

Samira Bahrampour

UX/UI Designer at



samirabahrampour1364@gmail.com

Ergonomics
and
User eXperience



❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

❑ Principles of Ergonomics for UX designers

❑ Cognitive and Psychology in Design

❑ UX and Common points with Ergonomics
(Heuristic Evaluation)

A concept that has many dimensions

- The process to determine the experience of a user interacting with a product
- An approach to design that takes the user into account
- Solving a problems through empathy (If I had 20 days for solving a problem, I would take 19 days to define it)
- A process for designing systems that offer a great experience to users
- Improving how useful, easy, pleasant, marketable it is, using a product
- The art & science of generating positive emotions through product interactions
- Awareness of user's touch point that makes up the overall experience



❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

❑ Principles of Ergonomics for UX designers

❑ Cognitive and Psychology in Design

❑ UX and Common points with Ergonomics (Heuristic Evaluation)



○ Methodology of UX

○ Discover

- User Interview
- Field Visit
- Desktop research
- Competitive Analysis



○ Define

- Problem statement
- Persona
- Data Analysis



○ Ideate

- Design Thinking
- Brainstorming
- IA
- User Flow



○ Design

- Wireframe
- Prototype



❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

❑ Principles of Ergonomics for UX designers

❑ Cognitive and Psychology in Design

❑ UX and Common points with Ergonomics
(Heuristic Evaluation)



UX researchers **systematically study target users to collect and analyze data that will help inform the product design process.**

- **Understand the problem to be solved.**
 - Explicit **RQ**
 - Do not Assume
 - Reading the prior research reports
- **Collect the facts.**
 - Field Visit: **Observation** (context, user: professional & You: novice, record everything with no judgment and interpretation)
- **Develop hypothesis to explain the facts.**
 - See the gap btw what they do and what they think they do. (goal, **workflow, tools**, mental models, terminology,)
- **Eliminate the least likely hypotheses to arrive at the solution.**
- **Act on the solution.**
 - One-day UXR presentaion to everybody
 - Prototype



❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

❑ Principles of Ergonomics for UX designers

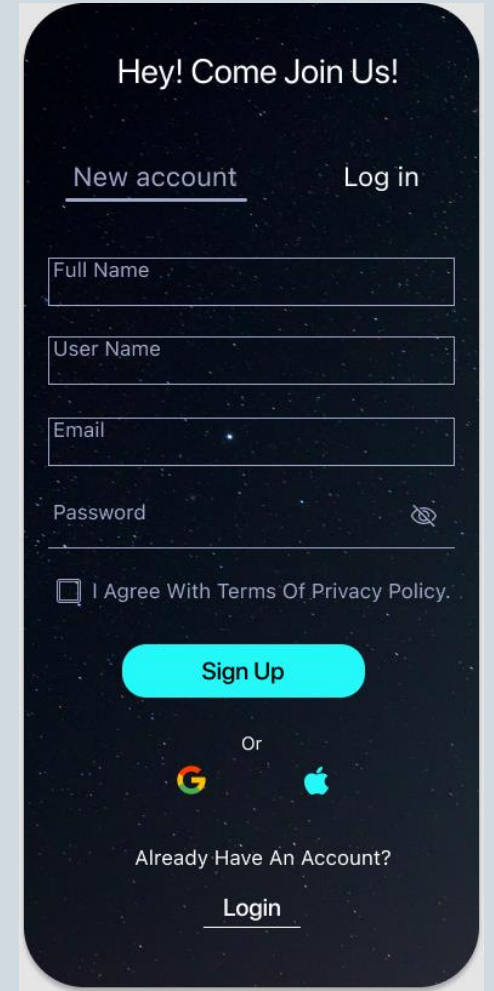
❑ Cognitive and Psychology in Design

❑ UX and Common points with Ergonomics (Heuristic Evaluation)



UX Designers **design a system that offers a great experience to its users.**

- Materialise the idea
- Wireframes
- Low-fi Prototypes
- High-fi Prototypes



❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

❑ Principles of Ergonomics for UX designers

❑ Cognitive and Psychology in Design

❑ UX and Common points with Ergonomics (Heuristic Evaluation)



○ The physical Aspects

- Hand position
- Reachability
- Interaction vs reading
- Infinite corners and edges

○ Form factor

- Posture

○ Hardware

- Thickness of glass
- Viewing angle

○ Context

- Beside
- Near
- Far away

○ Accessibility

❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

❑ Principles of Ergonomics for UX designers

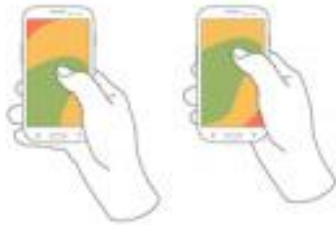
❑ Cognitive and Psychology in Design

❑ UX and Common points with Ergonomics (Heuristic Evaluation)

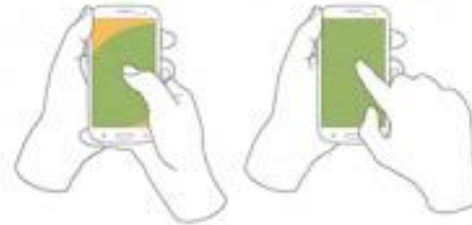
The physical Aspects

○ Hand position

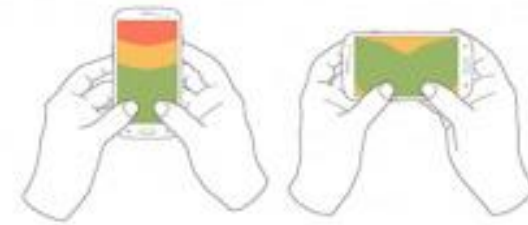
SINGLE-HANDED



CRADLING



TWO-HANDED



❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

❑ Principles of Ergonomics for UX designers

❑ Cognitive and Psychology in Design

❑ UX and Common points with Ergonomics (Heuristic Evaluation)

