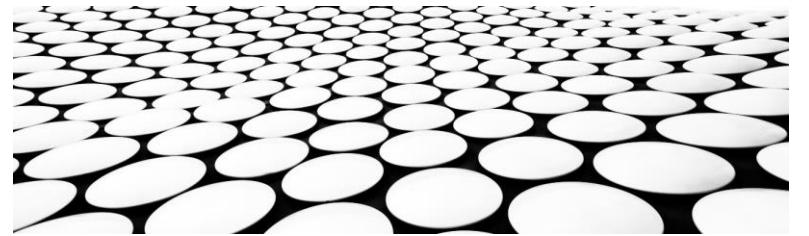
We'll explore a bit more
different evaluation
approaches

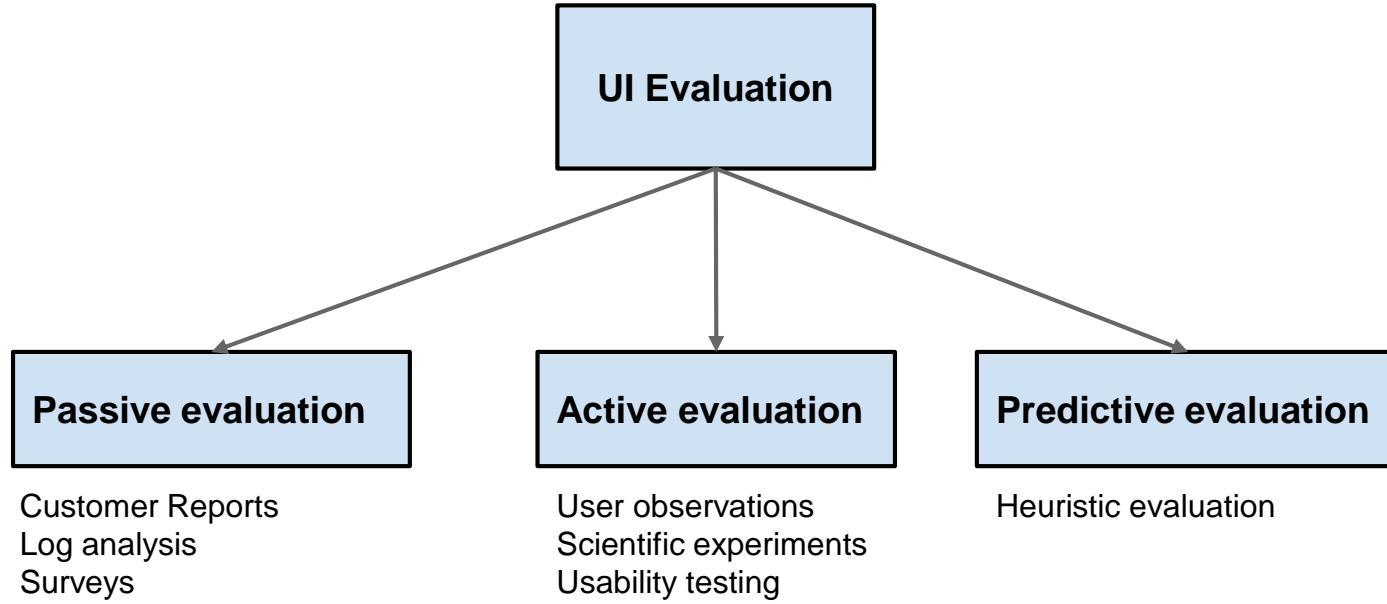
Iterative process



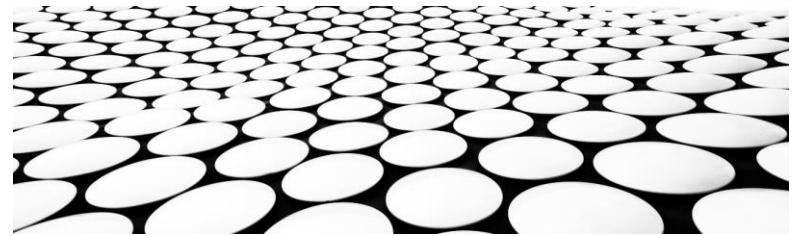


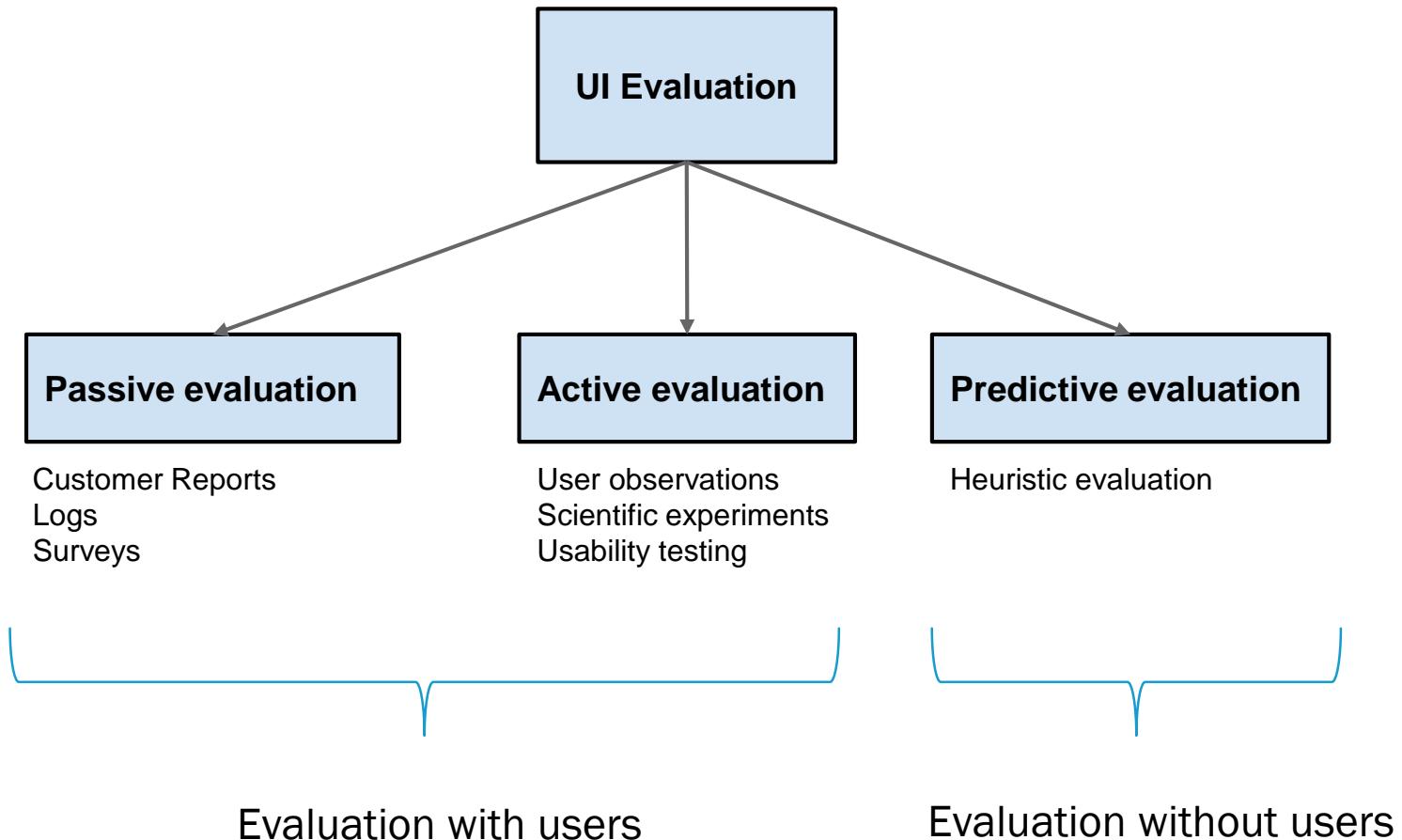
Evaluation of UIs



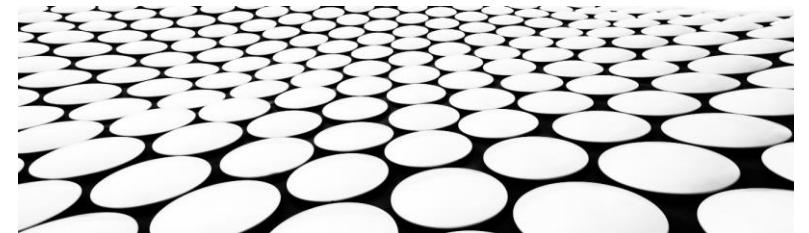


Evaluation of UIs





Evaluation of UIs

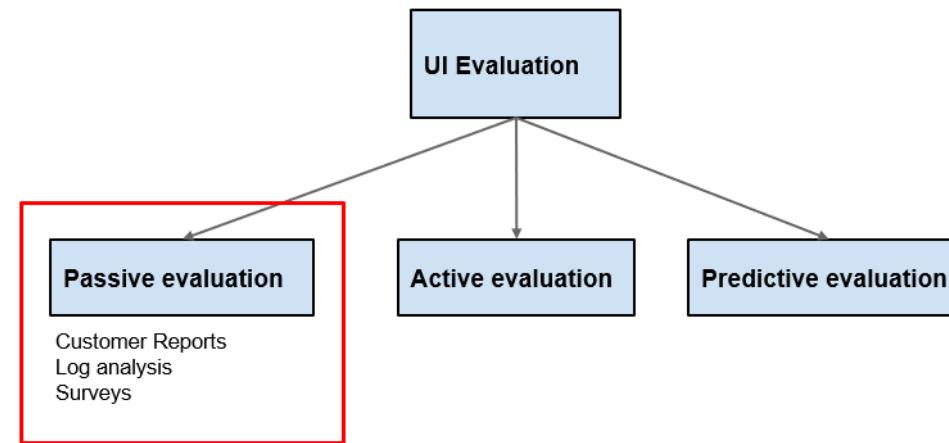


Passive Evaluation



GOALS OF THE PRESENTATION

- Present 3 different passive evaluations
 - Customer reports
 - Log analysis
 - Surveys

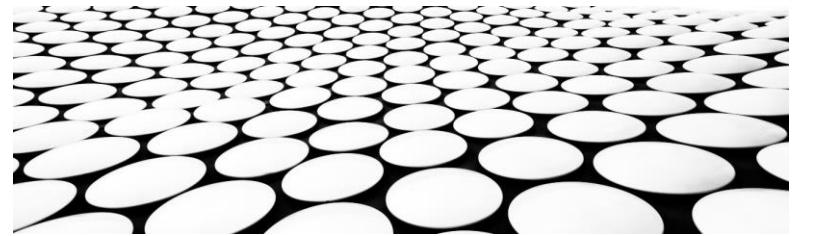


Passive evaluation

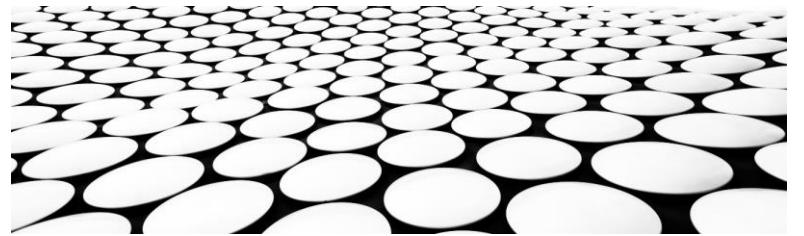
Waiting for input from the user

- (1) Customer Reports
- (2) Log analysis
- (3) Surveys

Passive evaluation



Customer Reports



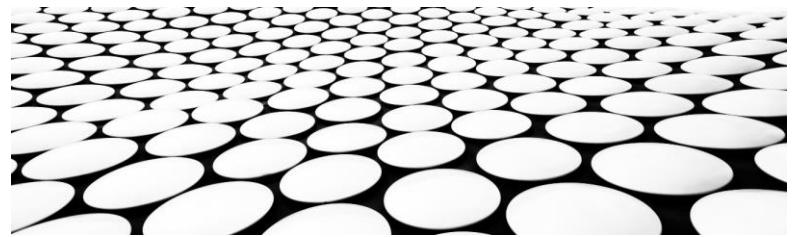
Goal

Allow users encountering a problem while using software to report it to the company

Implementation

- Users should have a way of submitting complaints, frustrations and suggestions during use.
- The submission should be part of the software.

Customer Reports



Step of the iterative process

- Requires a realistic usage of the system

Advantages / disadvantages

- This type of assessment "waits" for problems to arise and does not actively seek them out during the testing phase.
- Uncommon (but possibly serious) problems may not be found.
- Users will become frustrated with the repetition of problems.

All sites News Contact us Power outages Français Log in

Hydro Québec Residential Business About Us Keyword(s) 

Customer Space Energy Wise Safety advice

I WANT TO

- Enter into a payment arrangement
- Report a move or become a customer
- Sign up for Online Billing
- Understand and reduce my consumption
- Make or track a request for work

It's time to take action!
Get some bright ideas for saving energy.



Other topics

- > [Comments, suggestions or questions](#)
- > [Ouvrons l'œil hotline: Report any suspicious situation in connection with Hydro-Québec](#)
- > [Complaints and claims](#)
- > [Accessibility and assistance for customers with a disability](#)
- > [Fraud prevention](#)
- > [For media representatives only](#)
- > [Technical problems](#)

Possible to report on technical problems

In « Contact Us », and then bottom of page

Contact us Français

Hydro Québec Form

Technical problems

Are you having a technical problem with our website, one of our online services, our mobile application or Web accessibility? Please consult our [Frequently Asked Questions](#) page or fill out the form below.

First, make sure your browser and device are supported by reading [our web page on the subject](#).
If the problem continues, fill out the form below.

Fields marked with an asterisk (*) must be filled in.

* Section of our Web site or our mobile application where problem occurred

* Description of problem

* Address (URL) of page where problem occurred
 E.g.: <http://www.hydroquebec.com/exemple-adresse/index.html>

* Address (URL) of page where problem occurred
 E.g.: <http://www.hydroquebec.com/exemple-adresse/index.html>

* First name

* Last name

Company name

* Email address

* Telephone Ext. * Type

Telephone Ext. Type

Submit

Contact us Français

Hydro Québec Form

Technical problems

Are you having a technical problem with our website, one of our online services, our mobile application or Web accessibility? Please consult our [Frequently Asked Questions](#) page or fill out the form below.

First, make sure your browser and device are supported by reading [our web page on the subject](#).
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* Address (URL) of page where problem occurred
E.g.: <http://www.hydroquebec.com/exemple-adresse/index.html>

*** Section of our Web site or our mobile application where problem occurred**

Select
Select
My Customer Space
Jobs
File transfer module (Energy efficiency – Business Customers)
Tool for tracking master electricians' AD/DT (supply request/declaration of work) forms
Problem elsewhere on the site
Mobile application

The screenshot shows the official website of the Canada Revenue Agency (CRA). At the top left is the Canadian flag and the text "Government of Canada" in English and "Gouvernement du Canada" in French. To the right is a search bar with the placeholder "Search CRA" and a magnifying glass icon. Further right are links for "Français" and "CRA sign in". Below the header is a dark blue navigation bar with "MENU" and a dropdown arrow. A link to "Canada.ca" is also present. The main content area features a large, semi-transparent watermark image of a stone building with many windows and a street lamp. Overlaid on this is the text "Canada Revenue Agency" in a large, bold, dark font. Below it is a green button labeled "Sign in to a CRA account". To the left of the watermark, there is descriptive text: "Administering tax laws for the Government of Canada and for most provinces and territories." On the far left, a sidebar titled "Most requested" lists links to "Canada Dental Benefit", "GST/HST NETFILE", and "Forms and publications". In the center, there are two buttons: "Report a problem or mistake on this page" with a blue arrow icon and "Share this page" with a share icon. Below these buttons is the text "Date modified: 2023-06-01". At the bottom of the page is a dark footer bar containing the CRA logo, links to "Contact the CRA", "About the CRA", and "Compliance and enforcement", and the "Government of Canada" logo. A large blue speech bubble points from the right towards the "Report a problem or mistake on this page" button, with the text "Bottom of each page" inside it.

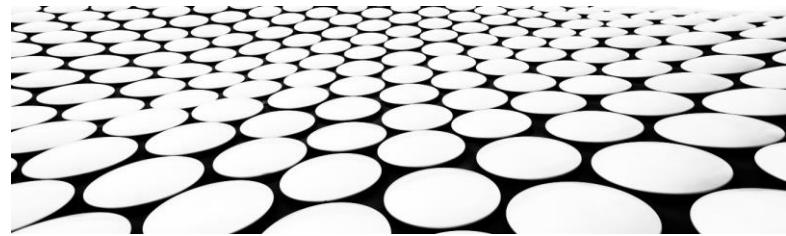
▼ Report a problem or mistake on this page

Please select all that apply:

- A link, button or video is not working
- It has a spelling mistake
- Information is missing
- Information is outdated or wrong
- Login error when trying to access an account
- I can't find what I'm looking for
- Other issue not in this list

Submit

Example of problem report - CRA



▼ Report a problem or mistake on this page

Please select all that apply:

- A link, button or video is not working
- It has a spelling mistake
- Information is missing
- Information is outdated or wrong
- Login error when trying to access an account
- I can't find what I'm looking for
- Other issue not in this list

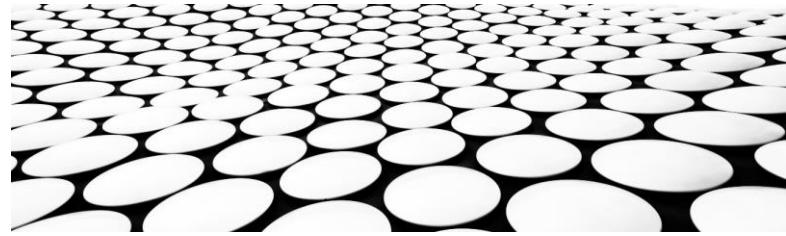
Submit

▼ Report a problem or mistake on this page

Thank you for your help!

You will not receive a reply. For enquiries, [contact us](#).

Example of problem report - CRA

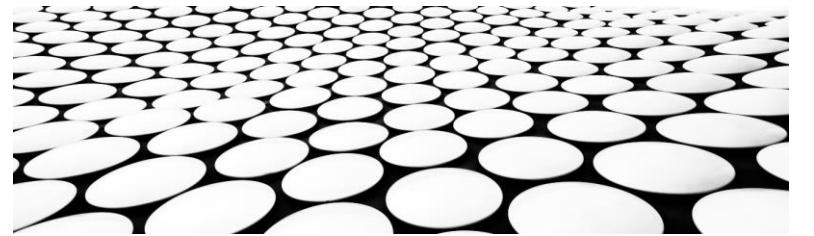


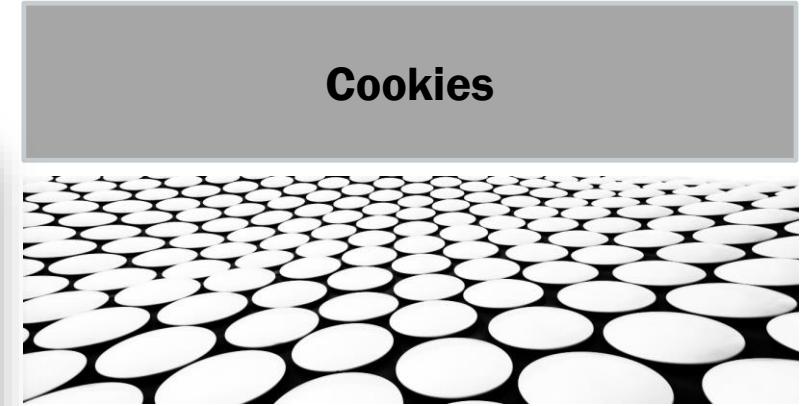
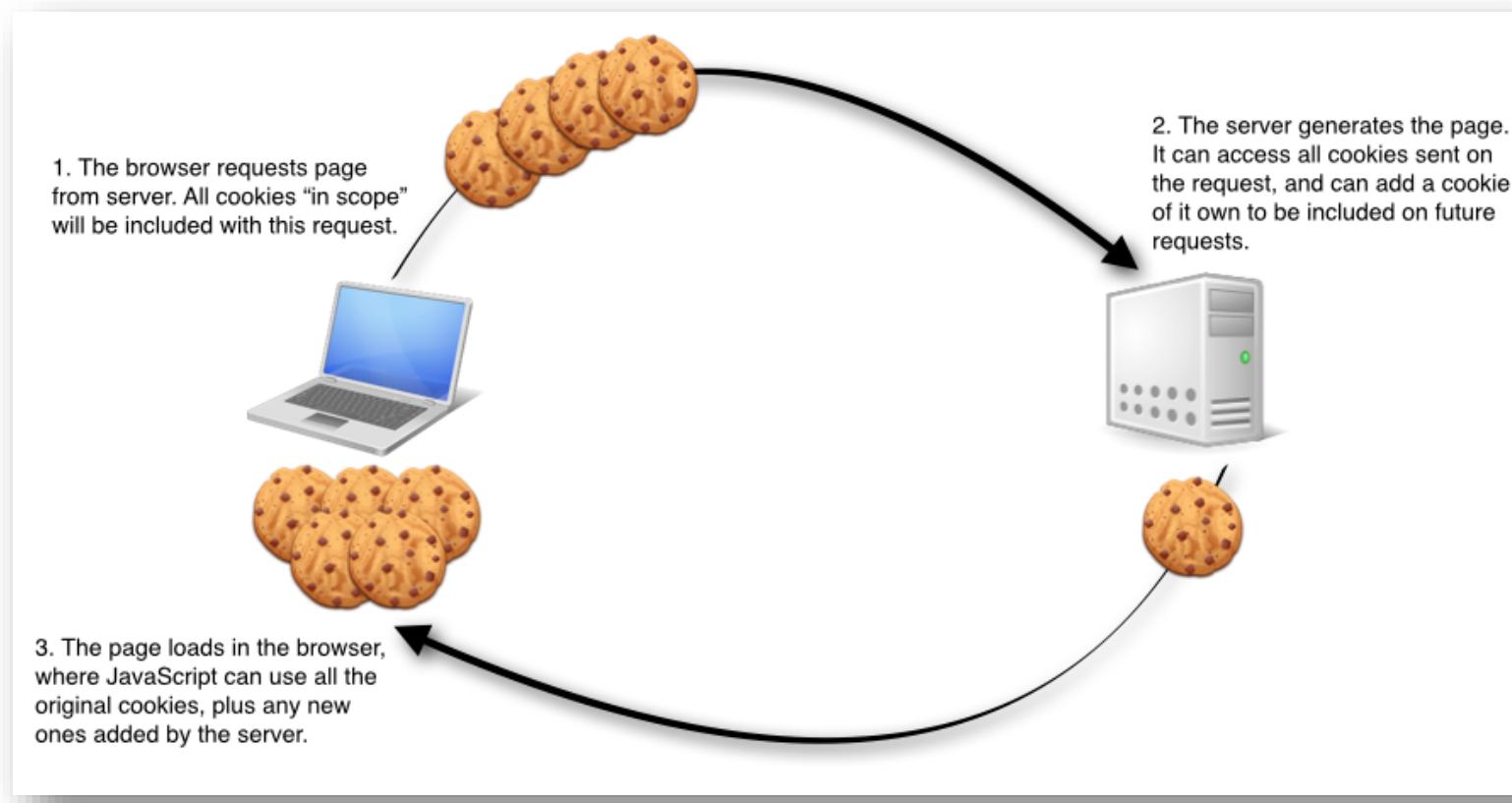
Passive evaluation

Waiting for input from the user

- (1) Customer Reports
- (2) Log analysis
- (3) Surveys

Passive evaluation





Cookies are used for...