The physical Aspects

○ Reachability



❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

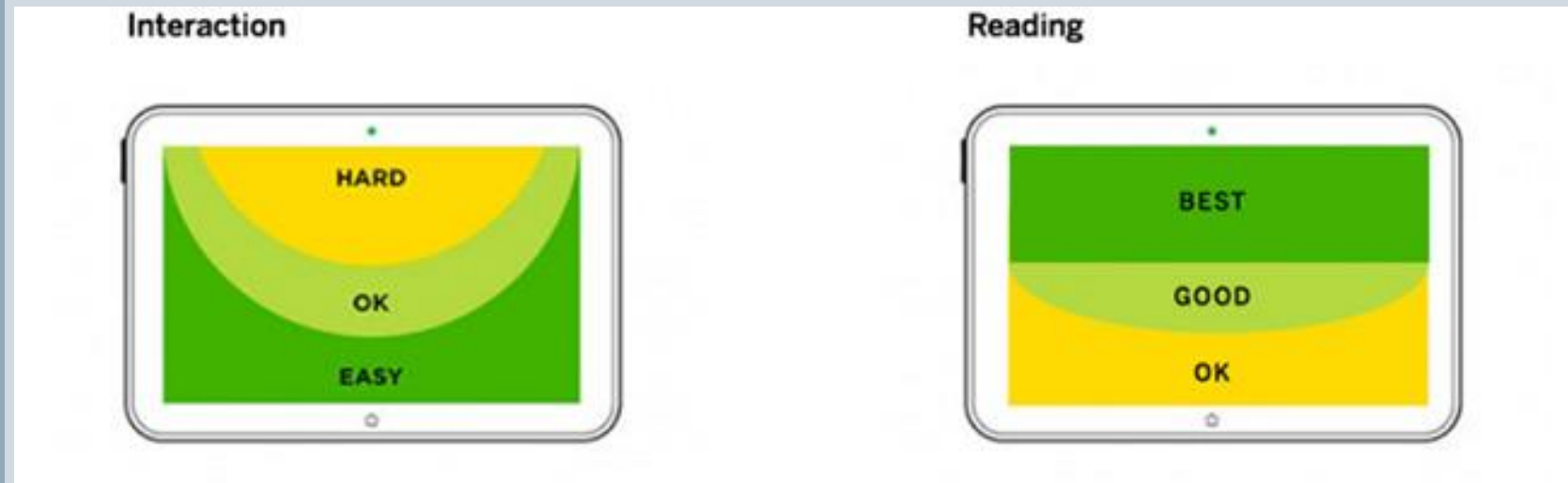
❑ Principles of Ergonomics for UX designers

❑ Cognitive and Psychology in Design

❑ UX and Common points with Ergonomics (Heuristic Evaluation)

The physical Aspects

○ Interaction vs Reading



❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

❑ Principles of Ergonomics for UX designers

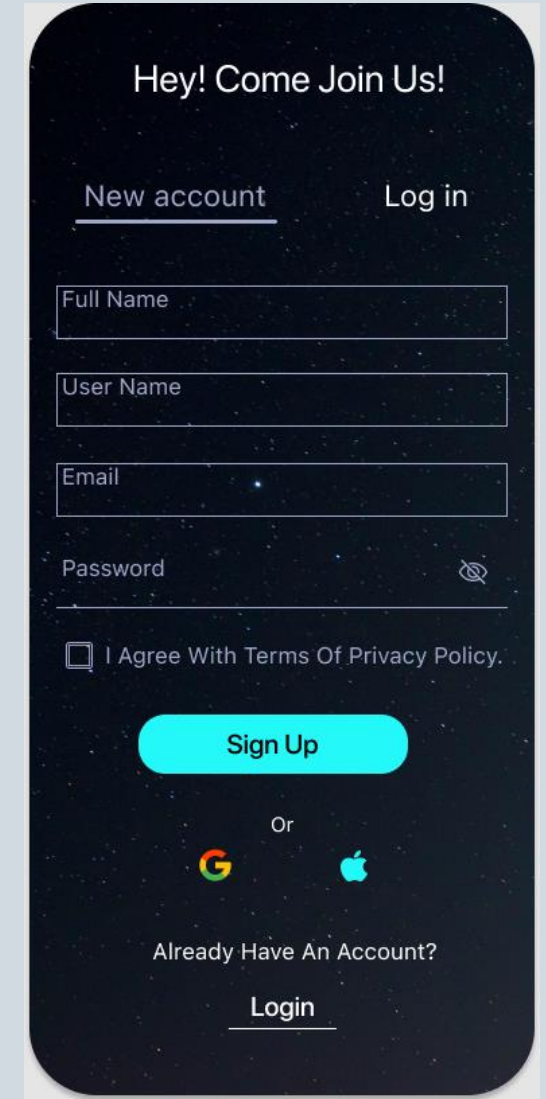
❑ Cognitive and Psychology in Design

❑ UX and Common points with Ergonomics (Heuristic Evaluation)



The physical Aspects

○ Infinite corners and edges



❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

❑ Principles of Ergonomics for UX designers

❑ Cognitive and Psychology in Design

❑ UX and Common points with Ergonomics (Heuristic Evaluation)