Session Management

Includes things like keeping you logged in to accounts and remembering your preferences.



Personalization

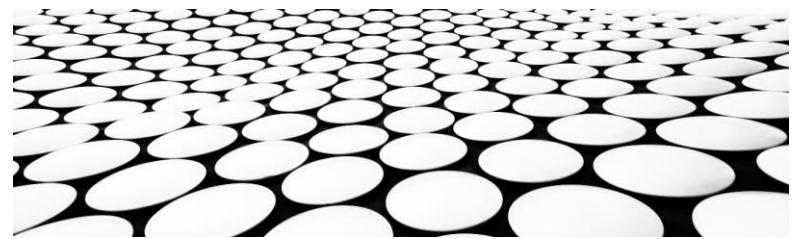
If you view certain items or areas of a website, cookies use that data to build targeted ads for products you're more likely to buy.



Tracking

Shopping sites use cookies to track the items you previously viewed, which allows it to suggest other items you might like, and store items in your shopping cart while you keep browsing

Cookies



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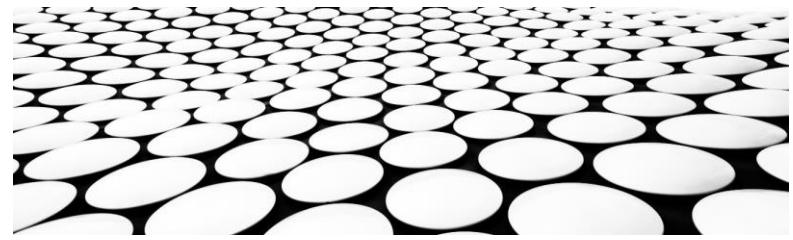
If you view certain items or areas of a website, cookies use that data to build targeted ads for products you're more likely to buy.



Tracking

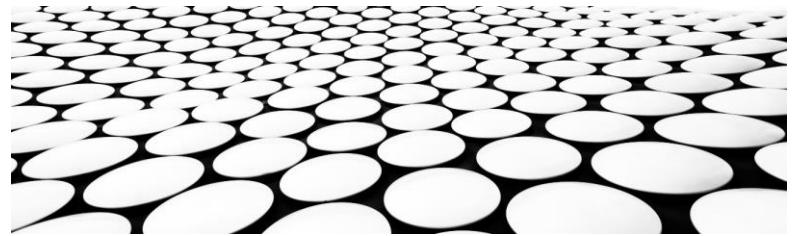
Shopping sites use cookies to track the items you previously viewed, which allows it to suggest other items you might like, and store items in your shopping cart while you keep browsing.

Log analysis / Cookies



Additional data to help enhance UI/UX

Log analysis



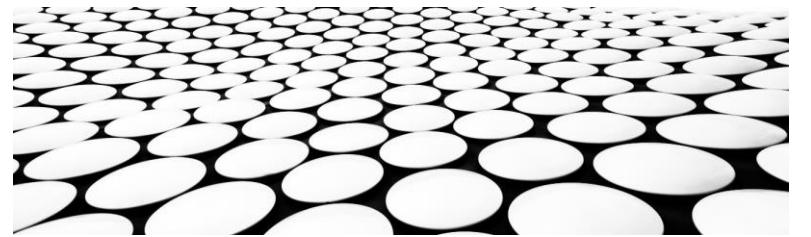
Goal

Backup (in the background) of usage data in order to observe users behaviors and infer errors in the UI.

Implementation

- Requires a capture of the operations carried out by the user
- Requires analysis tools to extract from logs:
 - Frequency of use of commands
 - Patterns (sequences) leading to errors
 - Reverse operations (undo), often a sign of problems

Log analysis



Step of the iterative process

- Requires a realistic usage of the system

Advantages disadvantages

- It is possible to obtain data aimed at improving the UI without having to "disturb" the user.
- Privacy is a concern
 - Not everyone likes to be "watched".
- Log analysis requires expertise in data science (or related field).
- Log storage requires a lot of resources.

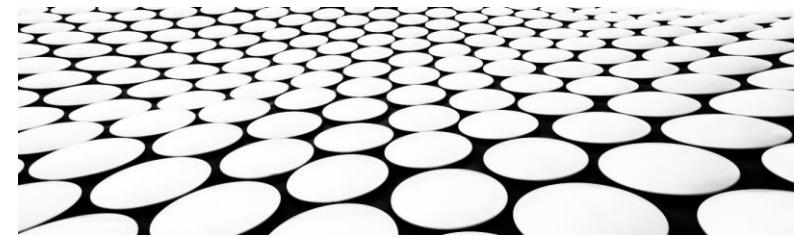
Log analytics

Common practice to perform log analysis

Partition data to view interesting slices

- Looking for changes in behavior over
 - Time
 - User type
 - Location
 - Language
 - Entry point
 - Device
 - Systems

Log analysis

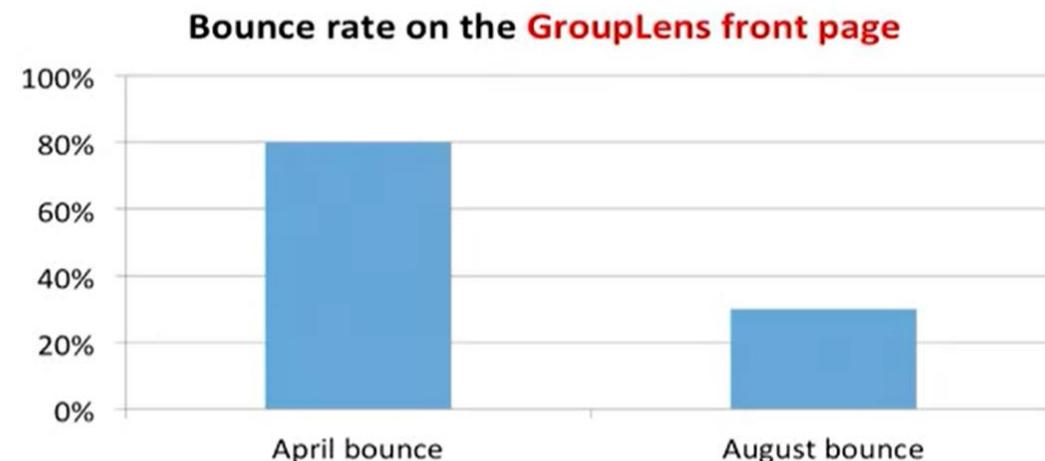


coursera



User Research and Design
Université du Minnesota

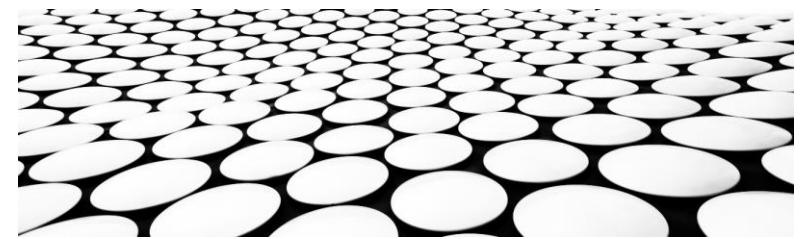
Example:



Bounce rate: It represents the percentage of visitors who enter the site and immediately "bounce" (leave the site)

Interpretation of difference (visitors or current registered students)

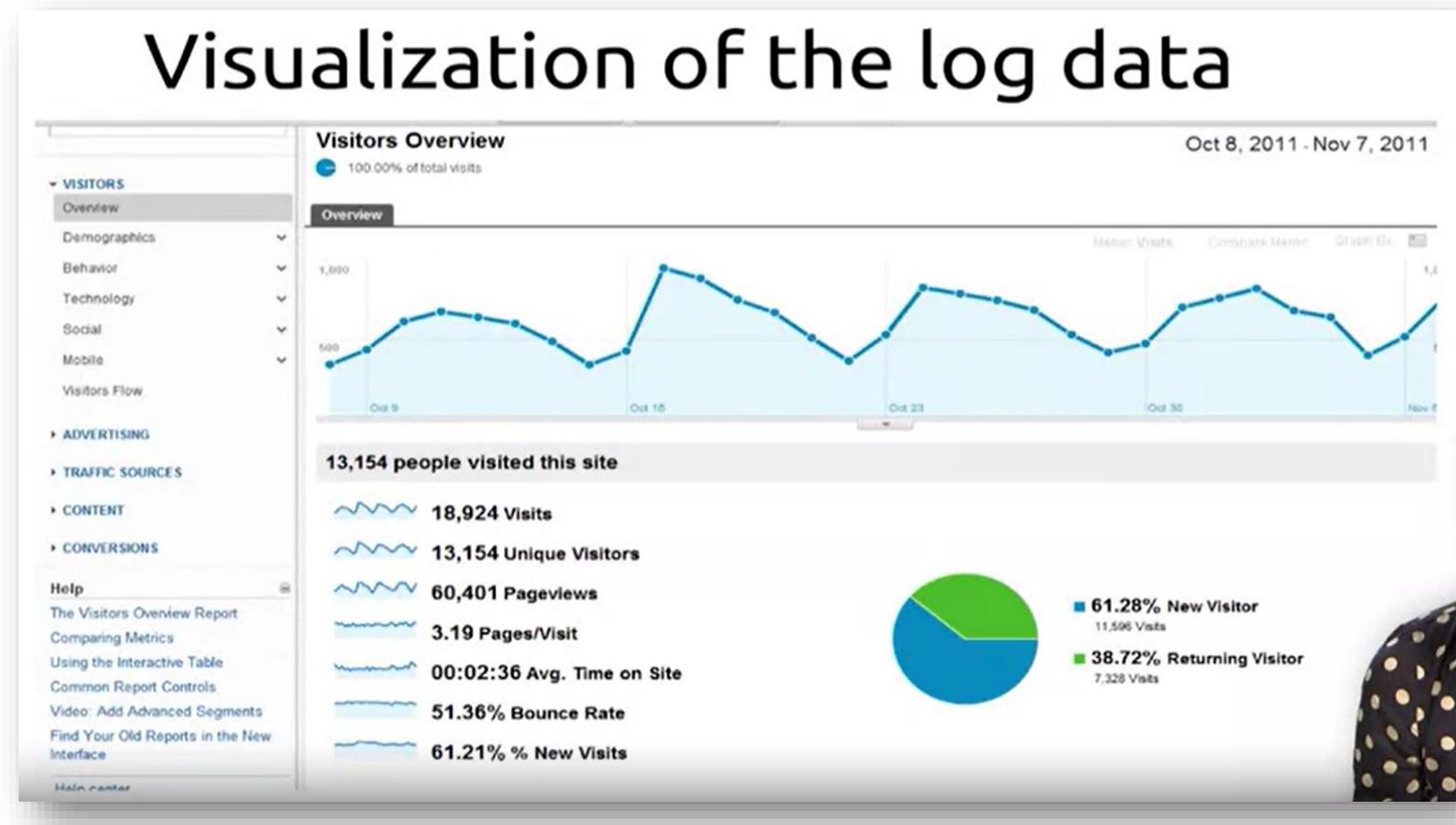
Log analysis



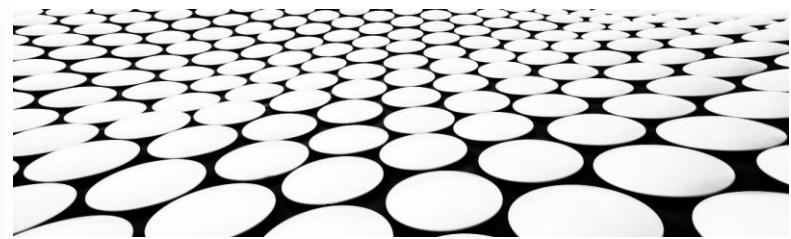
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Log analysis



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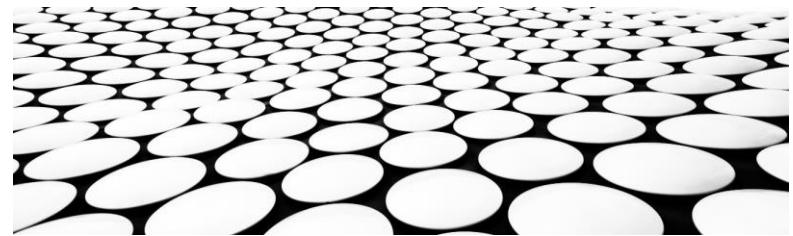
10+ Best Log Analysis Tools & Log Analyzers of 2022 (Paid, Free & Open-source)



Rafal Kuć on January 4, 2022

- 1. Sematext Logs
- 2. SolarWinds Loggly
- 3. Splunk
- 4. Logentries (now Rapid7 InsightOps)
- 5. logz.io
- 6. Sumo Logic
- 7. SolarWinds Log & Event Manager (now Security Event Manager)
- 8. ManageEngine EventLog Analyzer
- 9. Papertrail
- 10. LogDNA
- 11. Datadog
- 12. Logstash
- 13. Fluentd
- 14. Graylog
- 15. GoAccess
- The Bottom Line: Choose the Right Log Analysis Tool and get Started

Log analysis



Tools for storing logs,
analyzing them and viewing
analysis results

Log Analytics tutorial

Article • 06/22/2022 • 8 contributors

 Feedback

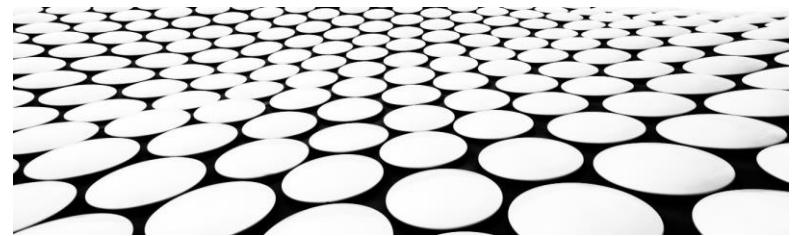
Log Analytics is a tool in the Azure portal to edit and run log queries from data collected by Azure Monitor logs and interactively analyze their results. You can use Log Analytics queries to retrieve records that match particular criteria, identify trends, analyze patterns, and provide various insights into your data.

This tutorial walks you through the Log Analytics interface, gets you started with some basic queries, and shows you how you can work with the results. You'll learn how to:

- ✓ Understand the log data schema.
- ✓ Write and run simple queries, and modify the time range for queries.
- ✓ Filter, sort, and group query results.
- ✓ View, modify, and share visuals of query results.
- ✓ Load, export, and copy queries and results.

[Source](#)

Log analytics



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[What is Cloud Computing?](#) / [Cloud Computing Concepts Hub](#) / [Analytics](#)

What Is Log Analytics?

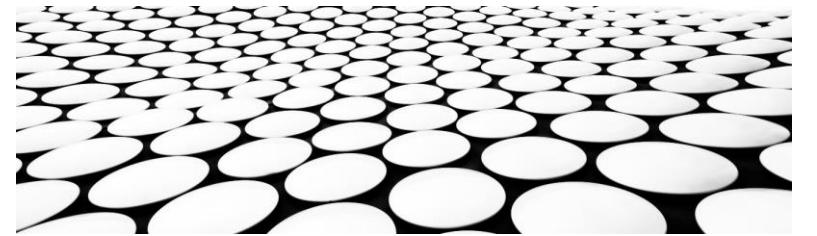
[Source](#)

Passive evaluation

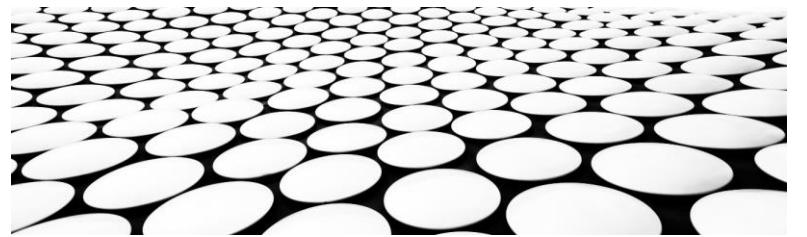
Waiting for input from the user

- (1) Customer Reports
- (2) Log analysis
- (3) Surveys

Passive evaluation



Surveys



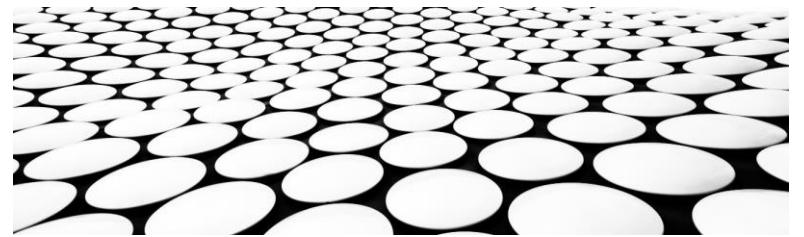
Goal

Obtain, using questionnaires, information and feedback from users.

Implementation

- Design a questionnaire:
 - Decide on the type and content of questions
 - Open / closed questions
 - What aspects of the UI do we want information about
- Administer the questionnaire
- Analyze respondents' responses to draw conclusions aimed at improving the UI

Surveys



Step of the iterative process

- Requires a realistic usage of the system

Advantages / Disadvantages

- Useful to obtain statistical data from a large number of users
 - Proper statistical analysis is needed
 - Population sampling might not be obvious to do
- Careful of question types
 - Closed questions are easier to analyze automatically
 - Open questions can reveal more interesting information
 - Difficult to phrase questions well

What is your opinion about organization of information on the screen?

- Very confusing
- A little Confusing
- A little Clear
- Very clear

How difficult is reading characters on the screen?

- Very Hard
- Somewhat hard
- Somewhat easy
- Very easy

They suggest many survey questions in line with human cognition



QuestionPro

[Source](#)

Please state your level of agreement for the following:

Use of terms throughout the system is consistent

Strongly disagree
 Disagree
 Neutral
 Agree
 Strongly agree

Position of messages on the screen is consistent

Strongly disagree
 Disagree
 Neutral
 Agree
 Strongly agree



QuestionPro

[Source](#)

How difficult are the following operations?

Learning to operate the system ^

- Very difficult
- Somewhat difficult
- Neither difficult nor easy
- Somewhat easy
- Very easy

Exploring new features by trial and error ^

- Very difficult
- Somewhat difficult
- Neither difficult nor easy
- Somewhat easy
- Very easy



QuestionPro

[Source](#)

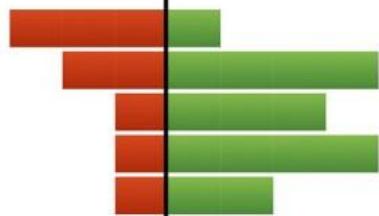
QUESTIONNAIRE FEEDBACK

Usability

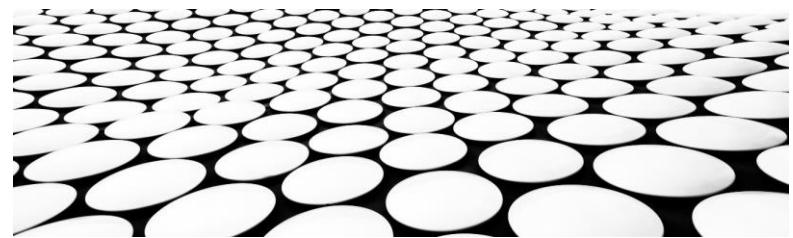
1. This website is easy to use.
2. It is easy to navigate within the website.
3. I enjoy using the website.
4. I am able to find what I need quickly on this website.

Number of responses

Negative Positive



Surveys



Appearance

10. I find the website to be attractive.
11. The website has a clean and simple presentation.

Loyalty

12. I will likely return to this website in future.
13. How likely are you to recommend this website to a friend or colleague?

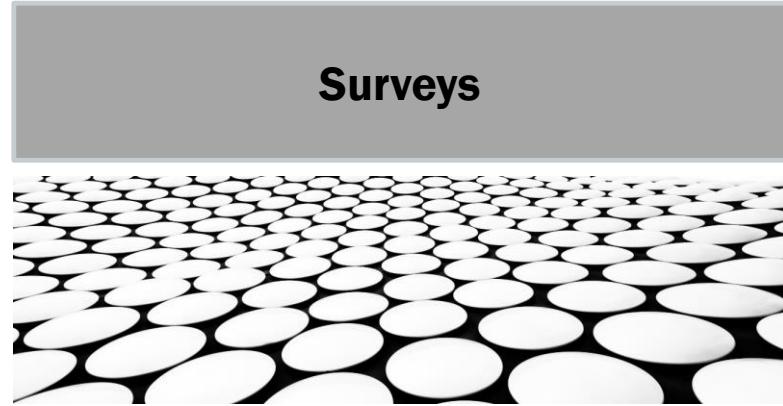
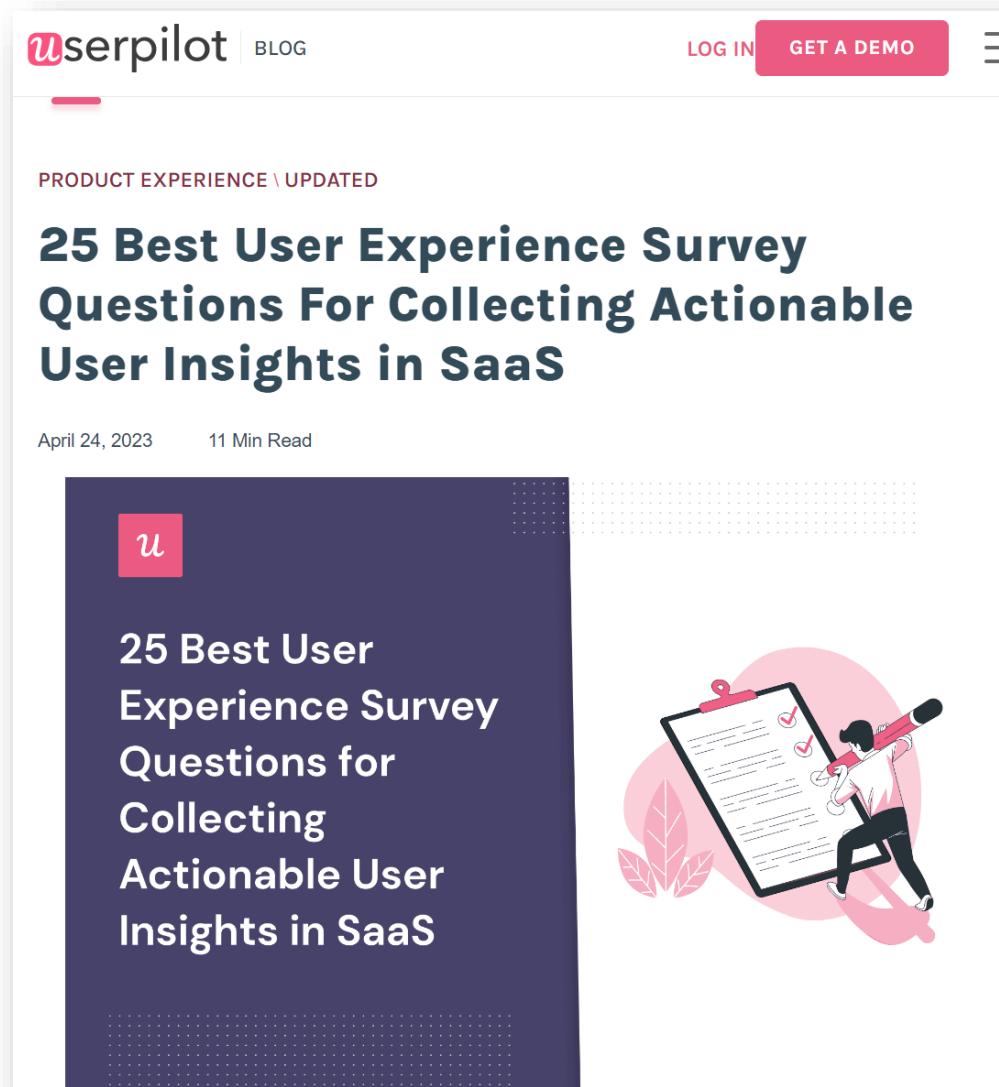
userpilot | BLOG

LOG IN GET A DEMO

PRODUCT EXPERIENCE \ UPDATED

25 Best User Experience Survey Questions For Collecting Actionable User Insights in SaaS

April 24, 2023 11 Min Read



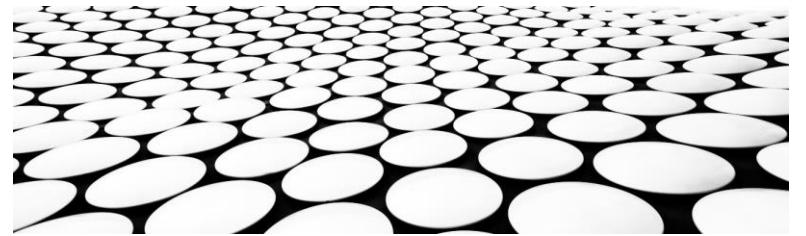
- User persona surveys
- General UX feedback survey
- UX research survey data
- Customer satisfaction UX surveys
- Customer service UX surveys

User persona survey questions

This survey type aims to help you better understand your customers.

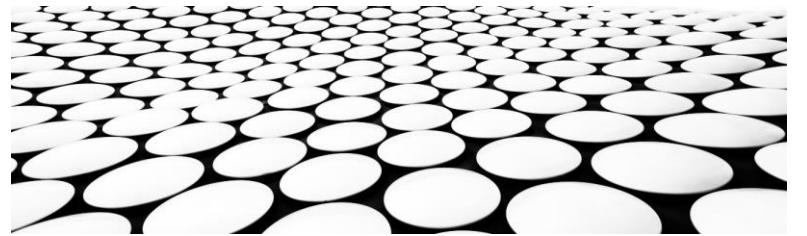
Based on their answers, you can build your **user persona** to target with your sales and marketing campaigns. Or you could update your existing **user persona** with the information they provided.

Surveys



userpilot BLOG

Surveys



How did you first learn about [Product]?

What will you be using [Product] for?

Which of our competitors did you consider before choosing us?

What made you choose us over our competitors?

How would you describe [Product] in one word or sentence?



- User persona surveys



The 8 Best Free Online Survey Tools for Gathering Data & Feedback



Nia Gyant

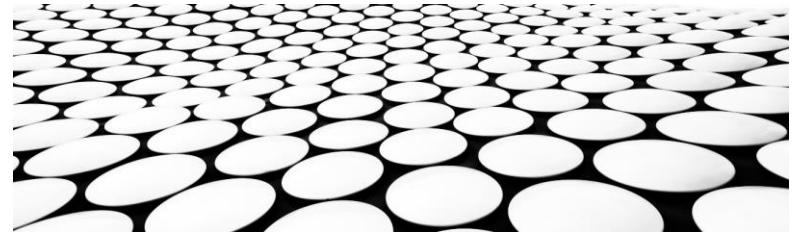
Last Updated: April 29, 2022 | Marketing Ideas

The 8 best free online survey tools

It's never been easier to get the raw insights you need to improve your business. Here are the eight best survey tools to help you:

1. Google Forms
2. SurveyMonkey
3. Typeform
4. Jotform
5. SoGoSurvey
6. SurveyPlanet
7. Zoho Survey
8. Crowdignal

Surveys





SUMMARY

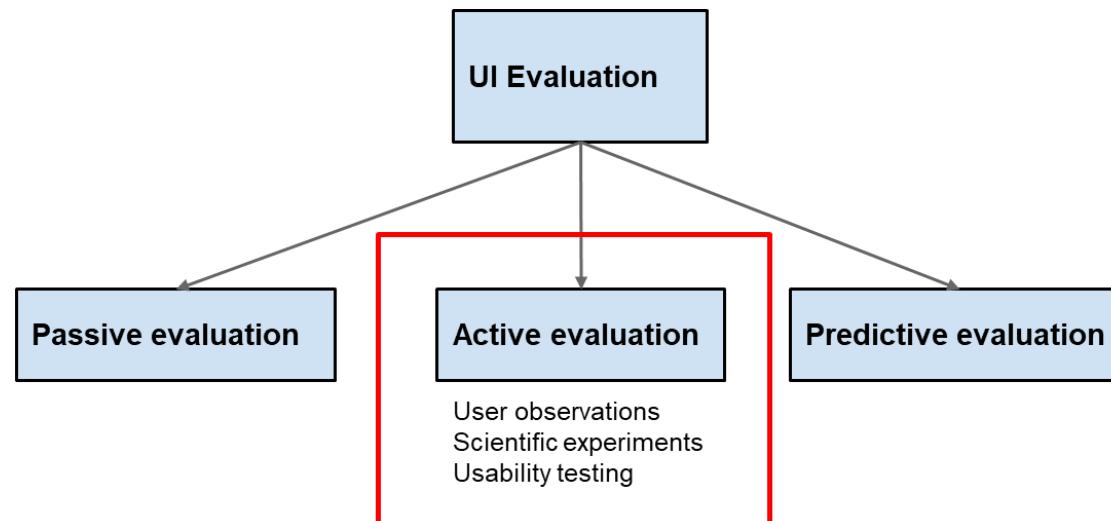
- Passive evaluation
 - Customer reports
 - Log analysis
 - Surveys

Active Evaluation



GOALS OF THE PRESENTATION

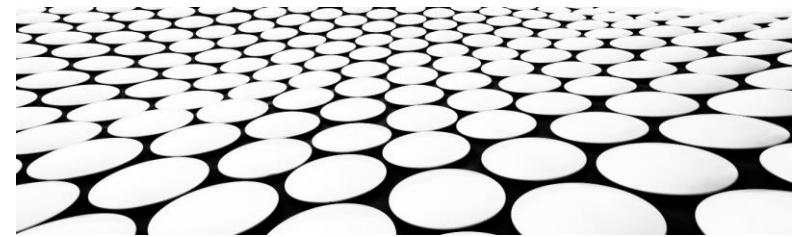
- Present 3 different active evaluations
 - User observations
 - Scientific experiments
 - Usability testing



Active evaluation

A researcher/designer is involved in the process

- (1) User observations
- (2) Scientific experiments
- (3) Usability testing

Active evaluation

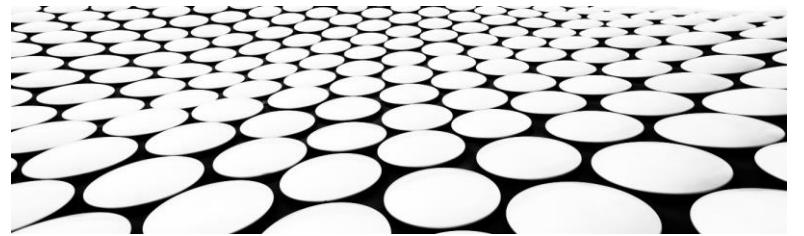
Goal

During dedicated sessions, the software engineer (or other team member) studies users who actively use the UI in order to better understand the problems they encounter during their tasks.

Step of the iterative process

- Any step

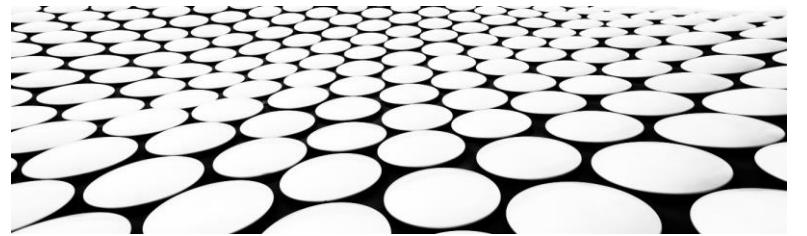
User observations



Implementation

- Schedule observation sessions with users:
 - Environment: in-vivo or in-vitro
- Define the course of a session by a set of tasks:
 - We give the user a set of tasks to accomplish
 - The user defines his own goals
- Do the observation sessions:
 - "Think aloud" protocol (thinking aloud)
 - Recording of actions (long analysis process thereafter)
- Use video annotation software to segment and label video sections
 - Allows to return to it later by indexing sections with specific observations

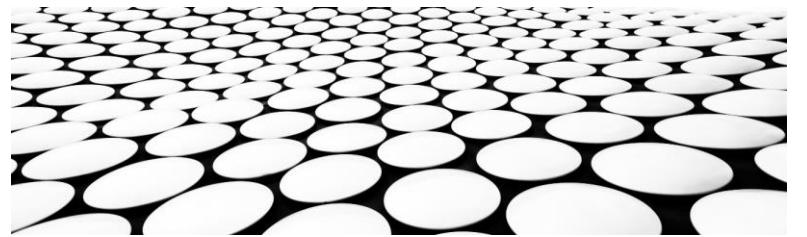
User observations



Advantages / disadvantages

- The video recording allows a memory of a session, and it is possible to return several times to observe the user from various angles
- Setting up and analyzing sessions is very expensive
- In-vitro environment might feel constrained, but in-vivo experiments might be difficult to organize
- A good choice of tasks to perform can give a very good idea of the strengths and weaknesses of the UI in terms of user productivity for the accomplishment of these tasks.

User observations



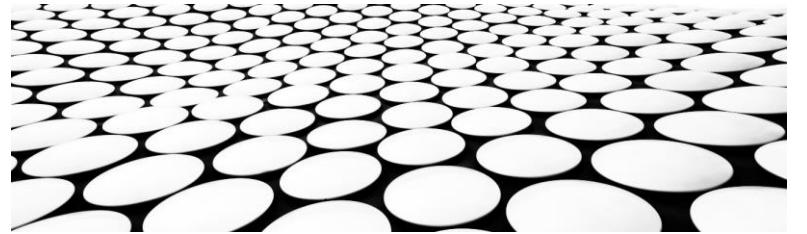


INTERACTION DESIGN
FOUNDATION

How to Conduct User Observations

2 years ago | 10 min read

User observations



Naturalistic Observation

A naturalistic observation involves studying the user “in the wild” and

tends to be less structured

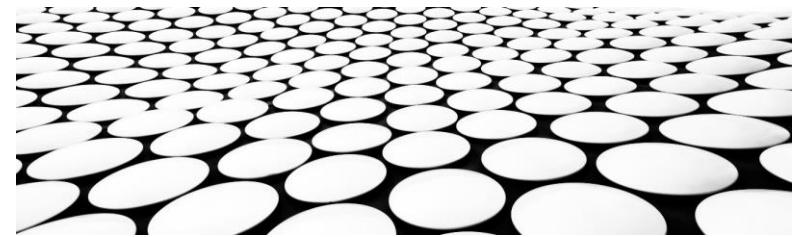
This means spending time with a user or group of users and observing their behavior with the product as they use it in day-to-day life. The observer records their observations as they see fit. This is very much an approach which leads to qualitative outputs.

Active evaluation

A researcher/designer is involved in the process

- (1) User observations
- (2) Scientific experiments
- (3) Usability testing

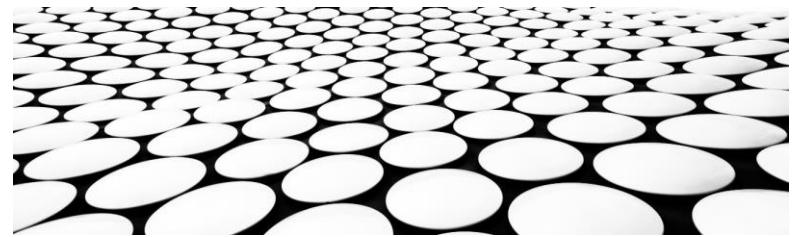
Active evaluation



Goal

Follow the scientific method to demonstrate that a property of a user interface would be favorable (or not) to user productivity.

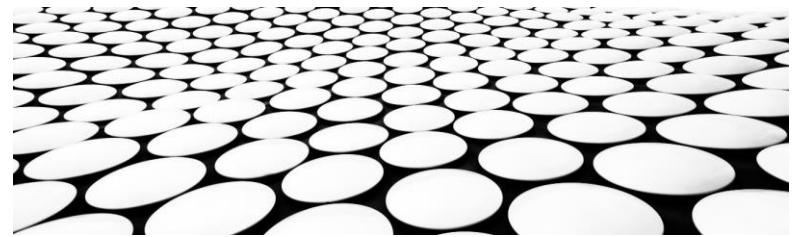
Scientific Experiment



Example

- Hypothesis : Selection time between 2 buttons depends on their color
 - Hypothesis to refute: Selection time is independent of the colors of the buttons.
- Define a set of variables to measure
 - Dependent variables: color of buttons
 - Independent variables: text shown on buttons, colors and text of the surrounding environment (web page for example)
- Choose a set of subjects:
 - Sample people from different ages, men/women, levels of education, etc.
 - Perform the experiment
 - ...

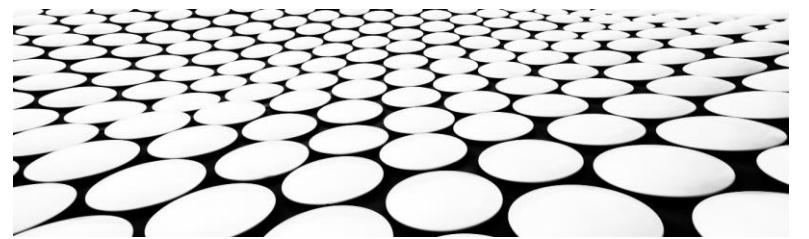
Scientific Experiment



The stages of the scientific process are as follows:

- State an hypothesis to be proven
- Choose the variables to measure
 - Independent variables (controlled)
 - Dependent variables
- Choose a set of subjects
 - Number should be large enough to obtain statistically significant results
 - Sample should be representative of the overall population
- Perform the experiment
- Analyze the results
 - Using statistical significance tests
- Decide on actions to take to improve usability

Scientific Experiment



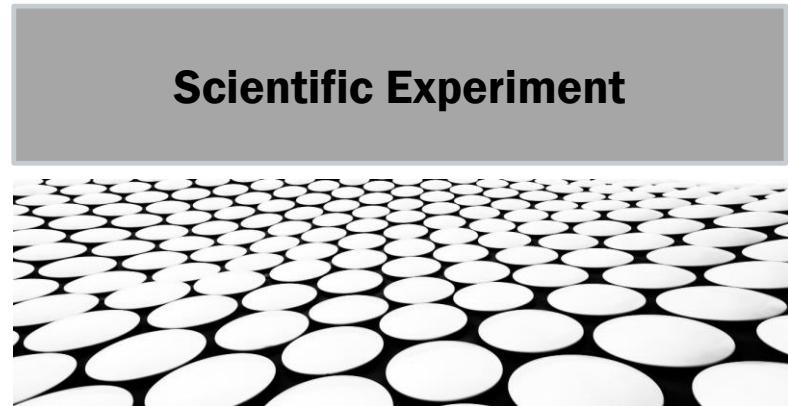
[Home](#) > [Memory & Cognition](#) > Article

Published: 03 May 2018

Can very small font size enhance memory?

[Vered Halamish](#) 

[Memory & Cognition](#) 46, 979–993 (2018) | [Cite this article](#)



DISCOVER

LOGIN REGISTER

THE SCIENCES | MIND | TECHNOLOGY | HEALTH | ENVIRONMENT | PLANET EARTH | LIFESTYLE

MIND

How Fonts Affect Learning and Memory

While it may not be obvious to most, text styles likely impact important cognitive processes and might make or break information retention.

By Carla Delgado | Oct 9, 2021 1:00 PM

Memory & Cognition

M&C

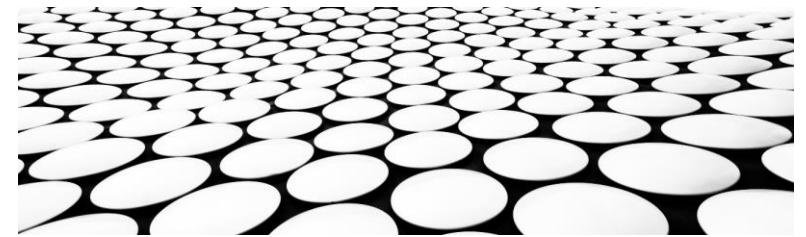
Memory & Cognition

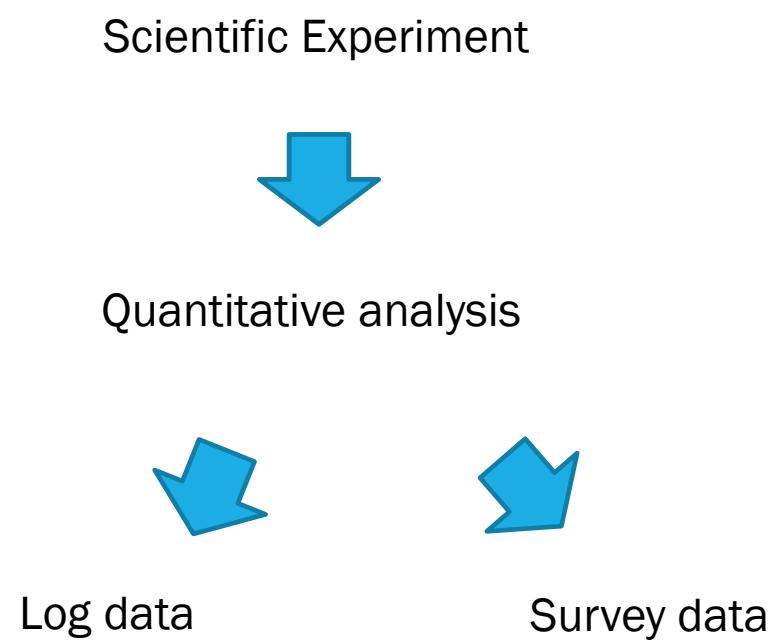
Blogs/Magazines will popularize this research

Advantages / disadvantages

- A correct scientific approach is very long and very costly to set up.
- Even important results can quickly become obsolete with rapidly changing technologies.
- More suitable for studies on human behavior and cognitive skills.