The physical Aspects

- **Form factor**
 - **Posture**



❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

❑ Principles of Ergonomics for UX designers

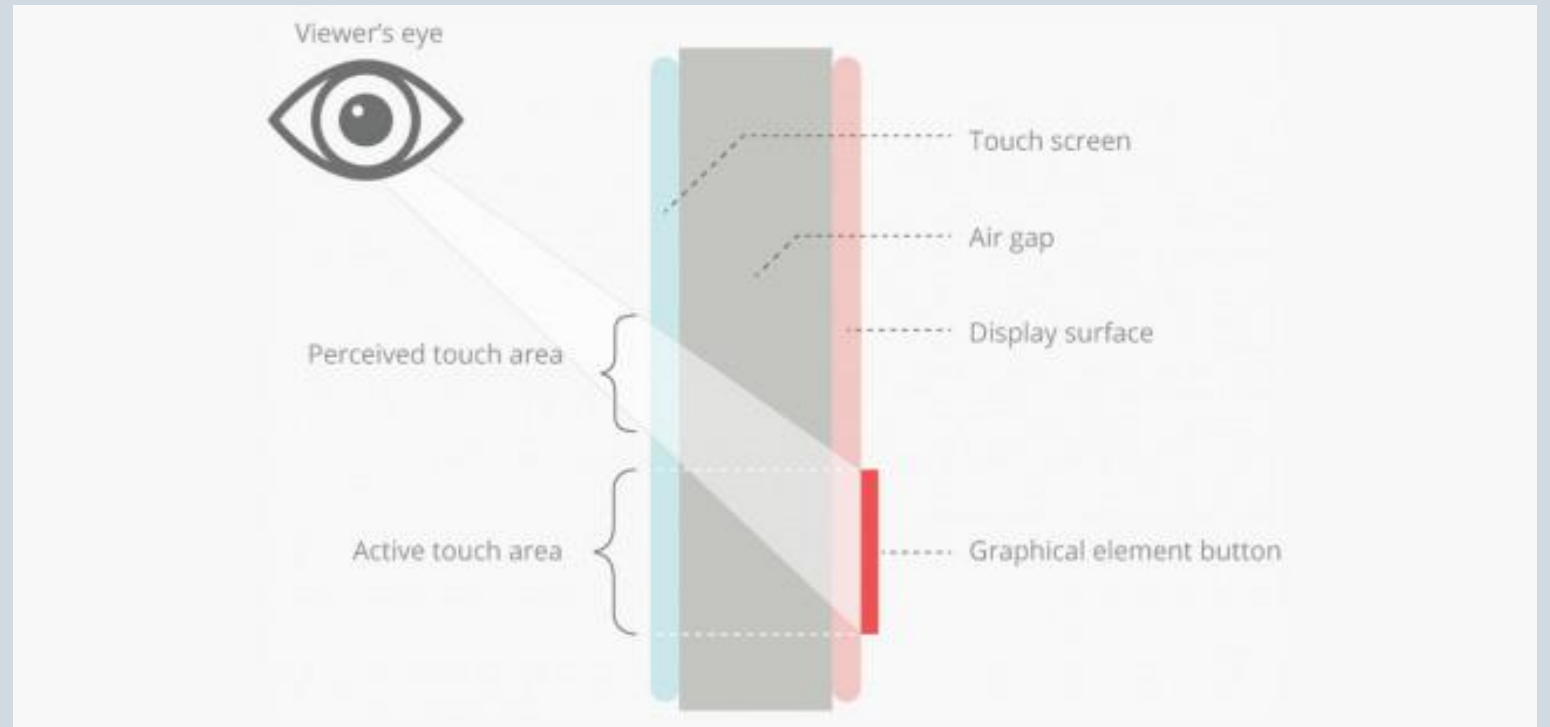
❑ Cognitive and Psychology in Design

❑ UX and Common points with Ergonomics (Heuristic Evaluation)



The physical Aspects

- Hardware
 - Thickness of glass



❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

❑ Principles of Ergonomics for UX designers

❑ Cognitive and Psychology in Design

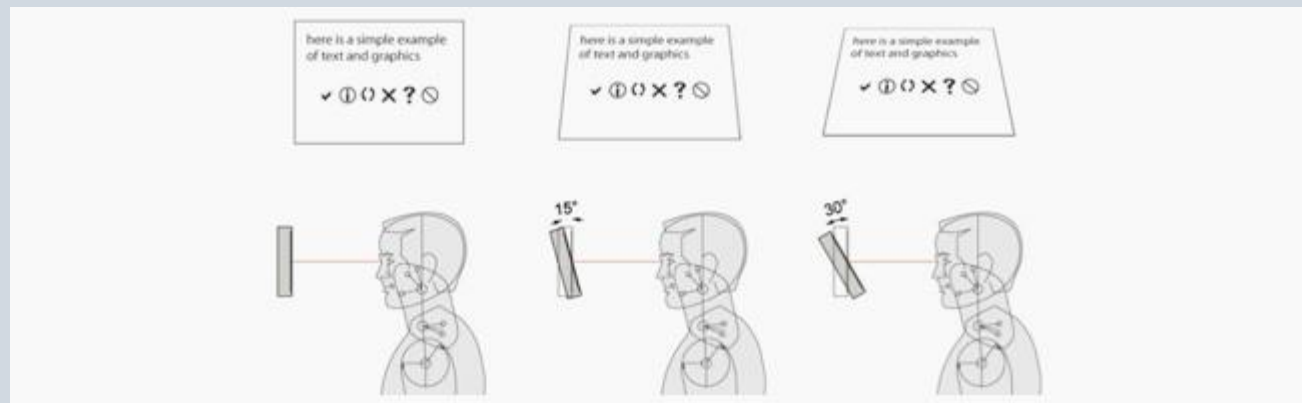
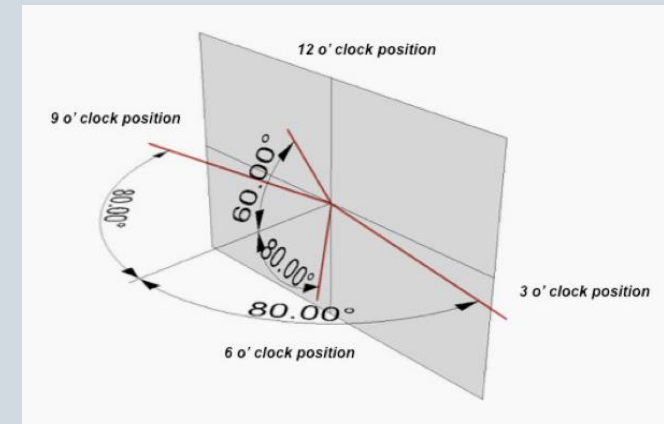
❑ UX and Common points with Ergonomics (Heuristic Evaluation)