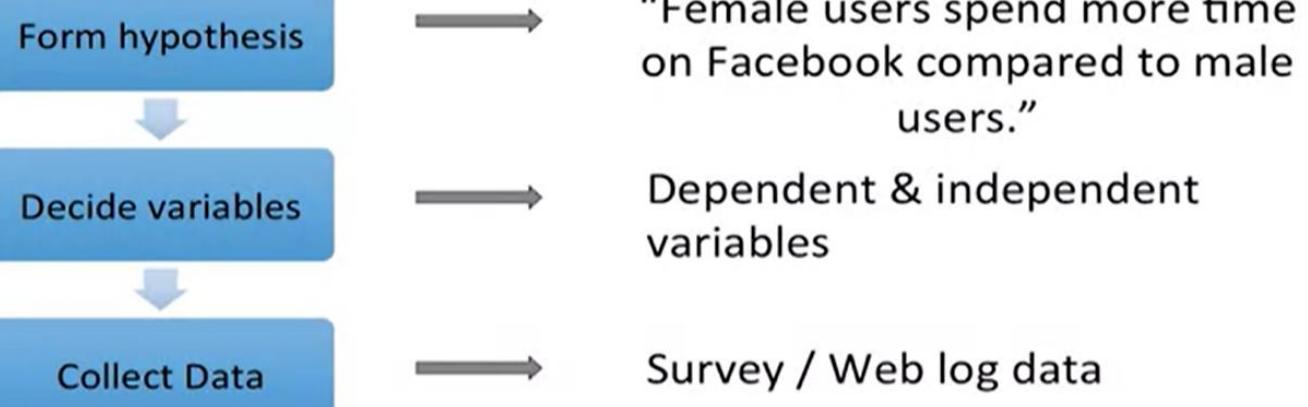
Scientific Experiment



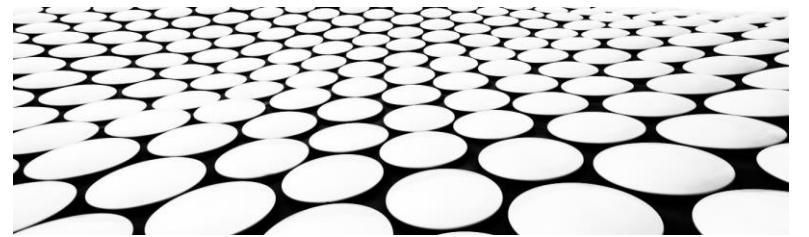


[Source](#)

Example



Quantitative analysis



coursera



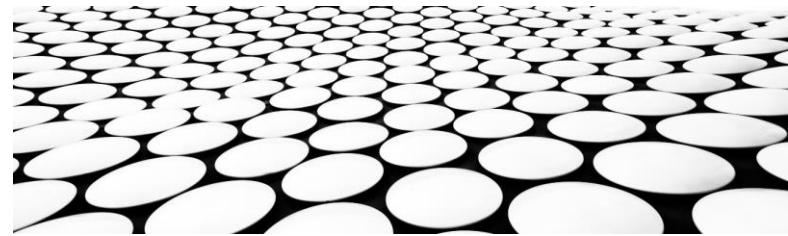
User Research and Design
Université du Minnesota

[Source](#)

Sample data

Participant	Gender	Avg minutes spent on Facebook per day
1	F	15
2	M	100
3	M	19
4	M	10
5	F	18
6	F	19
7	M	10
8	F	1
9	M	2
10	M	13
11	F	15
12	F	28
13	F	259
14	M	9

Quantitative analysis



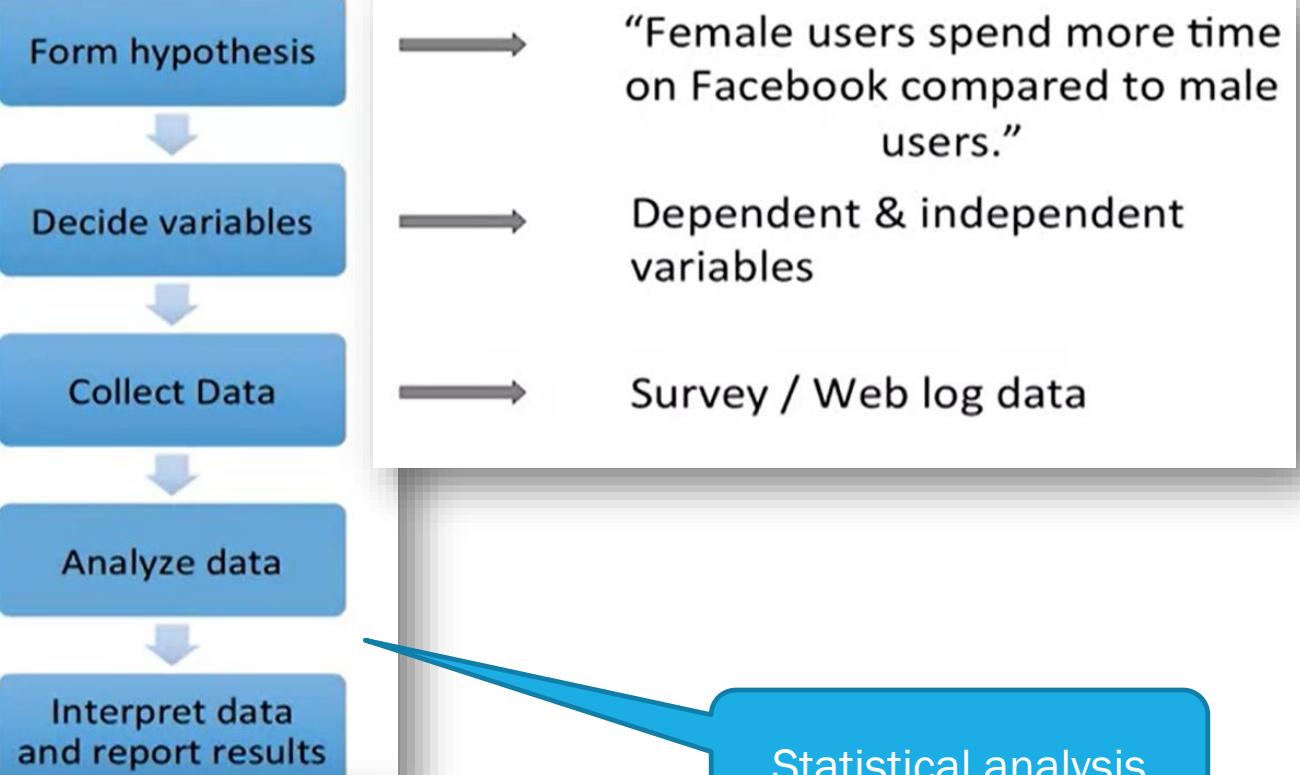
coursera



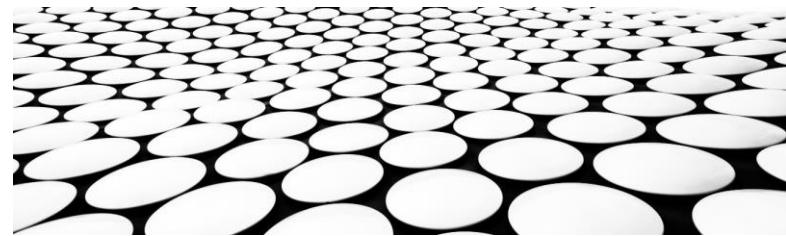
User Research and Design
Université du Minnesota

[Source](#)

Example



Transfer of scientific approach to log analysis



coursera



User Research and Design
Université du Minnesota

[Source](#)

Scientific Experiment



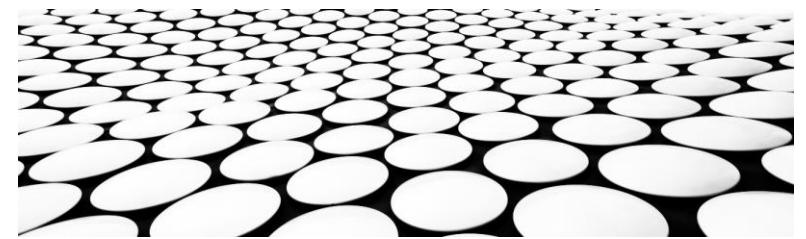
Quantitative analysis

A/B Testing



Log data

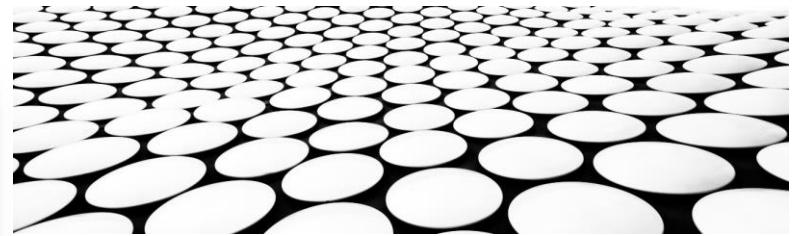
Quantitative analysis

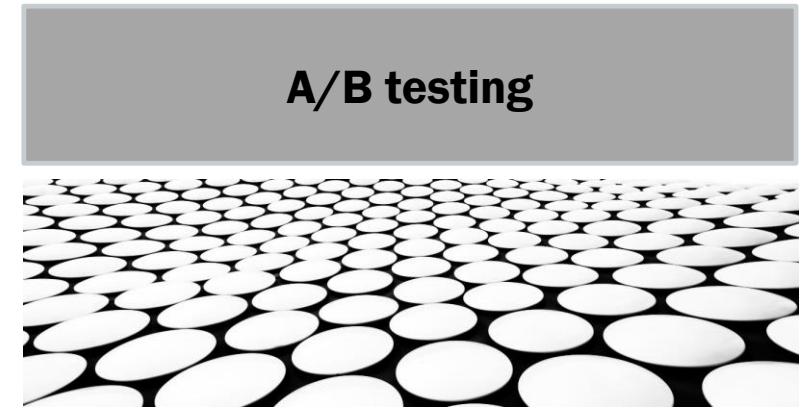
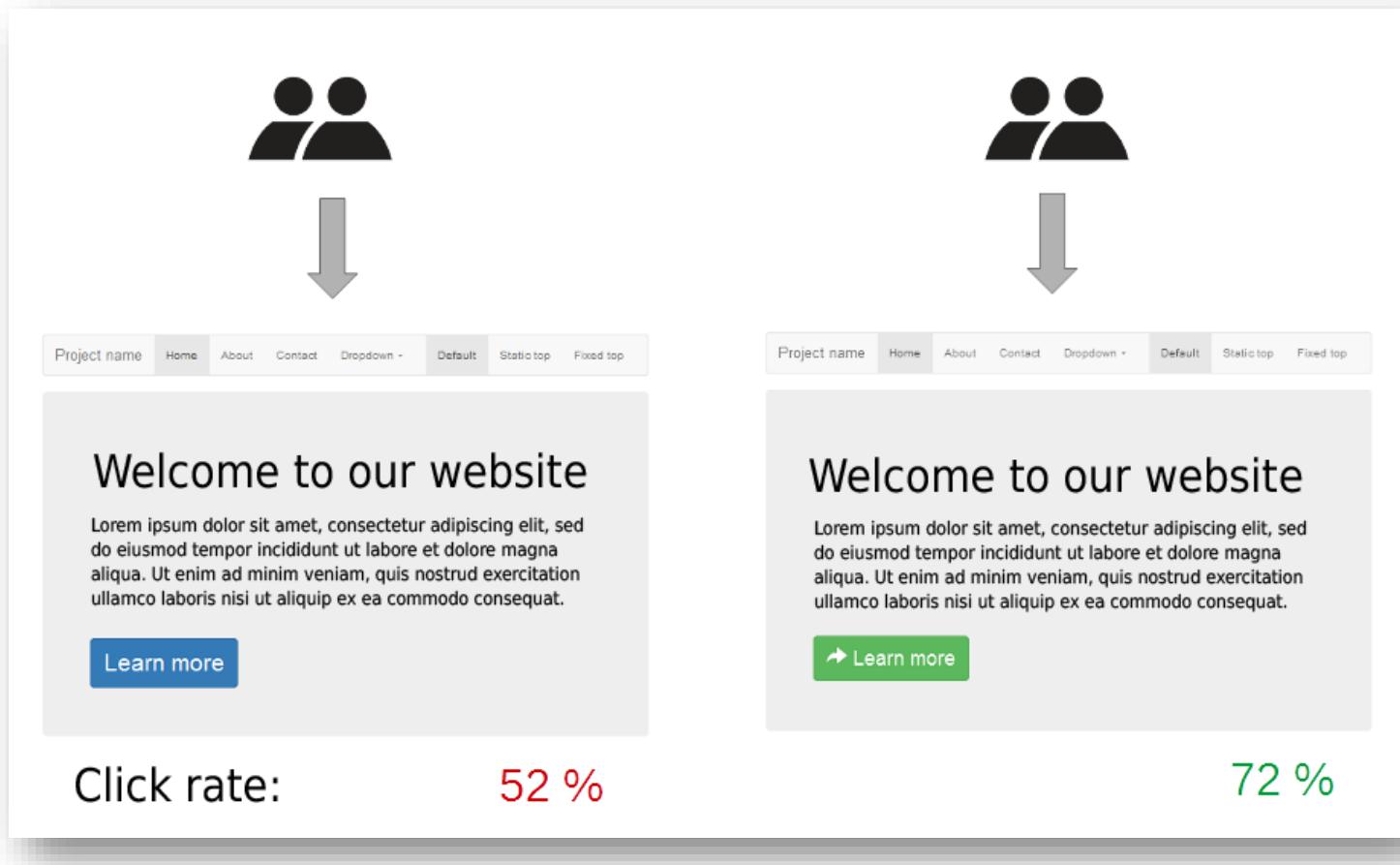


What is A/B testing?

A/B testing (also known as [split testing](#) or [bucket testing](#)) is a methodology for comparing two versions of a webpage or app against each other to determine which one performs better. A/B testing is essentially an experiment where two or more variants of a page are shown to users at random, and statistical analysis is used to determine which variation performs better for a given conversion goal.

A/B testing

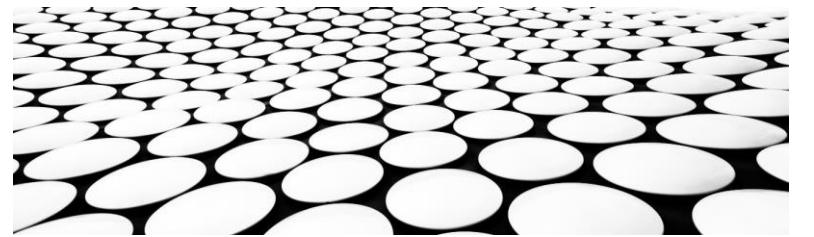




Active evaluation

A researcher/designer is involved in the process

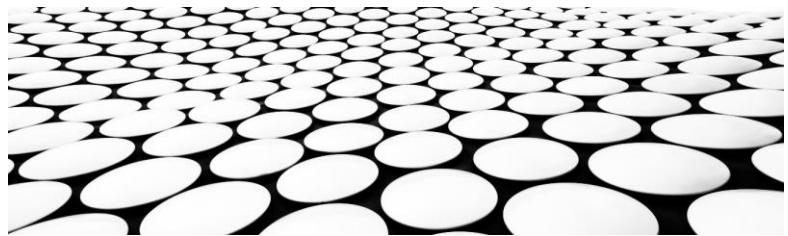
- (1) User observations
- (2) Scientific experiments
- (3) **Usability testing**

Active evaluation

Goal

A process to identify whether the UI meets the usability requirements previously established. Usability requirements are set using usability metrics.

Usability testing



Step of the iterative process

- Any step

Measuring the Intangible.

Usability Metrics

Success Score

$$= \frac{\text{N}^{\circ} \text{ of completed tasks}}{\text{Total N}^{\circ} \text{ of attempts}}$$

eleken

Error Rate

$$= \frac{\text{N}^{\circ} \text{ of errors}}{\text{Total N}^{\circ} \text{ of attempts}}$$

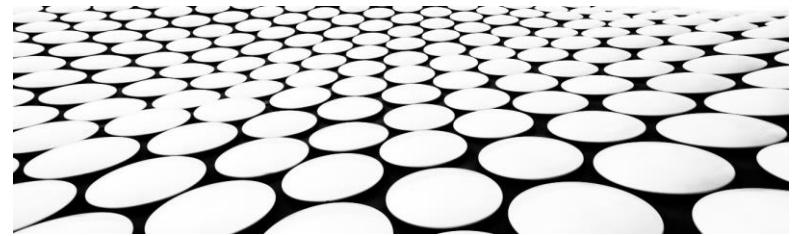
eleken

Task Time

$$= \frac{\text{Time}_{1\text{st user}} + \text{Time}_2 + \dots + \text{Time}_n}{\text{Total N}^{\circ} \text{ of users}}$$

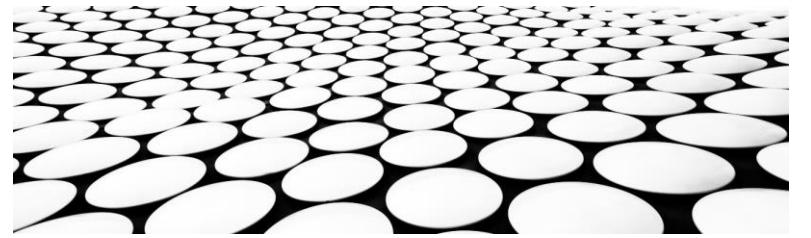
eleken

Metrics



eleken®

Usability testing



Examples of metrics:

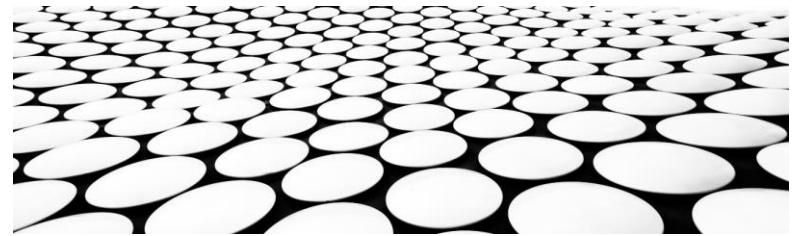
- Time necessary to complete a task.
- Percentage of tasks completed per unit of time.
- Rate of success versus failure of planned tasks.
- Number of times wrong commands are repeated.
- Number of times the user canceled an action (undo).
- Number of times the user did not use the expected method to accomplish the task.
- Thinking time required to complete a task. (cognitive load)

Implementation

Method

1. Select key tasks to be evaluated
2. Pick usability metrics
3. Set planned levels of usability
4. Design initial UI using the established usability criteria
5. Evaluate the design using by measuring the usability metrics
6. If usability goals attained, stop.
7. If not, include the user's comment in the redesign. Back to step 4.

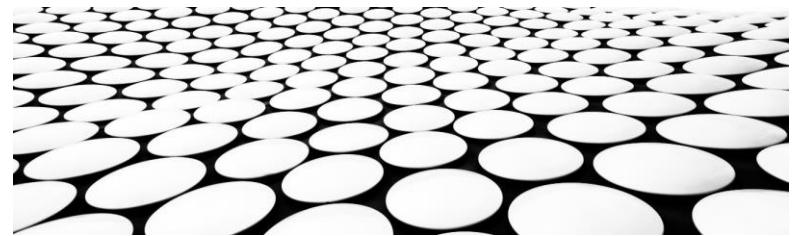
Usability testing



Advantages / Disadvantages

- Compromise less rigid than traditional scientific experimentation, but still using a well-defined methodology
 - Partly engineering
 - design-evaluate-redesign
 - Partly science
 - measuring variables
 - specific methodology

Usability testing





SUMMARY

- Active evaluation
 - User observation
 - Scientific Experiment
 - Usability testing

Other Methods

Interview and focus group
Eye tracking

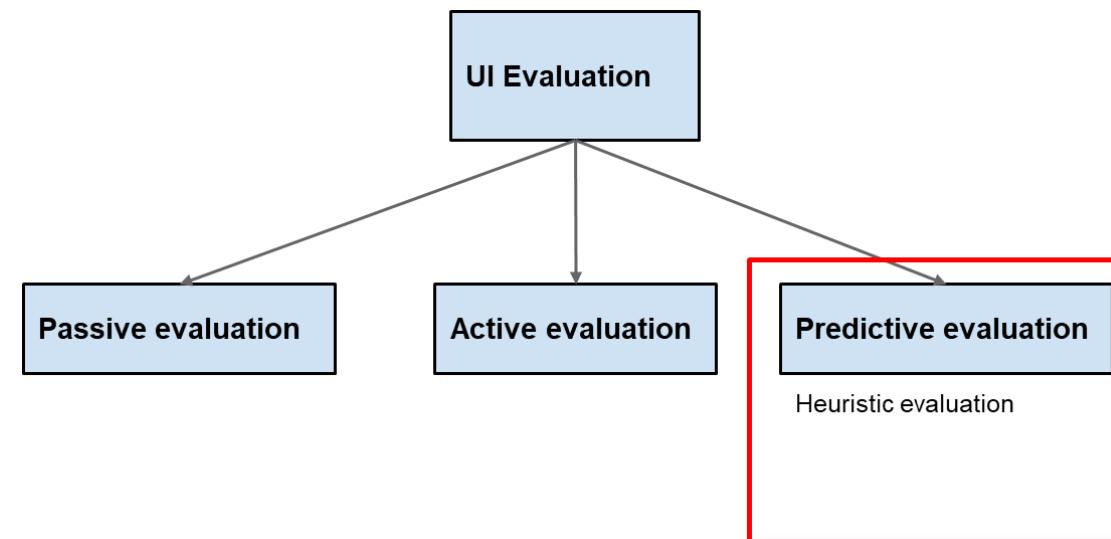
Issues of ethics and consent

Predictive Evaluation



GOALS OF THE PRESENTATION

- Present where heuristic evaluation originated and its goals
- Introduce the 10 heuristics



Jakob Nielsen

Nielsen in 2002

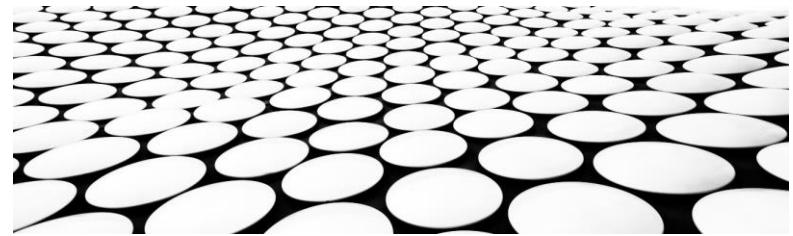
Born 5 October 1957 (age 65)
Copenhagen, Denmark

Alma mater Technical University of Denmark
(PhD)

Occupation Web usability consultant

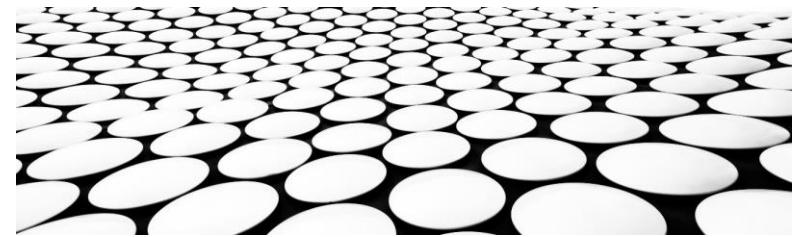


WIKIPEDIA
The Free Encyclopedia

Influential view of Dr Nielsen

Jakob Nielsen (born 5 October 1957) is a Danish web usability consultant, human–computer interaction researcher, and co-founder of Nielsen Norman Group.^{[1][2]} He was named the “*guru of Web page usability*” in 1998 by *The New York Times* and the “*king of usability*” by *Internet Magazine*.^{[3][4]}

Heuristic evaluation



Goal

- Purpose: Find usability problems in a design

Implementation

- Provide a set of usability principles (heuristics)
- A small group of evaluators (3-5) review the UI
 - independently verify compliance with heuristics
- Can be done on a fully developed user interface or paper sketches