The physical Aspects

○ Hardware

○ Viewing angle



❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

❑ Principles of Ergonomics for UX designers

❑ Cognitive and Psychology in Design

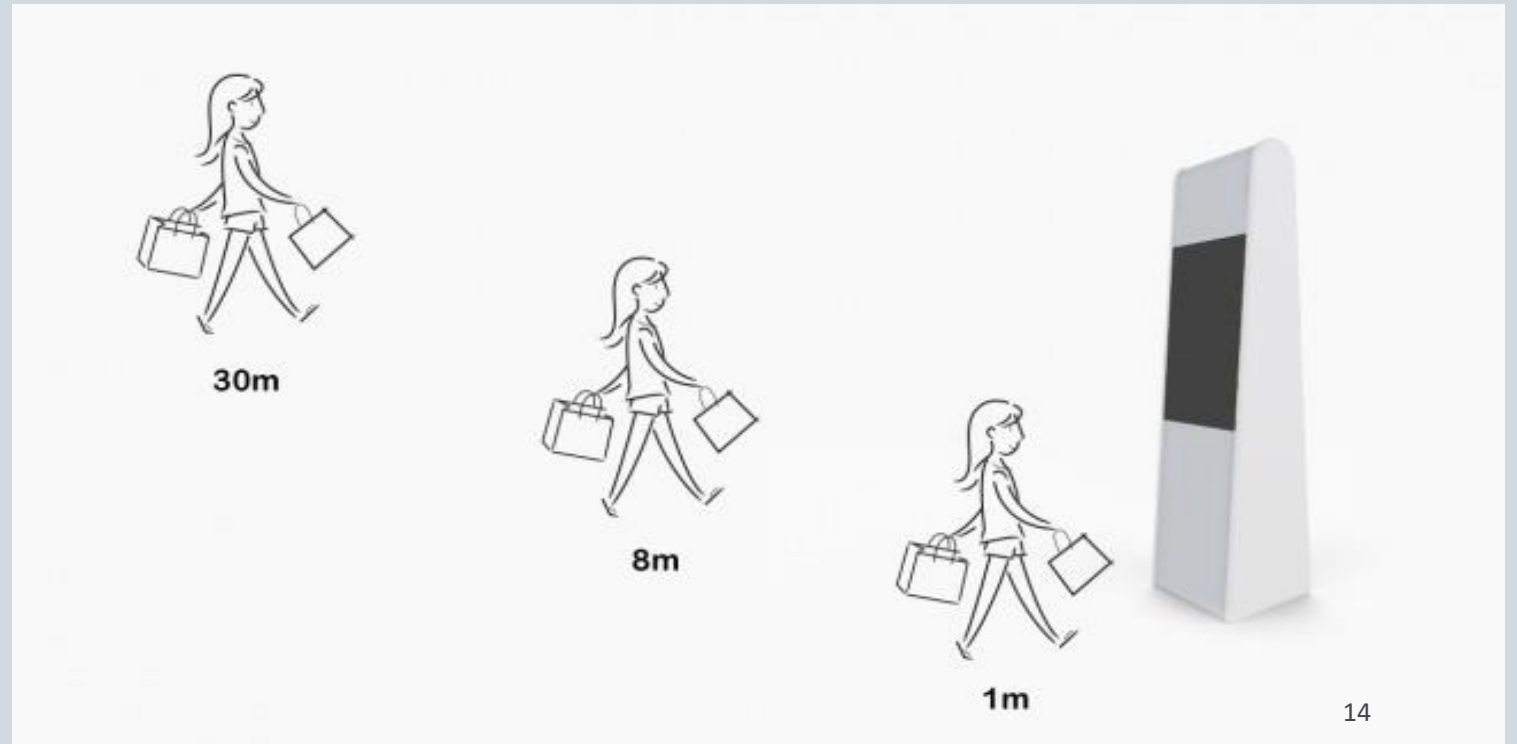
❑ UX and Common points with Ergonomics (Heuristic Evaluation)



The physical Aspects

○ Context

- **Beside** Standard interactions like navigating and finding information.
- **Near** Reading headlines or smaller pieces of information (general directions)
- **Far away** Attracting people to the device.



❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

❑ Principles of Ergonomics for UX designers

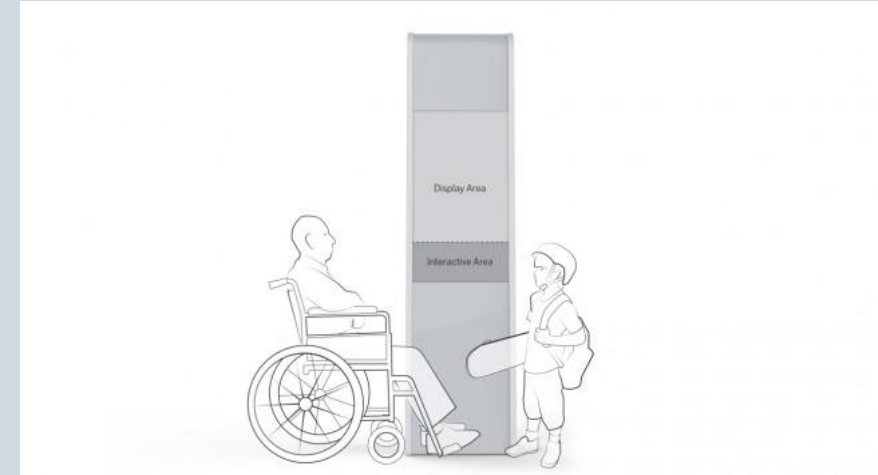
❑ Cognitive and Psychology in Design







❑ UX and Common points with Ergonomics (Heuristic Evaluation)



The physical Aspects

○ Accessibility



	Permanent	Temporary	Situational
Touch	 One arm	 Arm injury	 New parent
See	 Blind	 Cataract	 Distracted driver

❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

❑ Principles of Ergonomics for UX designers

❑ Cognitive and Psychology in Design

❑ UX and Common points with Ergonomics (Heuristic Evaluation)