Step of iterative process

- Any step of the iterative development

Advantages / disadvantages

- Can be done by designing team (no cost for finding users)
- Not a « real » situation... called predictive as it's an evaluation that anticipates usability problems

10 Usability Heuristics

Visibility

Show system status, tell what's happening



Freedom

Provide good defaults & undo

Mapping

Use familiar metaphors & language

Consistency

Use same interface and language throughout

Error Prevention

Help users avoid making mistakes

Recognition

Make information easy to discover

Flexibility

Make advanced tasks fluid and efficient

Minimalism

Provide only necessary information in an elegant way

Error Recovery

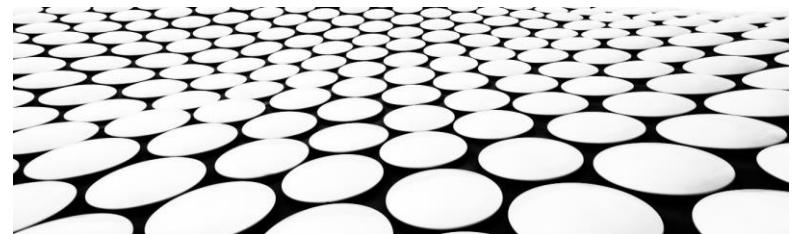
Help users recognize, diagnose and recover from errors

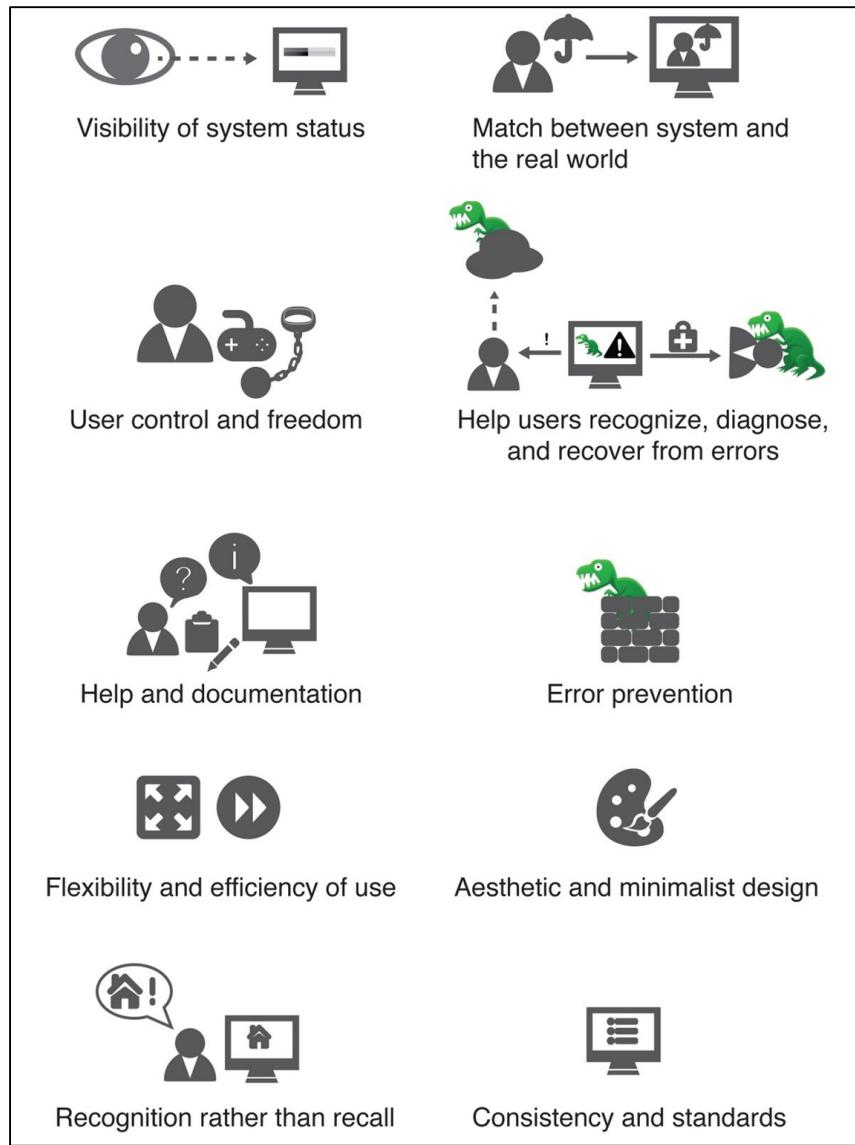
Help

Use proactive and in-place hints to guide users

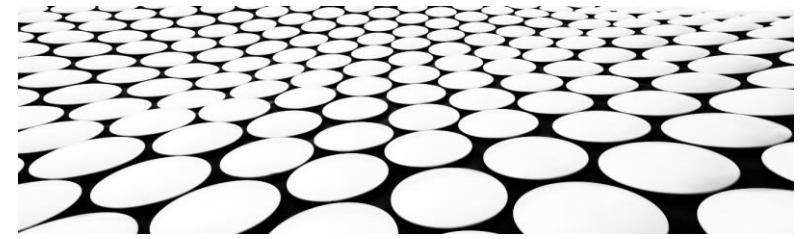
Based on Nielsen's ten heuristics. Updated by Scott Klemmer and Janaki Kumar.

Heuristic Evaluation

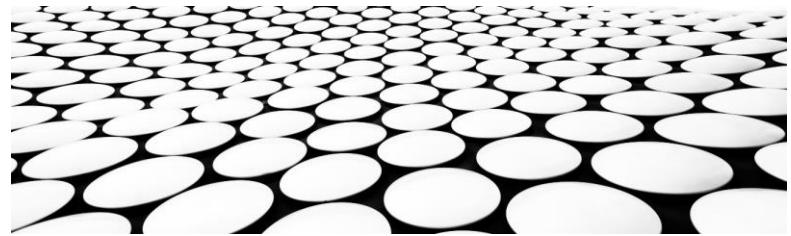
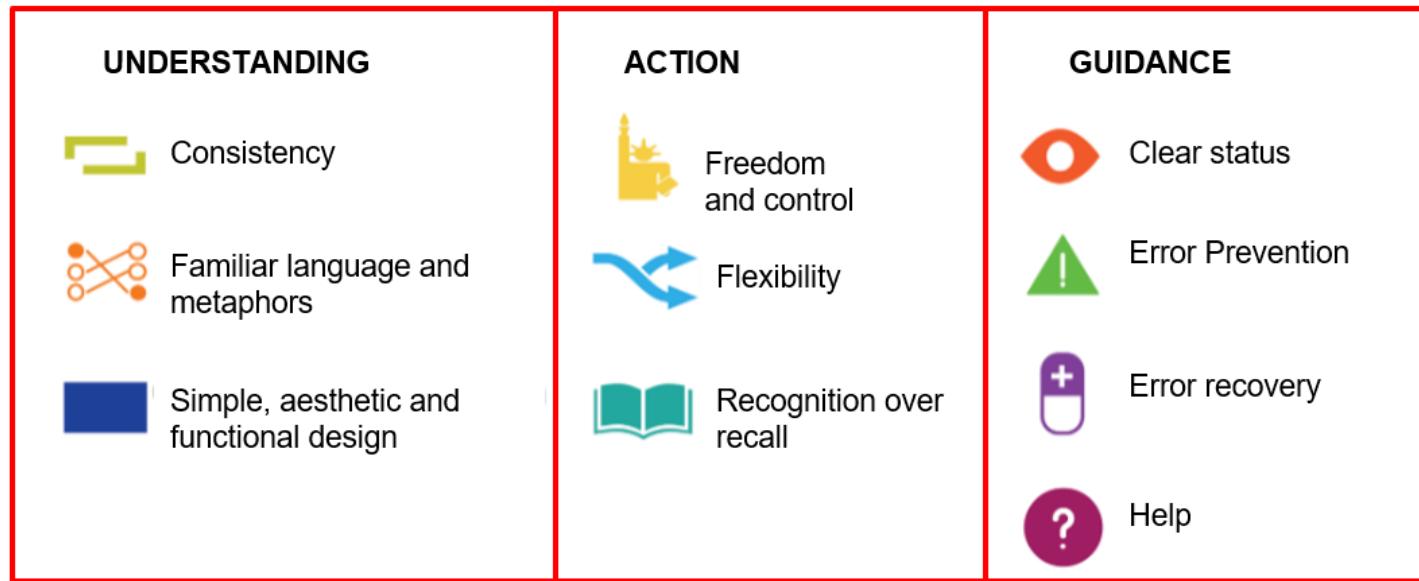




Heuristic Evaluation



Heuristic Evaluation



How to Conduct a Heuristic Evaluation

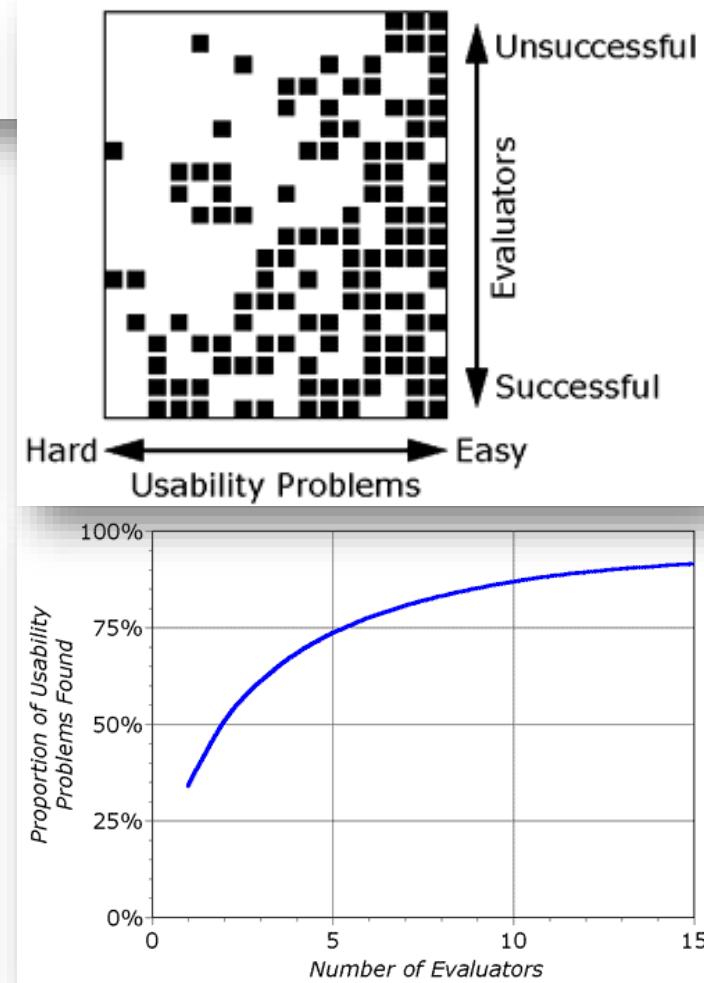
Summary: Heuristic evaluation involves having a small set of evaluators examine the interface and judge its compliance with recognized usability principles (the "heuristics").

By Jakob Nielsen on November 1, 1994

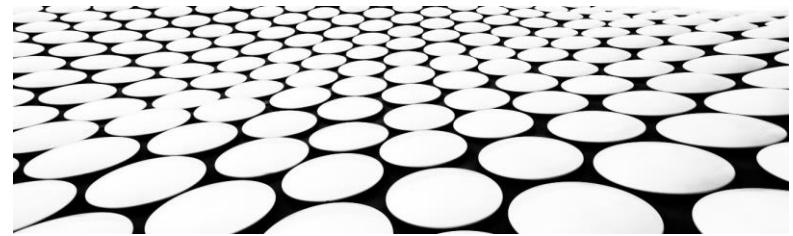
Topics: Heuristic Evaluation

Empirical study with
20 evaluators
- easy and hard
problems to find

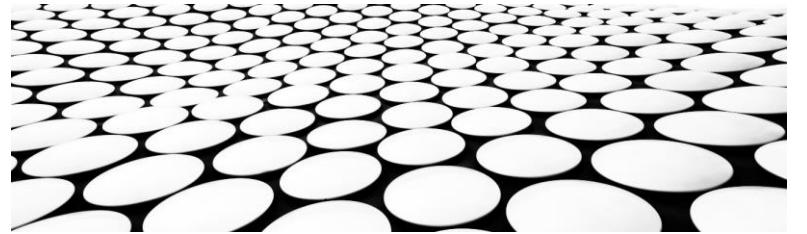
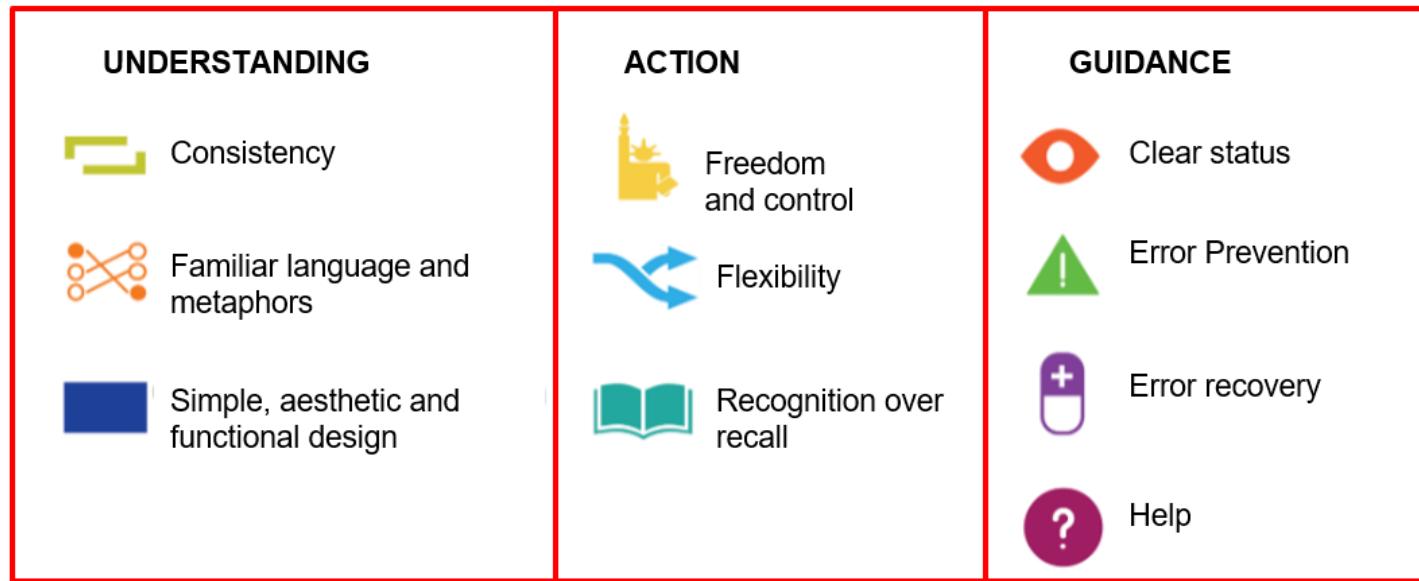
Conclusion of study is
that 3-5 evaluators
are sufficient. More
than that, barely any
new problems are
found.



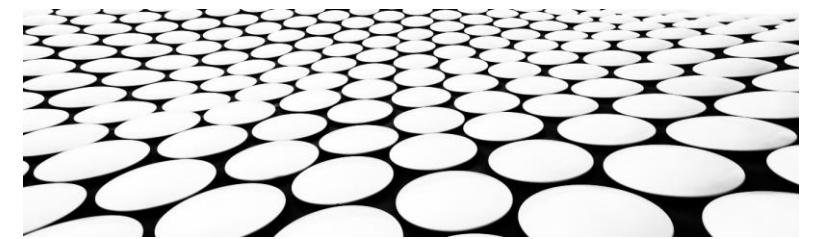
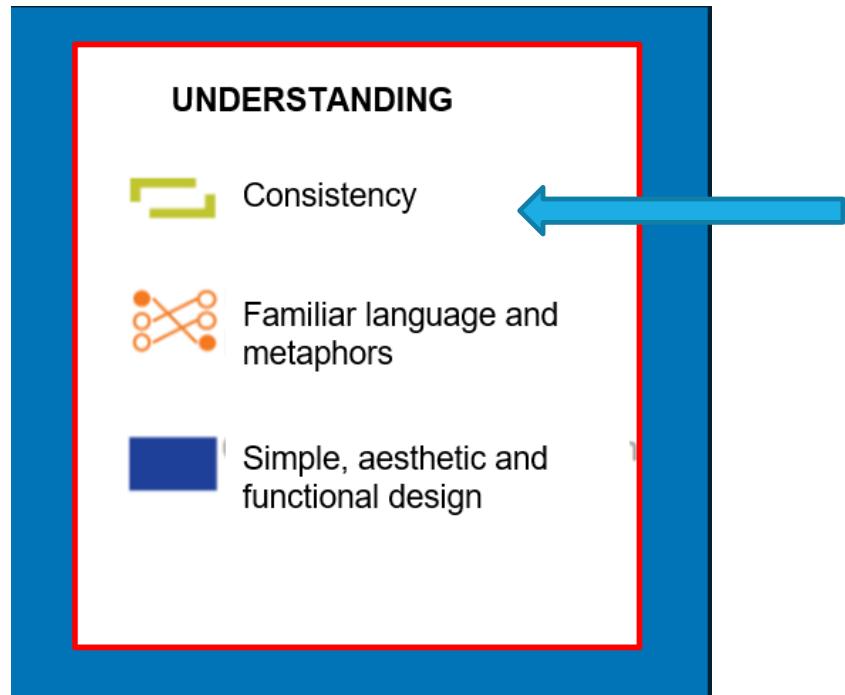
Number of evaluators



Heuristic Evaluation

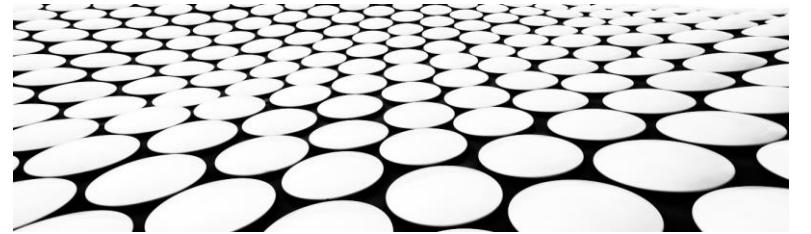


Heuristics of Understanding

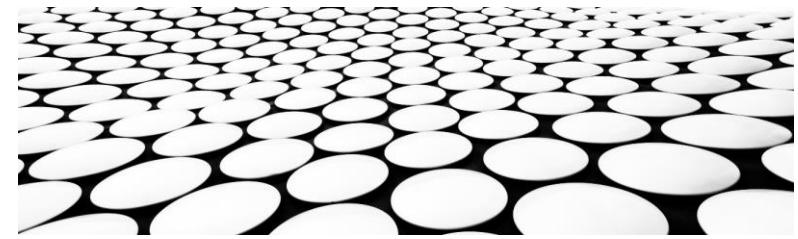


 **Consistency**

- A system is easier to learn if similar concepts are expressed in the same way.
- Consistency makes it easy to transfer prior knowledge to the current situation.
- Types of consistency:
 - aesthetic / functional
 - internal external

Consistency

Consistency – Internal / Aesthetic

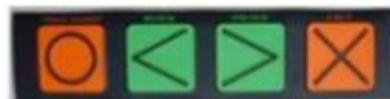


Style and appearance is repeated to enhance recognition ("branding"), and establish an emotional tone

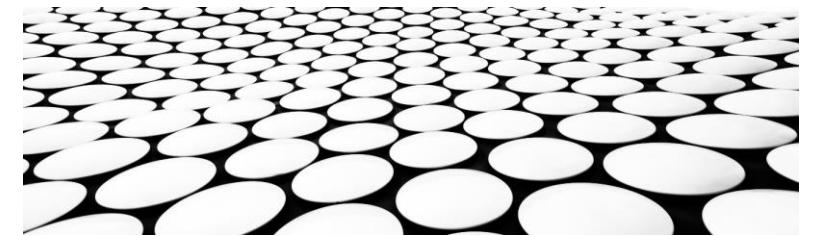
Examples: Mercedes Benz established as a luxury brand, Postal Services, Provincial Parks

Augment user's learning speed by using known symbols (colors/icons) or clear metaphors.

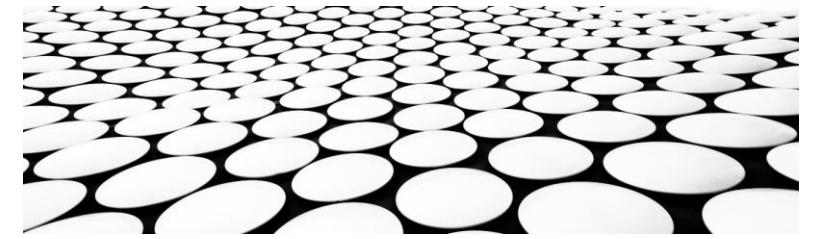
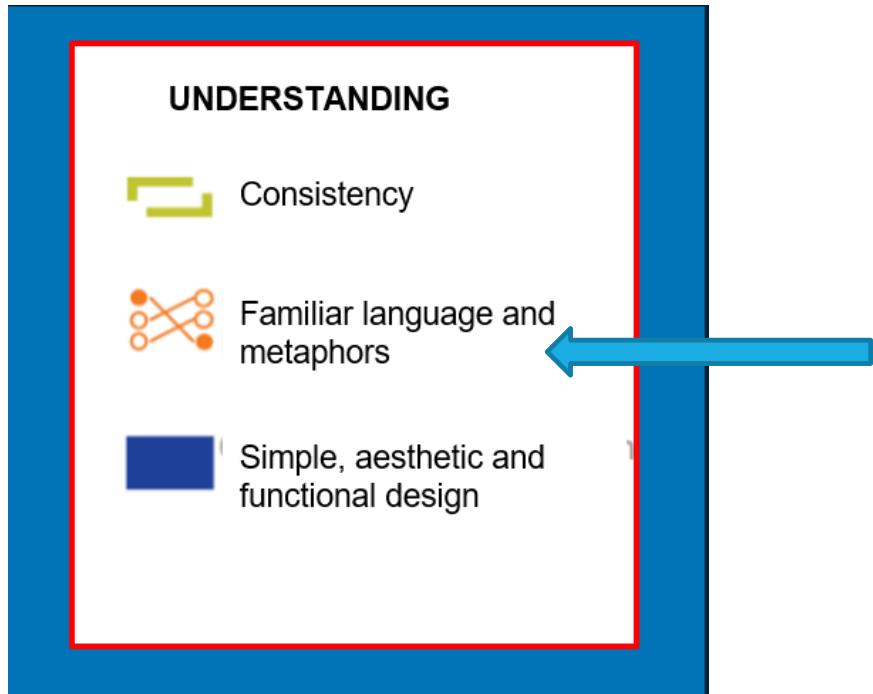
E.g. symbols to go forward/backward/pause when listening to music or lots of other icons!



Consistency – External / Functional



Heuristics of Understanding





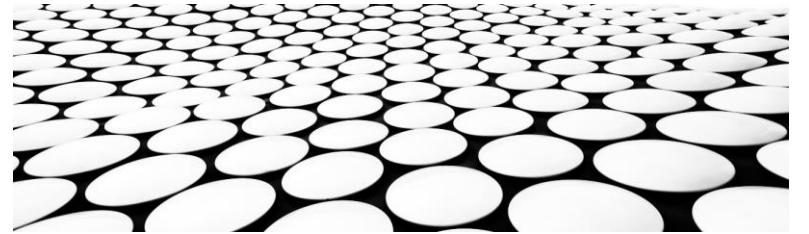
Familiar language and metaphors

Speak the language of users

- Use words, phrases and concepts familiar to the user, rather than system-oriented terms
- Adapt the language to the target groups: children, elderly people, different cultures

Verbal communication
(week 4)

Familiar language and metaphors



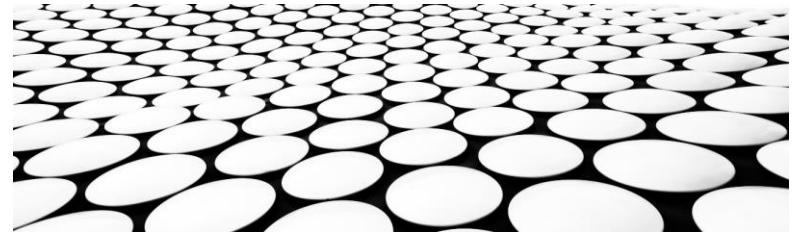


Metaphor

The metaphor is a figure of speech which consists in establishing a comparison between two realities, a comparison which is based on an analogy that is established between the two referents.

I'm drowning in a **sea** of grief.
She was **fishing** for compliments.
You **light up** my life.
Time is a **thief**.

Familiar language and metaphors

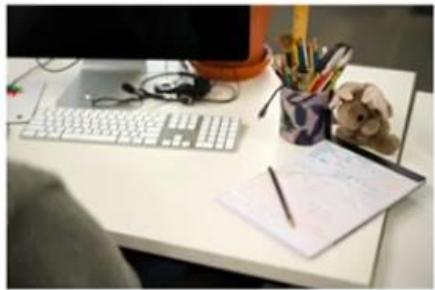




Familiar language and metaphors

What is a metaphor in UI design?

- a word or phrase designating an object used in place of another to suggest a resemblance
- the use in an interface of familiar concepts to represent more abstract system concepts



Desktop

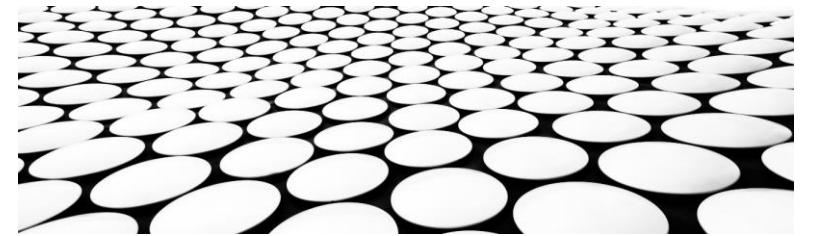


Folder

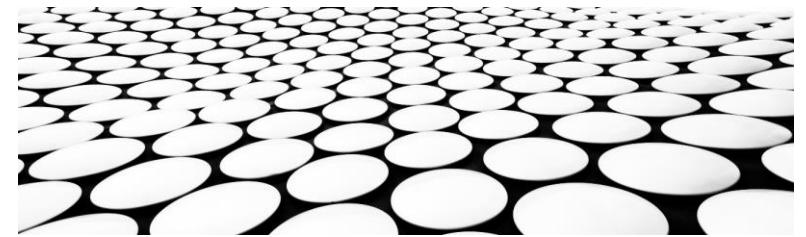
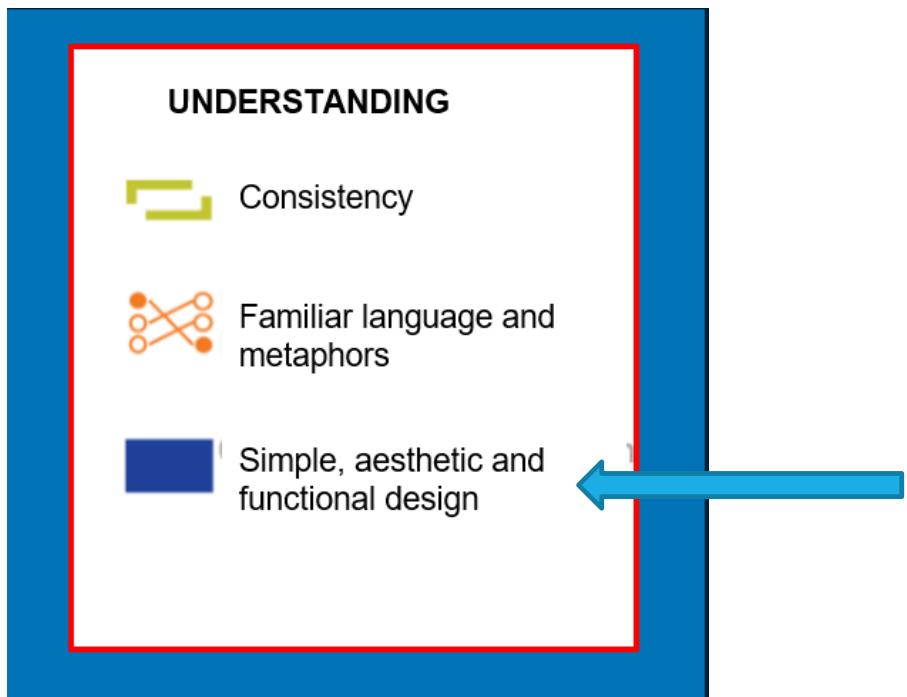


Cart

Familiar language and metaphors



Heuristics of Understanding



Simple, aesthetic and functional design

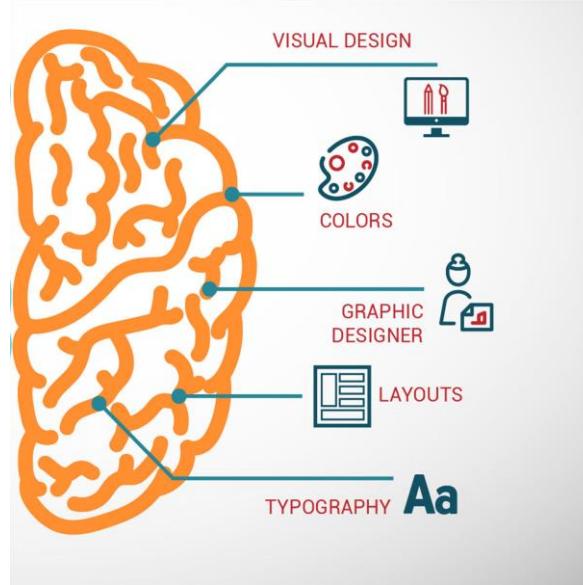
Signal to noise ratio...

Not too crowded.

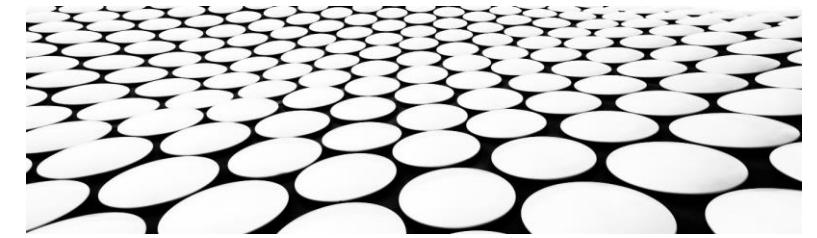
Good use of color themes.
Remember that "fonts have moods".

Call the laws of Gestalt for help!

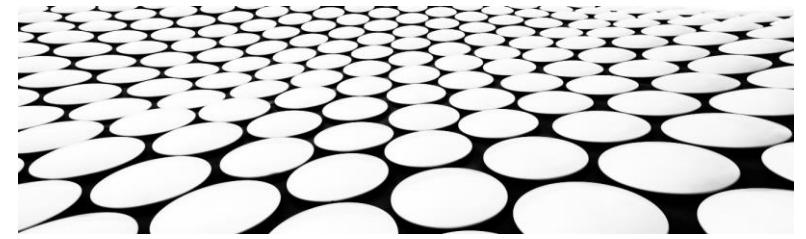
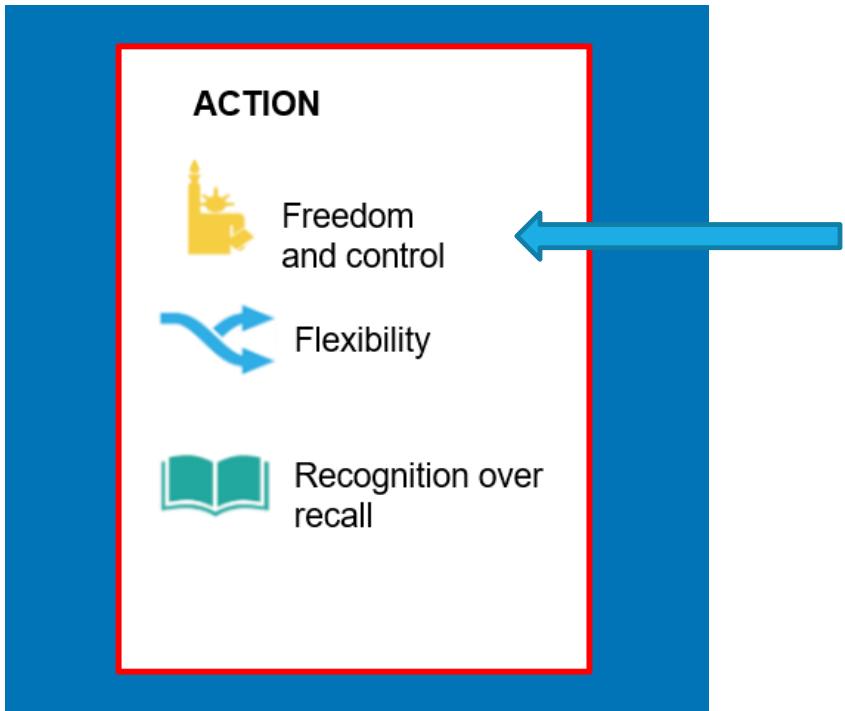
Principles taught during
weeks 6 and 7



Simple, aesthetic and functional design



Heuristics of Action





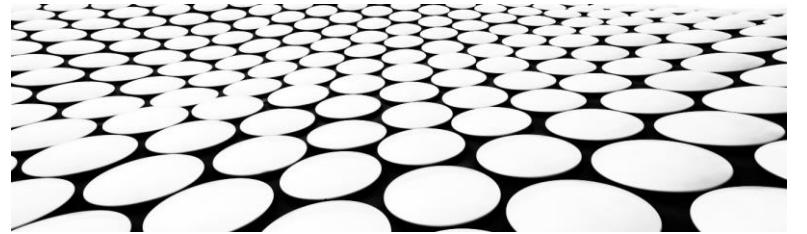
Freedom
and control

Favor exploration before commitment

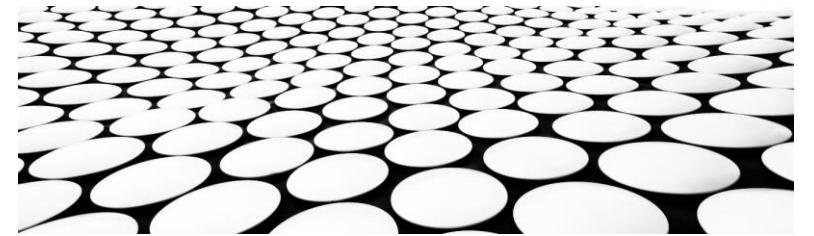
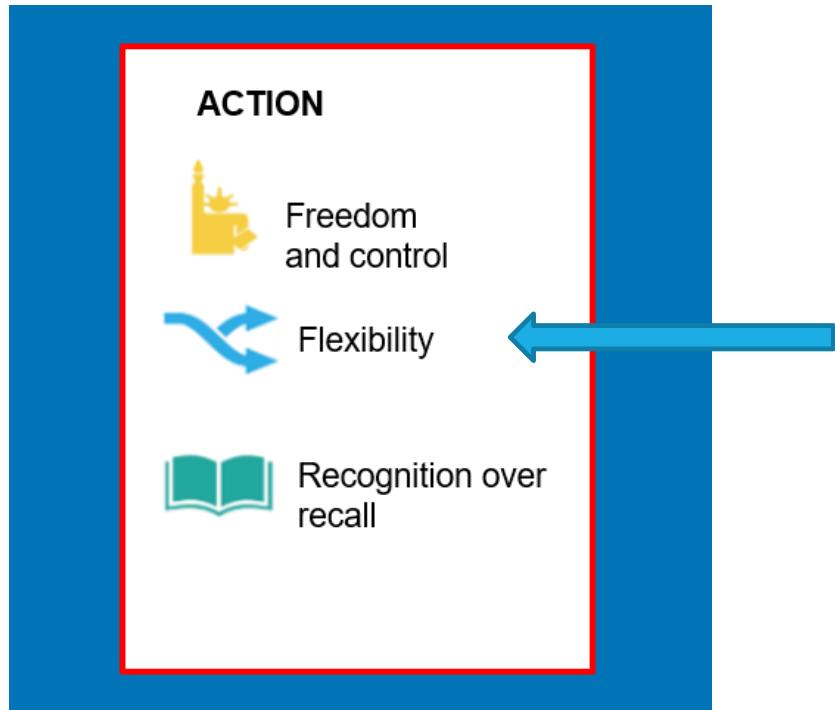
- On an e-commerce site, for example, be able to explore without having to enter a lot of information.
- Allow undoing different actions

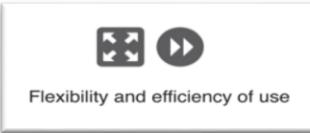
The user must feel in control.

Freedom and control



Heuristics of Action

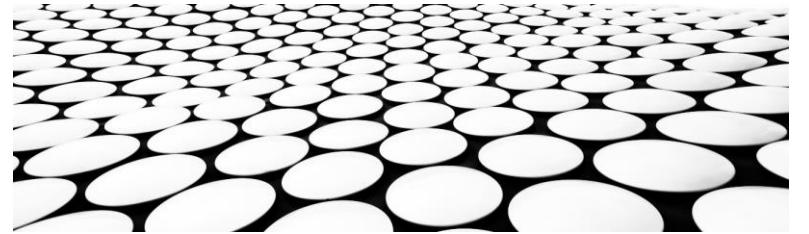


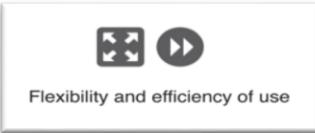


Adaptability to domain and/or software expertise

- Shortcuts (Ctrl-X, Ctrl-C) for experts, but complete menus for novices
- Several ways to go somewhere
- Multiple entry points for multiple users

Flexibility and efficiency of use

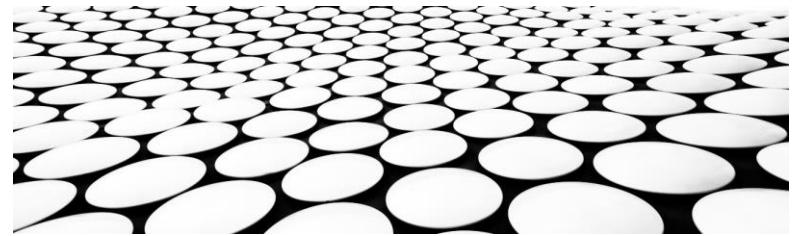


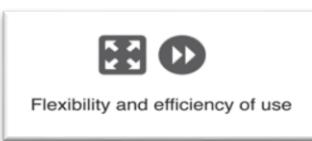
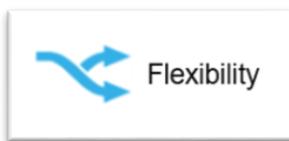


Adaptability to frequency of operations

- If something is rarely done by non-experienced users (like setting up a printer or router), a linear process may be the best way
- If something is frequent, make sure the access is easy and efficient

Flexibility and efficiency of use

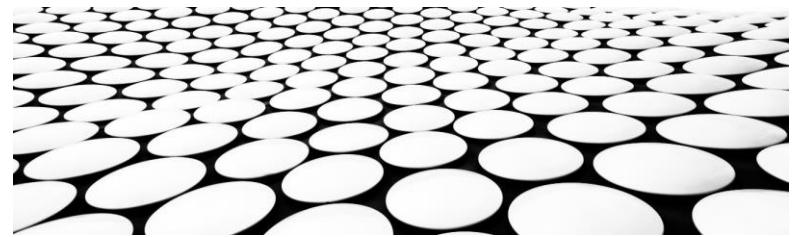


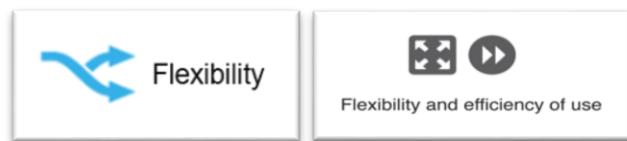


Proactiveness

- Correct mistakes
 - Simple example of "do you mean X?"
- Recommendation system
 - Those who bought X also bought Y
- Making suggestions

Flexibility and efficiency of use





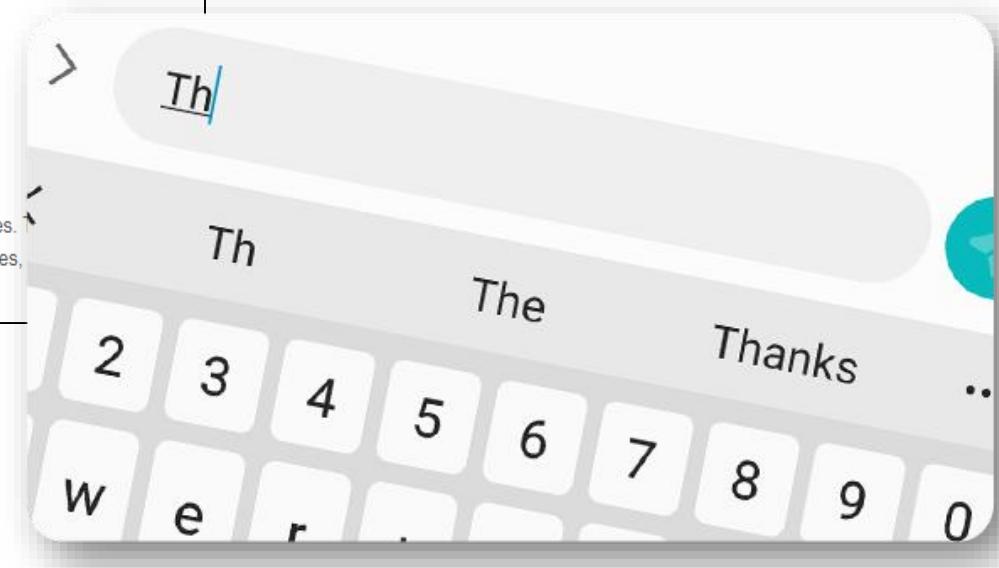
Google uottwa

Tous Maps Images Actualités Vidéos Plus Paramètres Outils

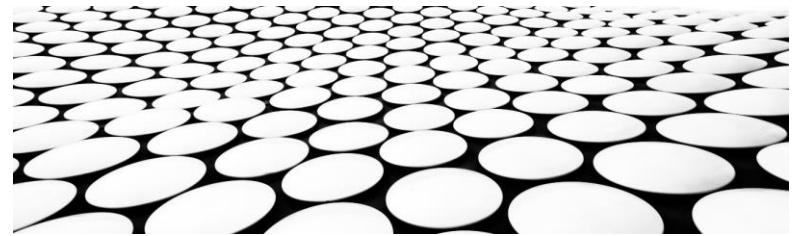
Environ 2 040 000 résultats (0,79 secondes)

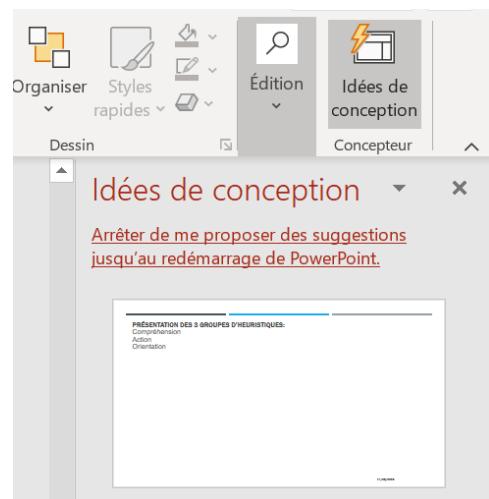
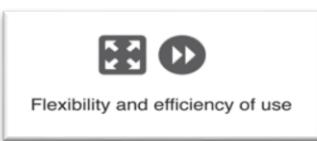
Résultats pour **uottawa**
Rechercher plutôt [uottawa](#)

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[Annonce](#) www.uottawa.ca/ ▾
La plus grande université bilingue (français-anglais) du monde. Plus de 450 programmes. Canada. Campus au centre-ville. Programmes d'études: Arts, Gestion, Sciences Sociales, Biologie, Psychologie, Comptabilité, Droit, Sciences de la santé, Marketing.



Flexibility and efficiency of use





Know when to stop...