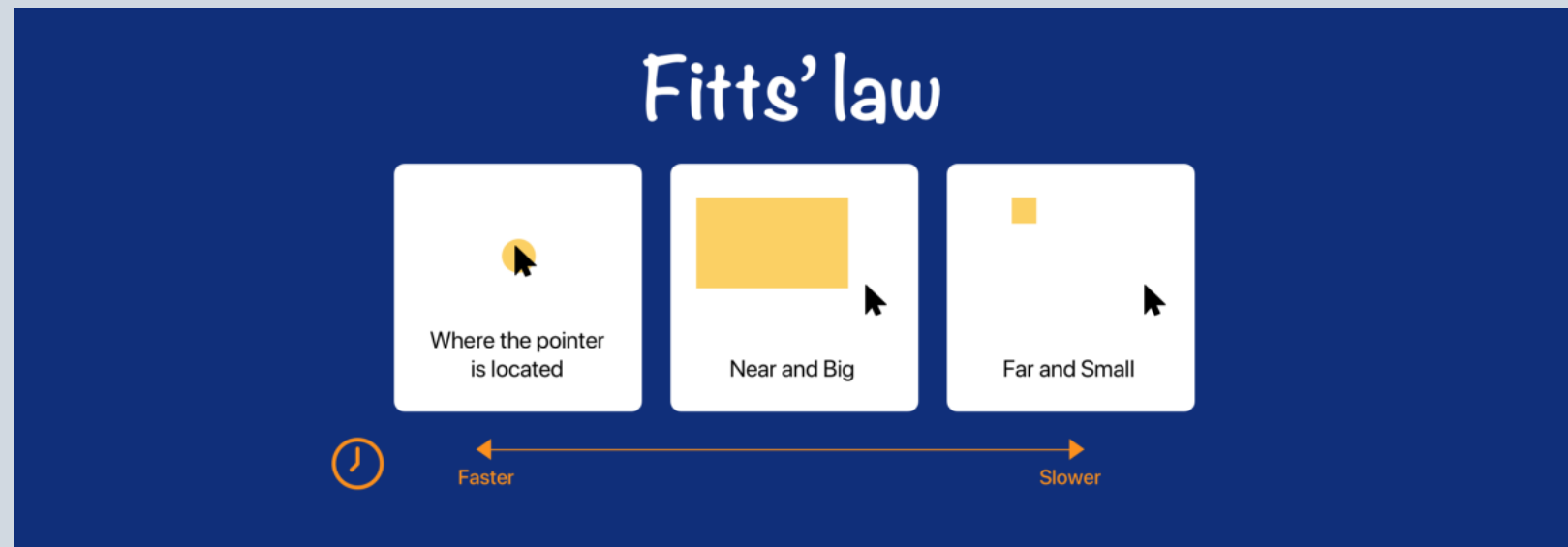
7 Psychology tricks that make you a better Designer

- Fitt's Law
- Principle of Perpetual Habit
- Paradox of Choices (Hick's Law)
- Von Restorff Effect
- Zeigarnik Effect
- Serial positioning effect
- Magic Numbers

- ❑ What is UX?
- ❑ Who is UXR?
- ❑ Who is UXD?
- ❑ Principles of Ergonomics for UX designers
- ❑ Cognitive and Psychology in Design
- ❑ UX and Common points with Ergonomics (Heuristic Evaluation)

7 Psychology tricks that make you a better Designer

○ Fitt's Law



❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

❑ Principles of Ergonomics for UX designers


❑ Cognitive and Psychology in Design

❑ UX and Common points with Ergonomics (Heuristic Evaluation)



7 Psychology tricks that make you a better Designer

○ Principle of Perpetual Habit



Consistency means ...
You should be able to complete a task without thinking about it (too much).

❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

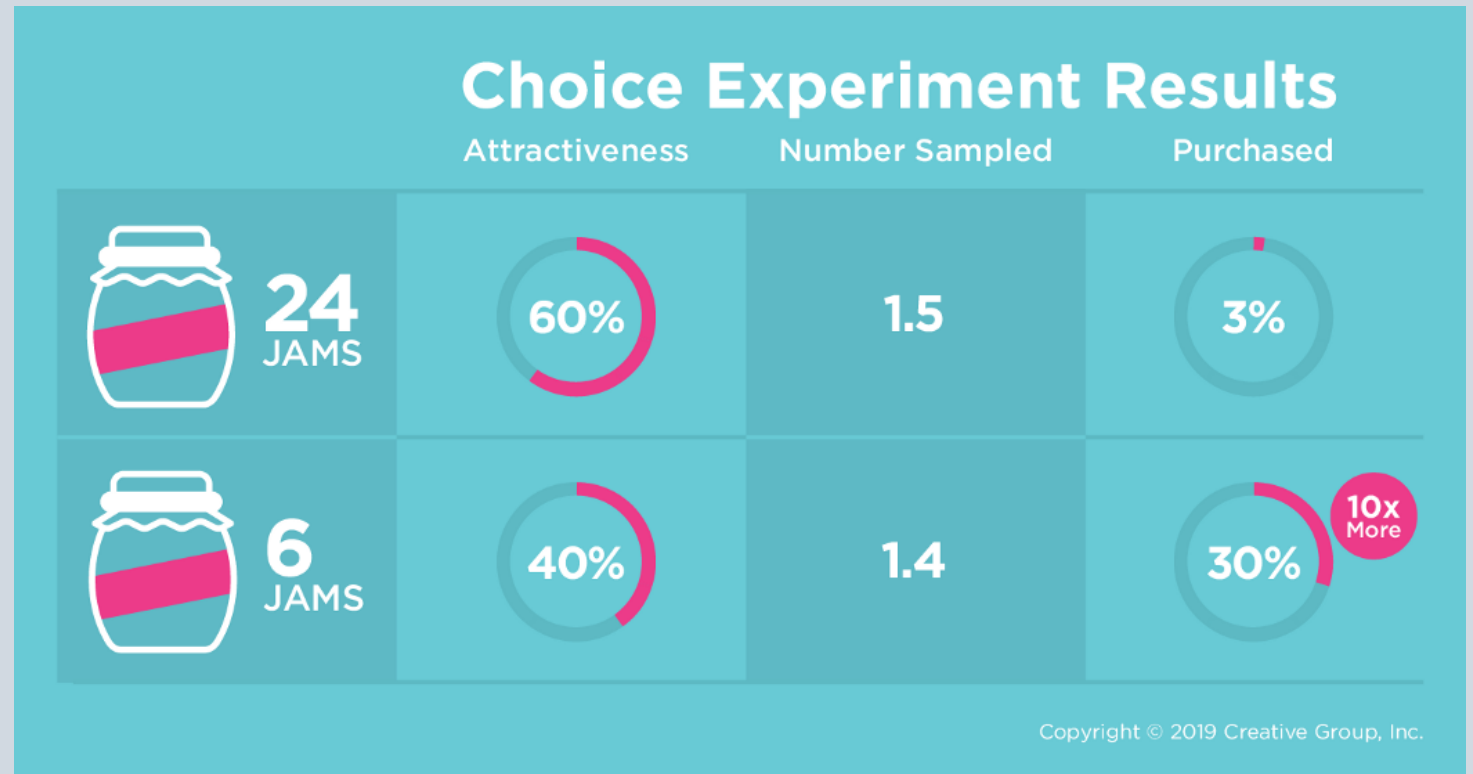
❑ Principles of Ergonomics for UX designers

❑ Cognitive and Psychology in Design

❑ UX and Common points with Ergonomics (Heuristic Evaluation)

7 Psychology tricks that make you a better Designer

○ Paradox of Choices (Hick's Law)



7 Psychology tricks that make you a better Designer

○ Von Restorff Effect

Choose the right Dropbox for you

Billed yearly Billed monthly

Standard	Advanced	Enterprise
\$12.50 / user / month, starting at 3 users	BEST VALUE \$20 / user / month, starting at 3 users	Contact us
<ul style="list-style-type: none">5 TB of space for secure storageEasy-to-use sharing and collaboration tools	<ul style="list-style-type: none">As much space as your team needsSophisticated control and security features	<ul style="list-style-type: none">Customizable solutionsIndividualized support to help admins manage at scale
Try free for 30 days or purchase now	Try free for 30 days or purchase now	Contact us
<ul style="list-style-type: none">✓ 180 days of file recovery✓ Single admin login to manage multiple	<ul style="list-style-type: none">✓ Everything in Standard✓ Advanced admin controls	<ul style="list-style-type: none">✓ Everything in Advanced✓ Centralized admin console to view

□ What is UX?

□ Who is UXR?

□ Who is UXD?

□ Principles of Ergonomics for UX designers

□ Cognitive and Psychology in Design

□ UX and Common points with Ergonomics (Heuristic Evaluation)



❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

❑ Principles of Ergonomics for UX designers

❑ Cognitive and Psychology in Design

❑ UX and Common points with Ergonomics (Heuristic Evaluation)

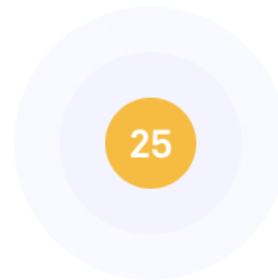
7 Psychology tricks that make you a better Designer

- **Zeigarnik Effect:** Unfinished projects are more memorable than finished (notification Progression Indicators, video games).

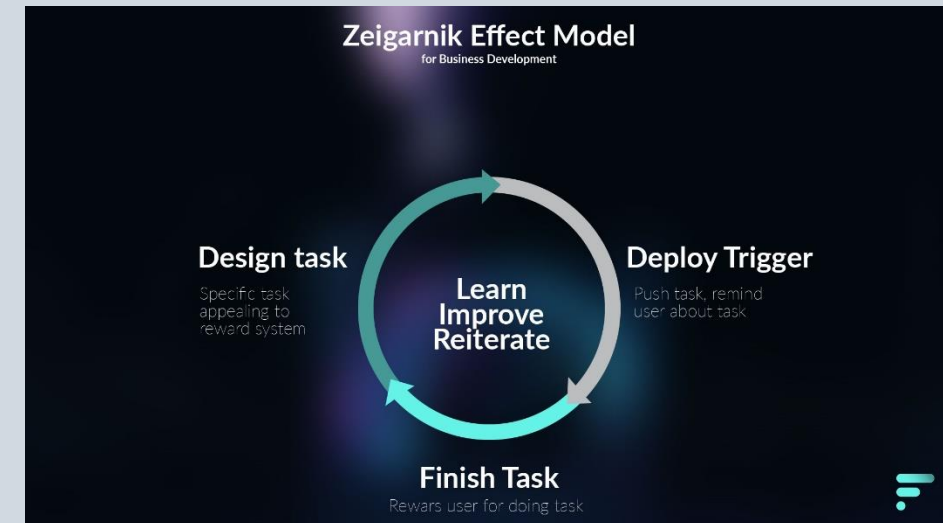
Premium Alerts

We found **25 additional writing issues** in this text available only for Premium users.

- 7 Word Choice
- 7 Passive Voice Misuse
- 3 Punctuation in Compound/Complex Sentences
- 3 Inappropriate Colloquialisms
- 2 Wordy Sentences
- 3 more...