Idées de conception

ÉTAPES DE L'ÉVALUATION

UNDERSTANDING

- Contexte
- Familiar language and responses
- Simple, aesthetic and functional design

ACTION

- Freedom from clutter
- Recognition and recall

GUIDANCE

- Clear status
- Error prevention
- Error recovery

ÉTAPES DE L'ÉVALUATION

ÉTAPE 1 : Identification et compréhension des besoins et des informations.

ÉTAPE 2 : Développement d'un plan d'action pour améliorer l'interaction et la prise en charge des problèmes identifiés.

ÉTAPE 3 : Exécution du plan d'action et évaluation de l'amélioration.

ÉTAPE 4 : Recommandations pour la prochaine évaluation et révision du plan d'action.

ÉTAPE 5 : Conclusion et mise à jour du plan d'action.

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CLIQUEZ POUR AJOUTER UN TITRE

Étapes de l'évaluation

ÉTAPE 1 : Identification et compréhension des besoins et des informations.

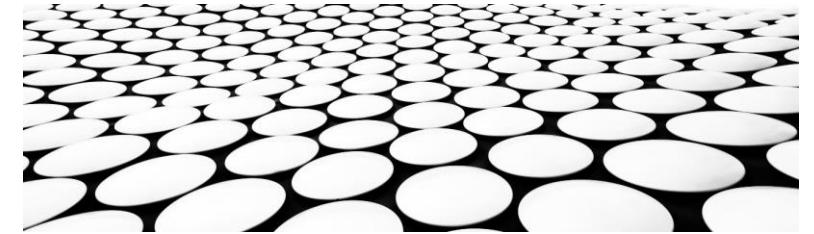
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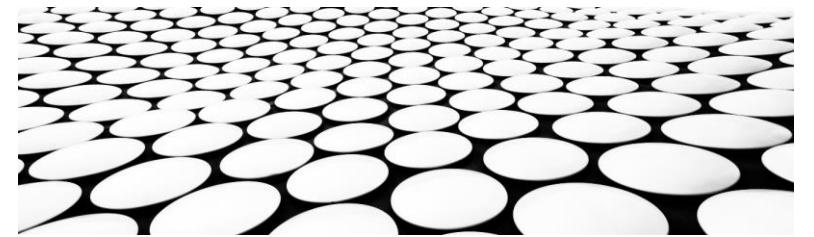
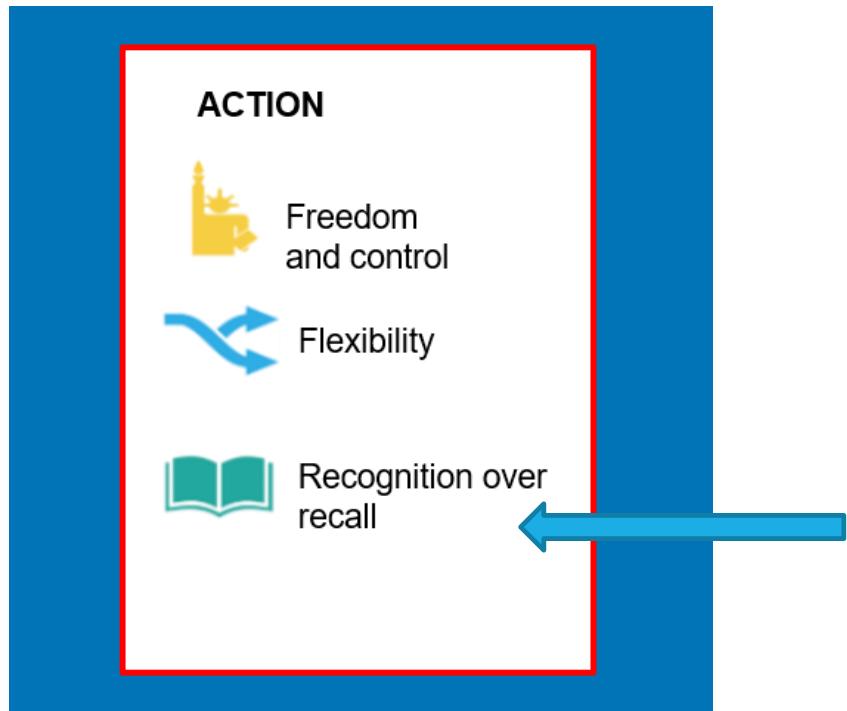
ÉTAPE 4 : Recommandations pour la prochaine évaluation et révision du plan d'action.

ÉTAPE 5 : Conclusion et mise à jour du plan d'action.

Flexibility and efficiency of use



Heuristics of Action



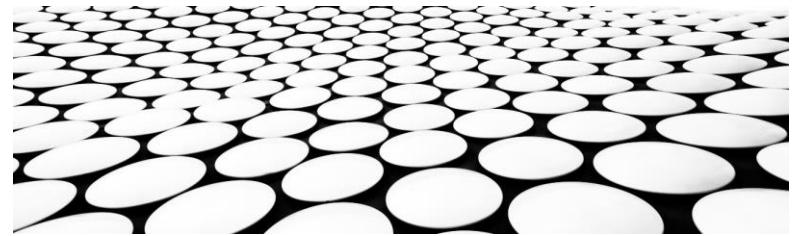


Recognition over
recall

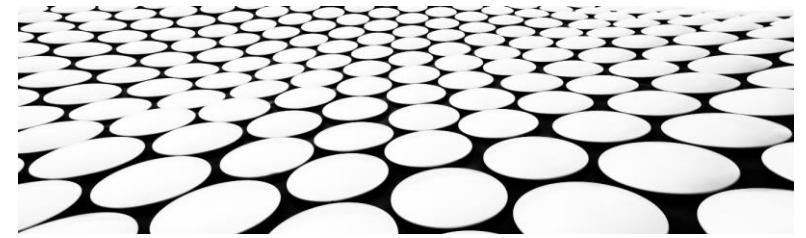
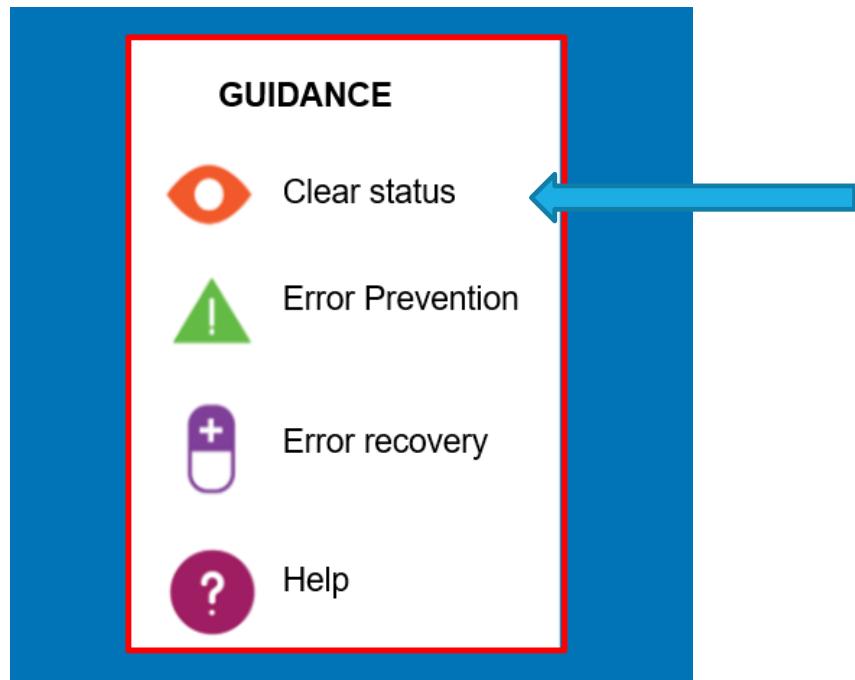
Limit the cognitive load

- Avoid codes, and abbreviations
- Do not assume that people will remember the options (recall), but make sure that the functions and options are clear (recognition) on the screen.
- Remember short-term memory limits
- Use menus whenever possible (limit text entry)

Recognition over recall



Heuristics of Guidance



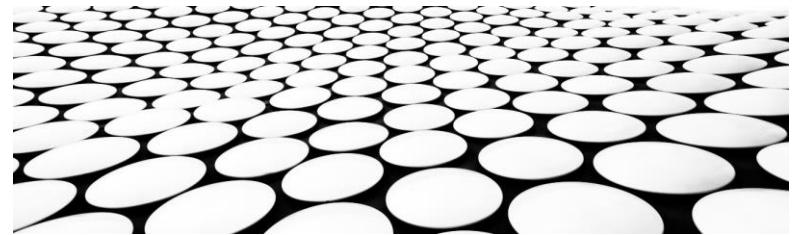


Clear status

System Status

- Space
- Process
- Time

Clear status

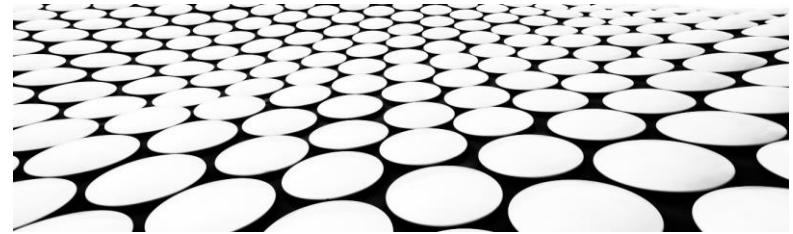




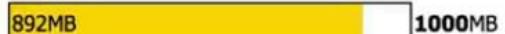
Clear status

- In recent years, space limitations are less in effect
- Sometimes free portion / paying portion (should mention the limits when signing)
- It's good to provide status when the user approaches a limit (or problem), not when it's too late

Clear Status / Space



Your mailbox is almost full.



You are approaching the maximum size of your mailbox. Please reduce your mailbox size by deleting items or go to the [Outlook Configuration Portal](#) in order to **Activate Backend Archiving** or to **request a bigger mailbox size/package**.



Clear status

Completed step

Example: Thank you, you did X (like signing up for a mailing list).

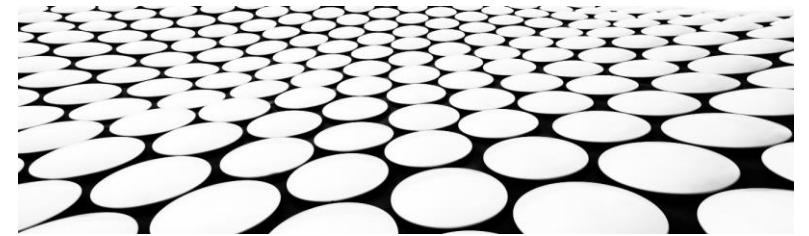
Action / next step:

- What is the next step?
- Provide clear options

Completion

- Show the user that he/she has finished
- For example, a completed order at checkout.

Clear Status / Process





Clear status

What is response time?

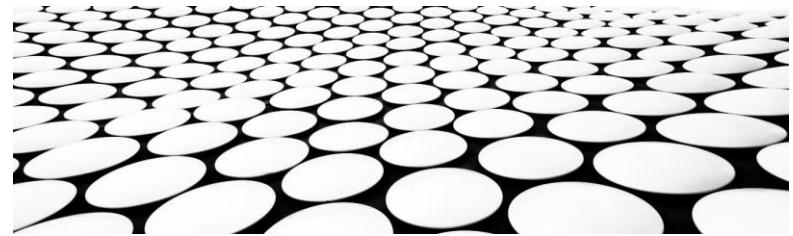
Time required between users initiating an activity and when the computer presents the results..

What is think time ?

The time it takes for the user to think before performing the next action.

Attention.... also often called *user response time*

Clear status / Time

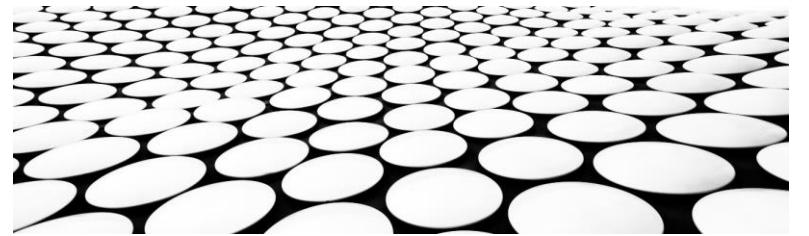




Clear status

- Over time, users become more and more demanding of computers
- Users are looking for quick response systems
- Users want to feel in control
 - Slow response time gives control to the computer

Clear status / Time

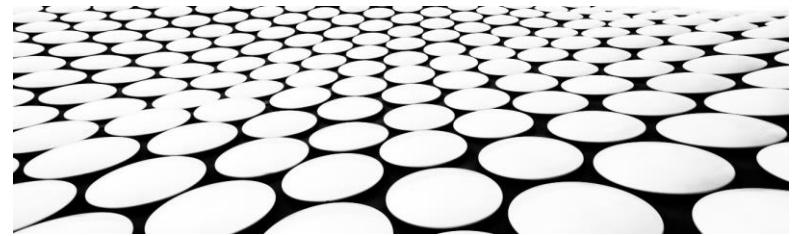


The response time is good or bad only in terms of user perception



Clear status

- Maintain low variability of the response time
 - Users become more frustrated if the system sometimes runs slowly
 - Explain clearly the variability of the response time
- Calculate the expected duration of the delay and provide a dynamic feedback

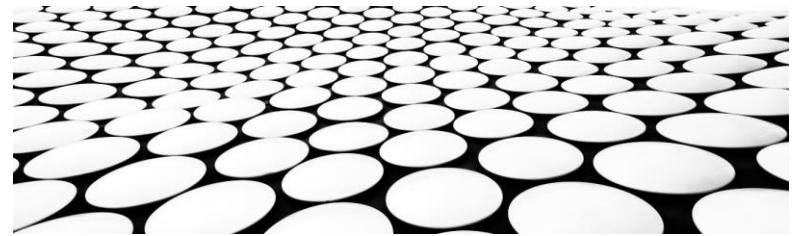
Clear status / Time

The response time is good or bad only in terms of user perception



Clear status

Clear status / Time



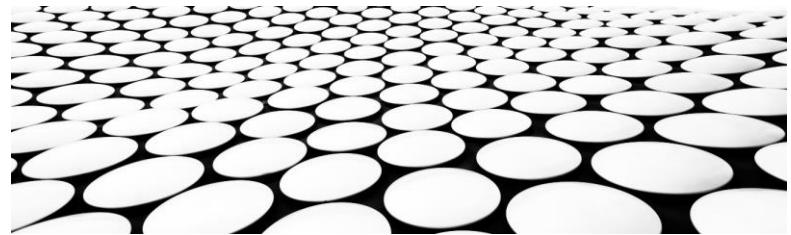
GUIDE for the UI according to response time

- **Less than one second** - Show result
 - Example "Unsubscribe" - "Sorry to see you leave".
- **One to three seconds**
 - A status indicator like the "spinning circle"
 - Progress bar
 - Countdown indication



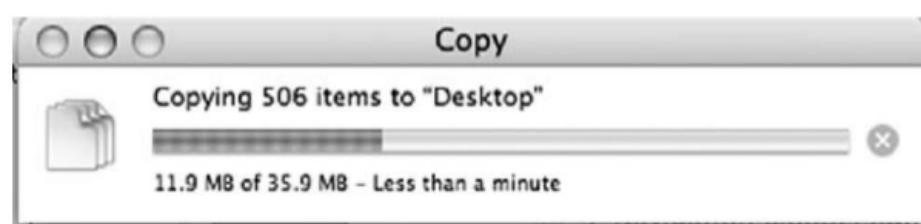
Clear status

Clear status / Time

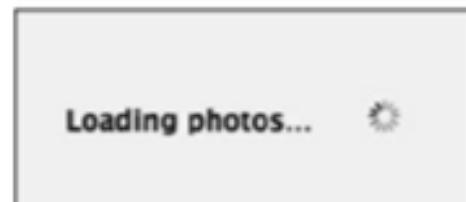


GUIDE for the UI according to response time

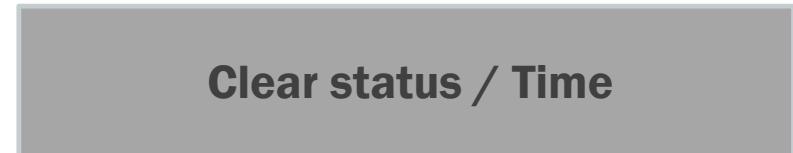
- In the **3-5 seconds** zone:
 - Display everything you can, as soon as you can
 - e.g. when starting an application, immediately open a window with a title
- **More than 5 seconds:**
 - Announce the delay:
 - Before the user selects the action (if possible), warn of the consequence
 - During the execution, indicate how long it will take

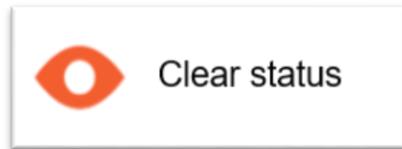


MacOS X file transfer



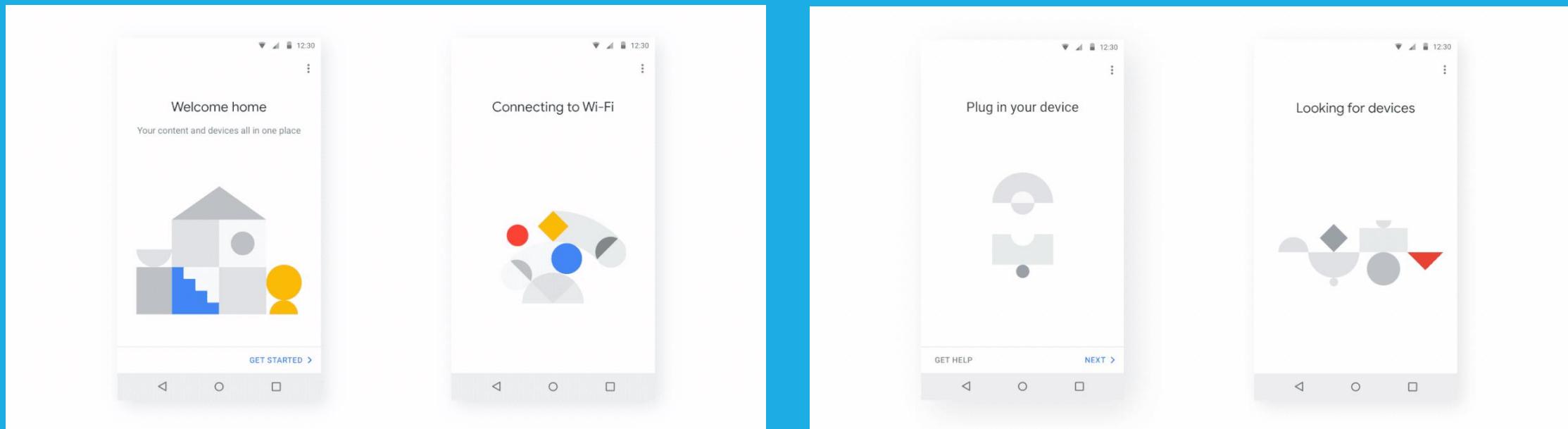
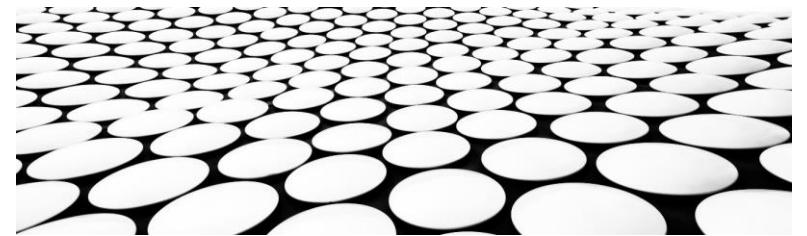
Apple iPhoto



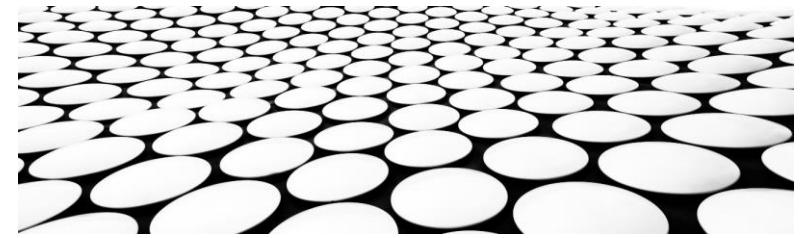
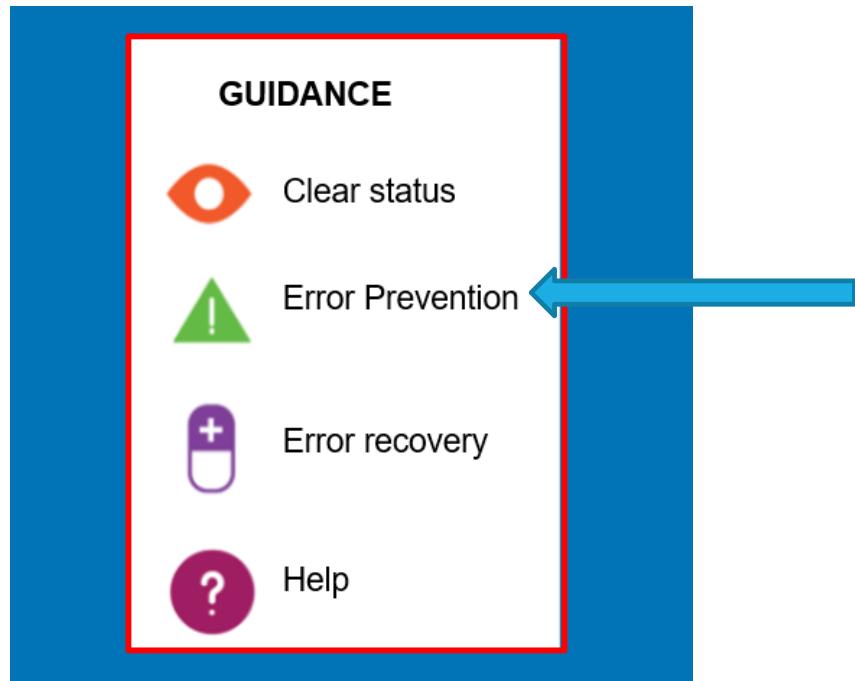


Use of animations – keeps the user busy but does not give time estimates

Clear status / Time



Heuristics of Guidance

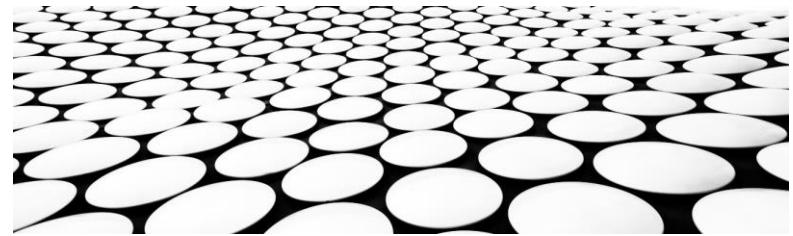


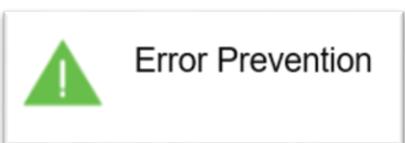


Error Prevention

- 1. What will happen?**
 - Use feedback messages to warn users of the potential consequences of their actions (e.g. phishing)
- 2. Oh ... I do not want to go on ... how can I get out of here?**
 - Provide an exit (cancel / go back)
- 3. How can I enter this information?**
 - Add input constraints, or manage an unconstrained field
- 4. Have I lost everything?**
 - Use a state backup (auto-save)

Error Prevention



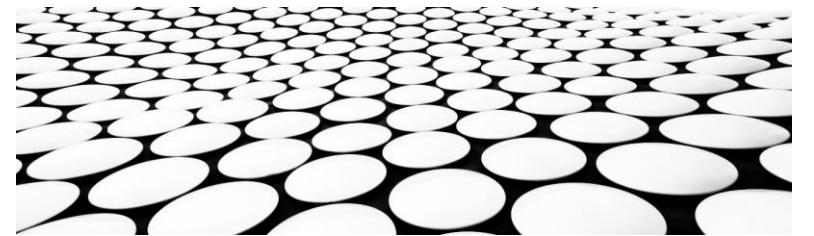


Error Prevention

(1) What will happen?