GO PREMIUM



❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

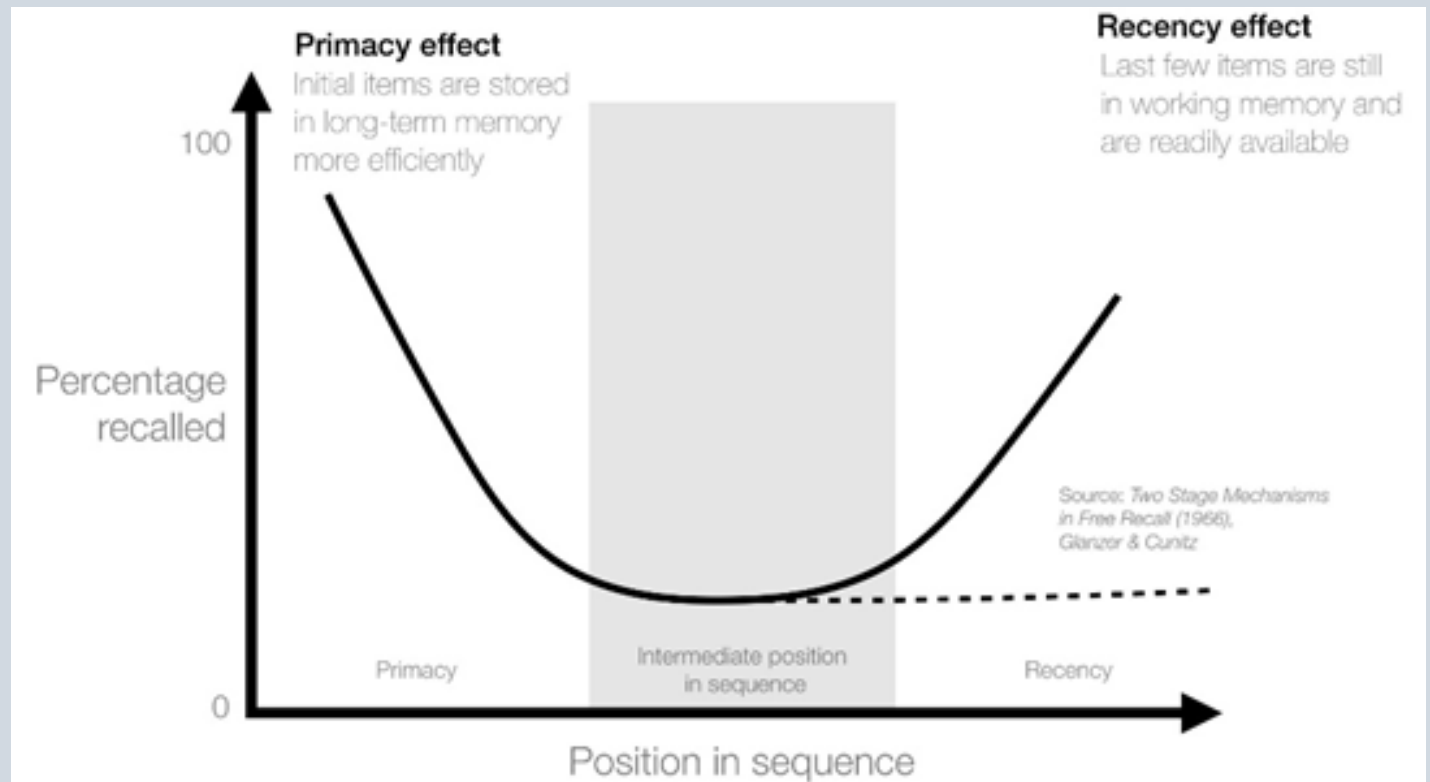
❑ Principles of Ergonomics for UX designers

❑ Cognitive and Psychology in Design

❑ UX and Common points with Ergonomics (Heuristic Evaluation)

7 Psychology tricks that make you a better Designer

○ Serial positioning effect (Hermann Ebbinghaus)



❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

❑ Principles of Ergonomics for UX designers

❑ Cognitive and Psychology in Design

❑ UX and Common points with Ergonomics (Heuristic Evaluation)

7 Psychology tricks that make you a better Designer

○ Magic Numbers

MILLER'S LAW

sensing | ∞ chunks

cat	head	king	tape
apple	house	hammer	arrow
ball	door	milk	flower
tree	box	fish	key
square	car	book	shoe

remembering | 7 ± 2 chunks

Person is exposed to numerous bits of information when completing a task. For example, they are shown words on piece of paper.

Information is stored temporarily in the prefrontal cortex for 10–15 seconds. The number of 'bits' one can hold in their working memory, is **5-9** items. This is a universal law and limitation observed in many studies.

Illustration: Jeff Davidson Design

□ What is UX?

□ Who is UXR?

□ Who is UXD?

□ Principles of Ergonomics for UX designers

□ Cognitive and Psychology in Design

□ UX and Common points with Ergonomics (Heuristic Evaluation)



○ Heuristic Evaluation

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

❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

❑ Principles of Ergonomics for UX designers

❑ Cognitive and Psychology in Design

❑ UX and Common points with Ergonomics (Heuristic Evaluation)

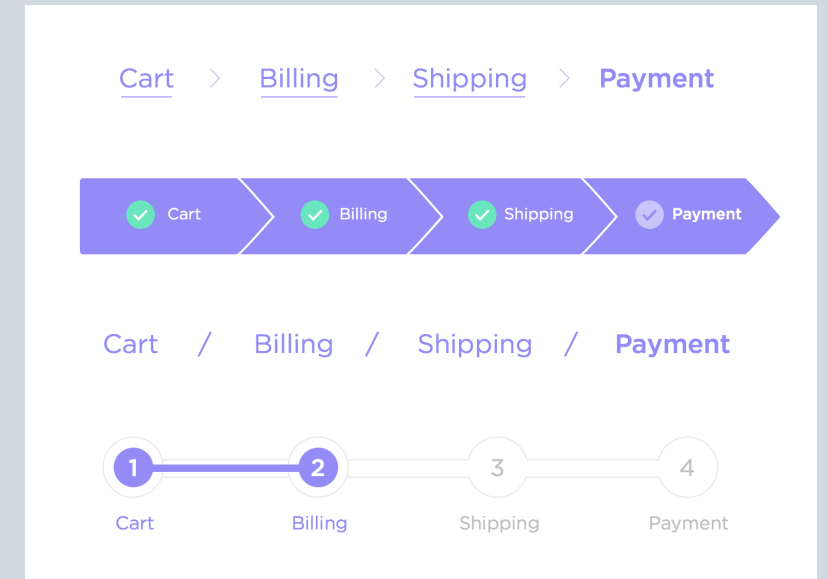
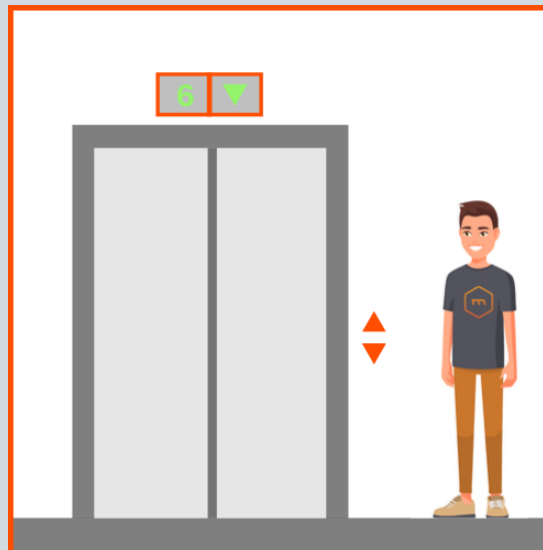