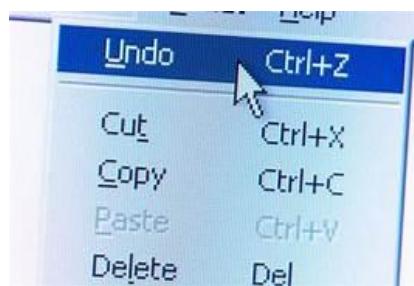
Error Prevention



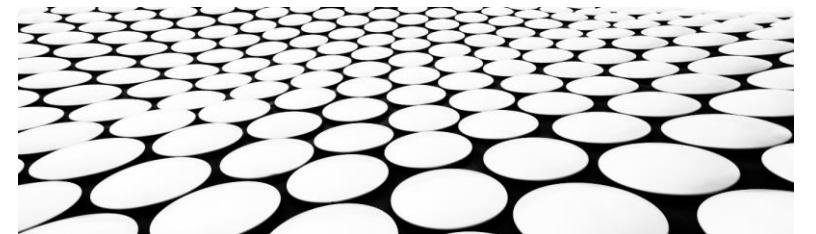


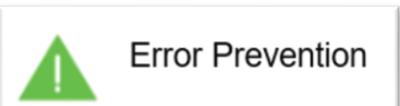
Error Prevention

(2) How can I get out of here?



Error Prevention





Error Prevention

(3) How can I enter this information?

JAMES INVESTIGATION HIGH AND FAMILY

Use shipping address

Street address* Apt., suite, bldg.
2125 Chestnut St

Country* City* State*
United States 94123 California

Phone number
434-343-3423 This entry can only contain numbers. deliveries

Cell phone

Username bob That name has already been claimed.

Email Address bob@g Please enter a valid email address. e.g. fella@example.com

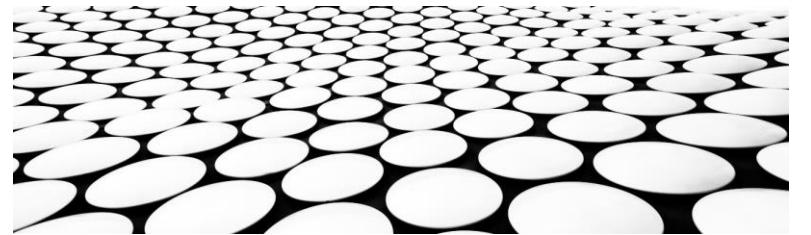
Retype Email Address bo The email addresses you provided do not match.

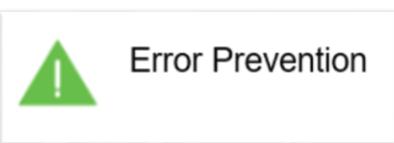
Password *** Must be at least 6 characters long.

Strength: Weak

Keep your account safe by using a strong password. Including uppercase and lowercase letters, as well as numbers and symbols, can help make a password stronger. [More information](#)

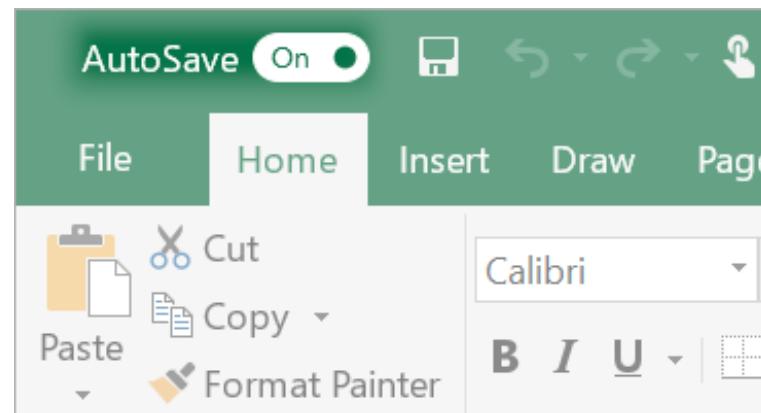
Error Prevention



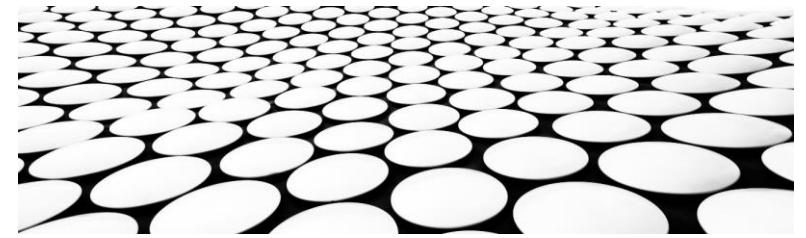
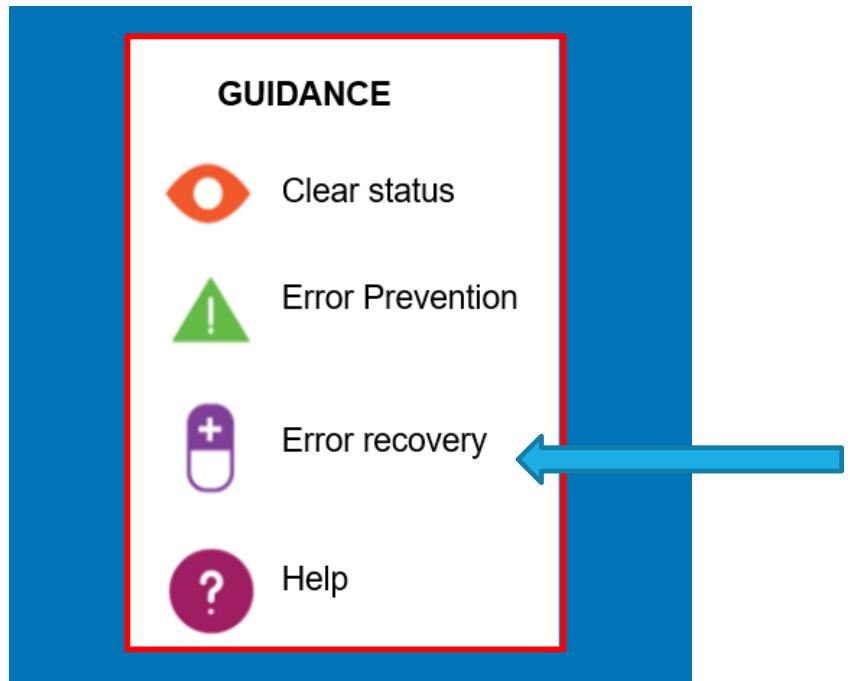


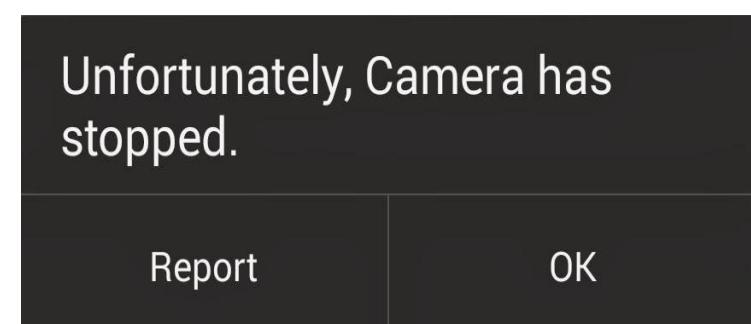
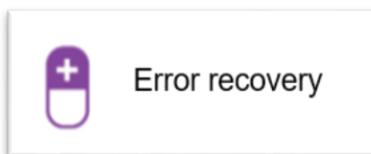
(4) Will I loose everything?

- Confirm before overwriting
- Automatic backup

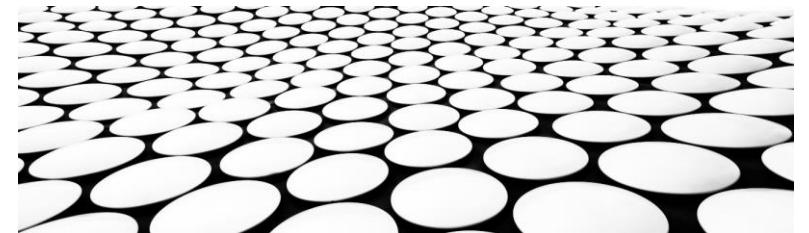


Heuristics of Guidance





Useless messages

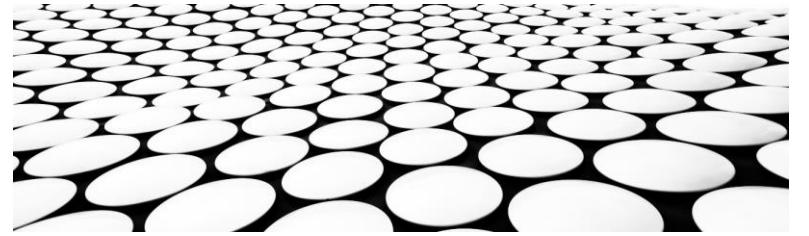




Error recovery

1. Human-sounding messages
2. Visible messages
3. Clear messages providing explanations
4. Messages helping to go back
5. Humble messages
6. Messages with humour

Guide for writing good error messages



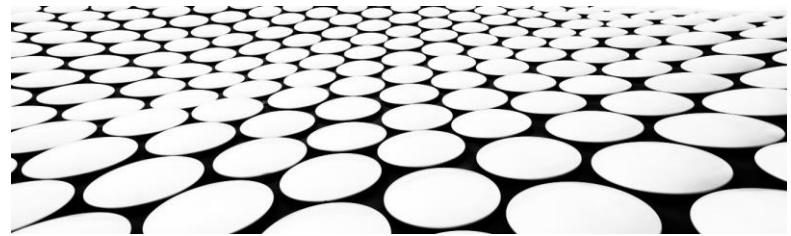


Error recovery

1. Human-sounding

Make sure your error message sounds like it was written by a human for a human.

Guide for writing good error messages



Well, this is embarrassing.

Firefox is having trouble recovering your windows usually caused by a recently opened web page.

You can try:

- Removing one or more tabs that you think may be causin
- Starting an entirely new browsing session

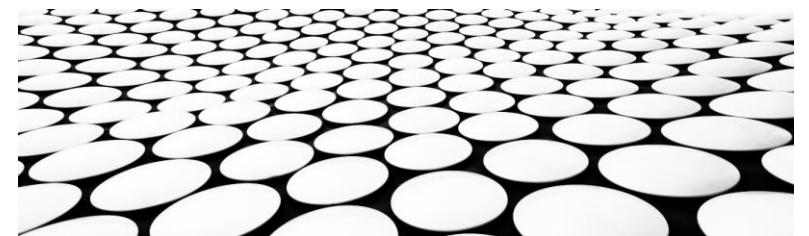


Error recovery

2. Visibility

Make sure your error message can be easily seen.

Guide for writing good error messages



Facebook helps you connect and share with the people in your life.



Sign Up
It's free and always will be.

What's your name? First name Last name

Email or mobile number

Re-enter email or mobile number

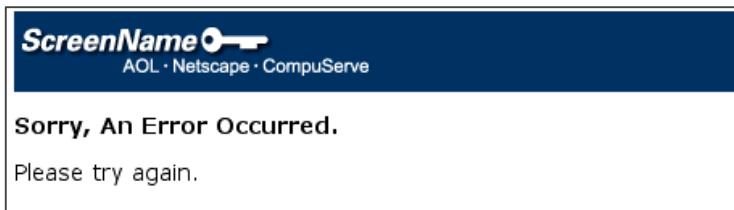
New password



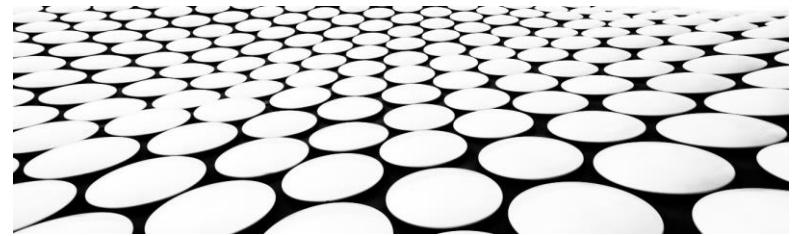
Error recovery

3. Clear explanation

Make sure your error message clearly explains what happened, that it is not encrypted or too vague.



Guide for writing good error messages



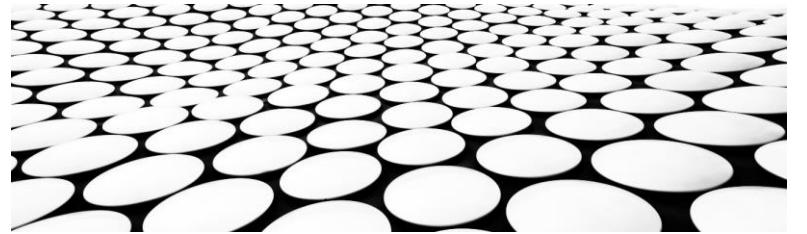


Error recovery

4. Recuperation

Make sure your error message allows the user to recover and resolve the problem.

Guide for writing good error messages



Registration Information Agenda Checkout Confirmation

**The following errors were detected:**

- You must fill out all required fields.



Error recovery

5. Humility

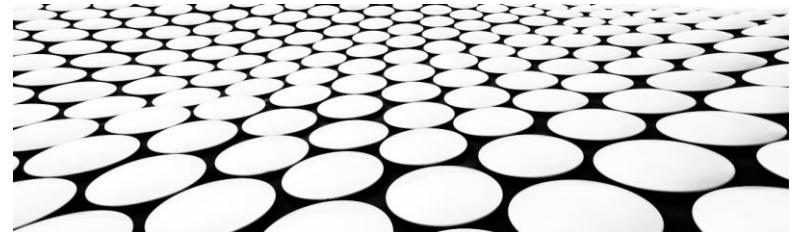
Make sure your error message is humble and does not blame the user.

We're sorry.

Service is temporarily unavailable. Our engineers are working quickly to resolve the issue.

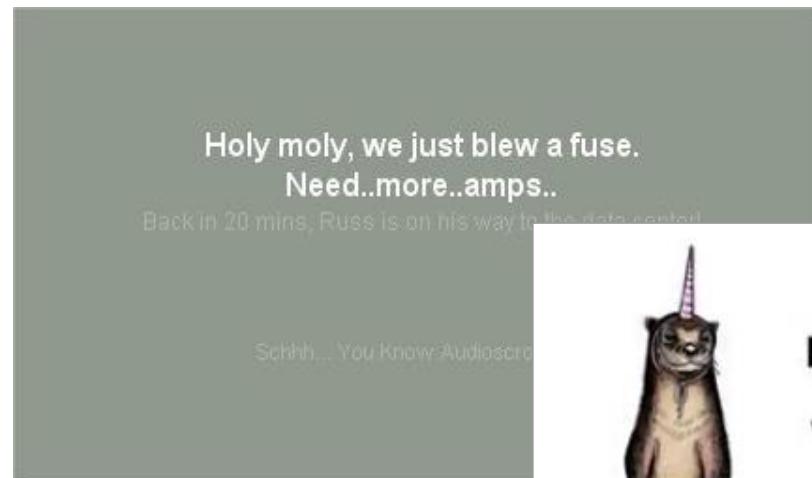
Find out why you may have encountered this error.

Guide for writing good error messages





Error recovery



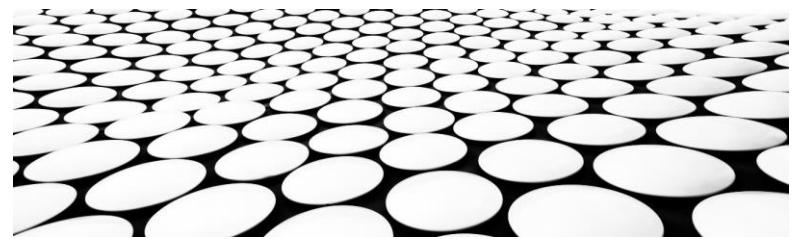
6. Humor

If appropriate, humor could help reduce frustration.

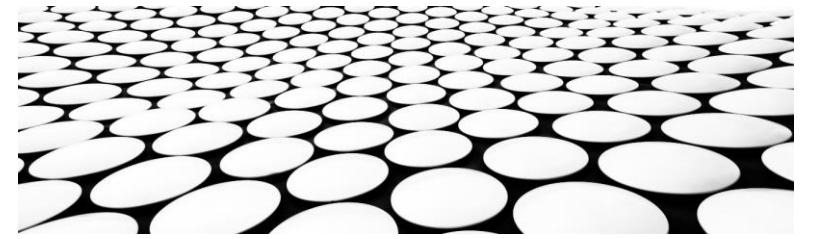
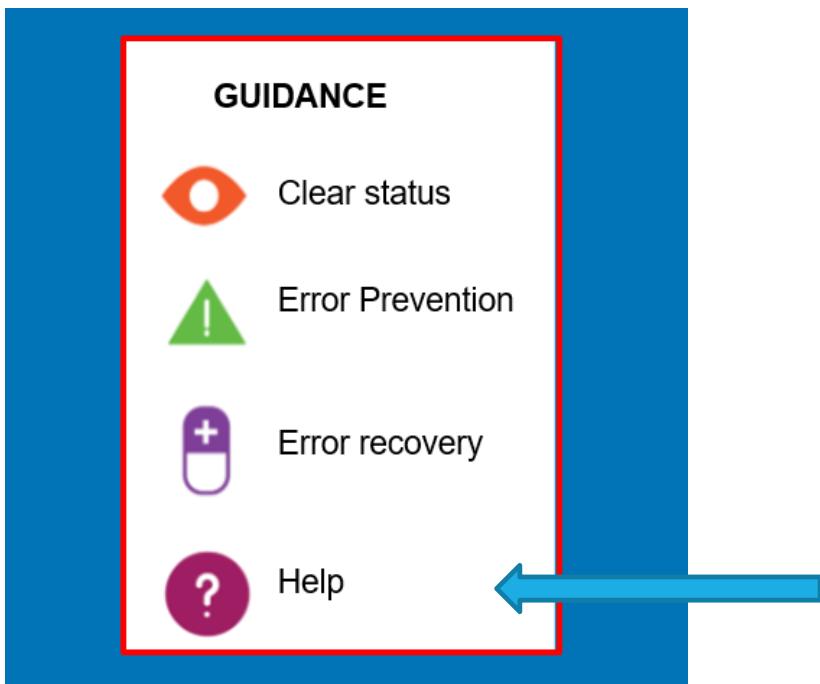


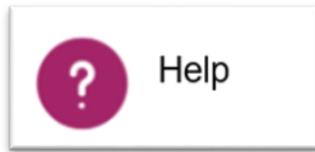
Warning ... not always appropriate, depends on your target users and the type of tasks they perform

Guide for writing good error messages

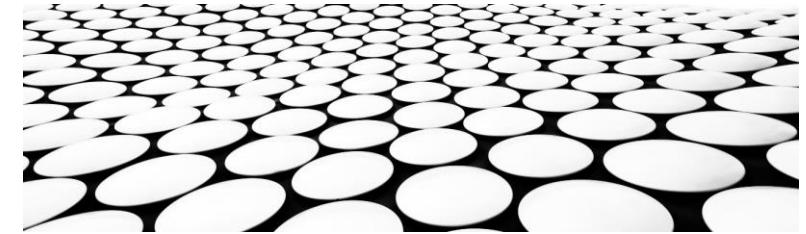
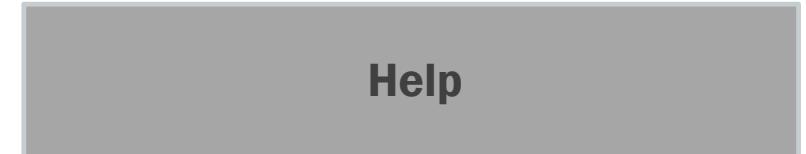


Heuristics of Guidance





- Help at different levels
 - Global help (global process)
 - Contextual help (on the buttons)
- Provide tutorials, unless "walk-up-and-use" application that should be clear without additional documentation
- Make access easy for beginners
 - Provide an introduction (guided tour) of the software for first-time users





SUMMARY

- Origin of heuristic evaluation (Dr. Nielsen)
- 10 heuristics

UNDERSTANDING	ACTION	GUIDANCE
 Consistency	 Freedom and control	 Clear status
 Familiar language and metaphors	 Flexibility	 Error Prevention
 Simple, aesthetic and functional design	 Recognition over recall	 Error recovery



UI EVALUATION APPROACHES

- Introduction to evaluation
- Passive evaluation
- Active evaluation
- Predictive evaluation