Heuristic Evaluation

○ Visibility of system status

The design should always keep users informed about what is going on, through appropriate feedback within a reasonable amount of time

- Google maps
- Download / Upload
- Progress indicators



❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

❑ Principles of Ergonomics for UX designers

❑ Cognitive and Psychology in Design

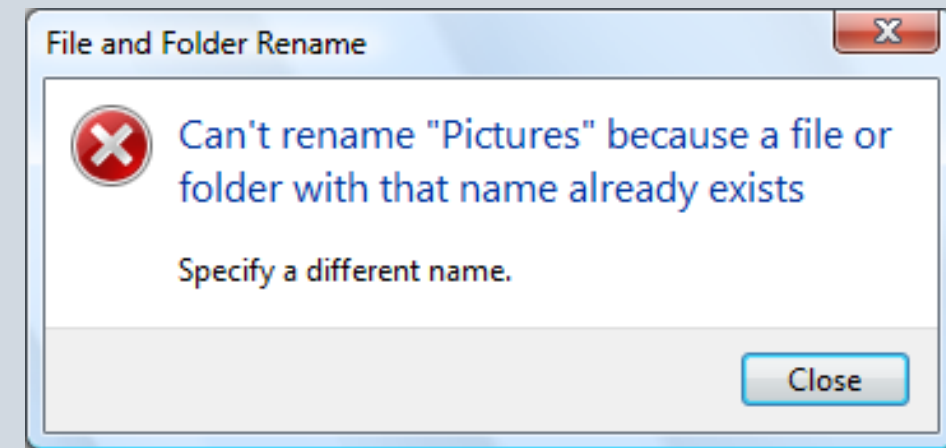
❑ UX and Common points with Ergonomics (Heuristic Evaluation)



Heuristic Evaluation

○ Match between system and the real world

The design should speak the users' language (Avoid technical language: jargon)



❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

❑ Principles of Ergonomics for UX designers

❑ Cognitive and Psychology in Design

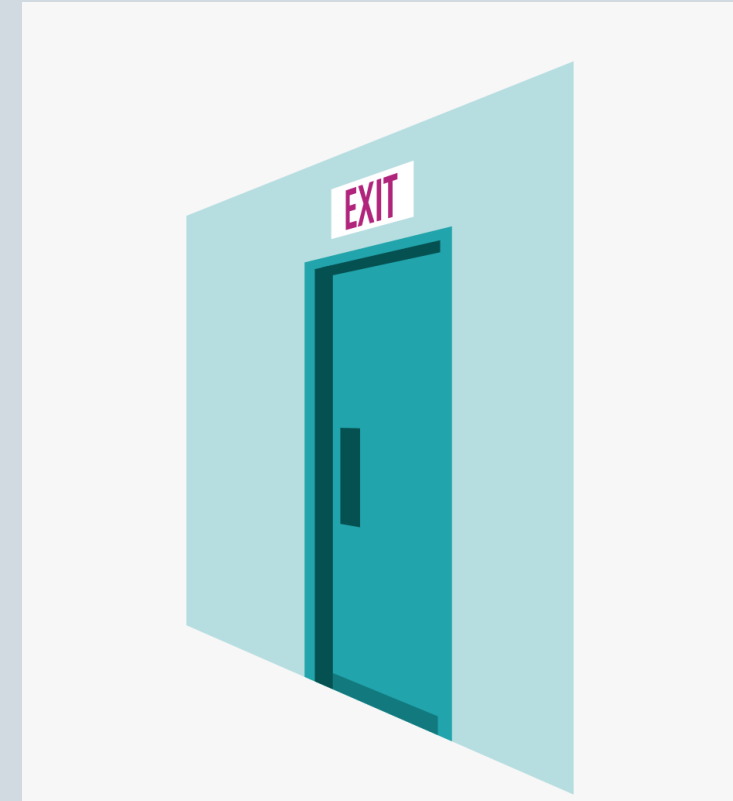
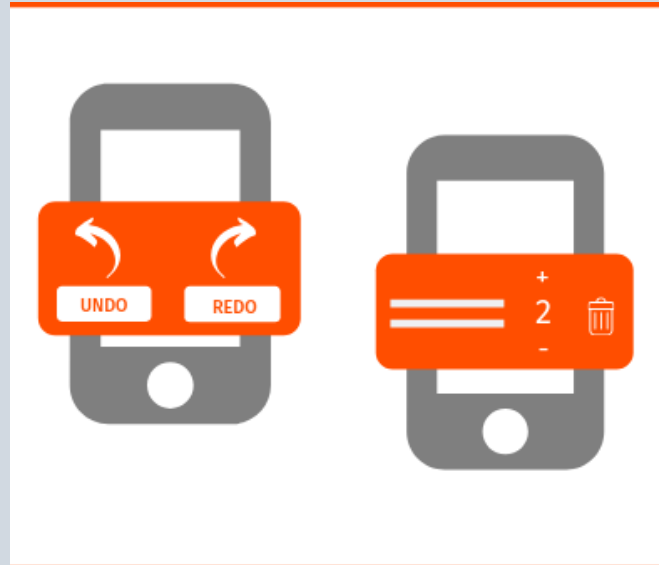
❑ UX and Common points with Ergonomics (Heuristic Evaluation)



Heuristic Evaluation

○ User control and freedom

- Undo/ Redo
- Cancel Button
- Delete possibility
- Back icon



❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

❑ Principles of Ergonomics for UX designers

❑ Cognitive and Psychology in Design

❑ UX and Common points with Ergonomics (Heuristic Evaluation)



Heuristic Evaluation

○ Consistency and standards

Users should not have to wonder whether different words, situations, or actions mean the same thing.

- Check in Desk
- Privacy and Policy (footer)
- Logo

The image shows four examples of website headers to illustrate consistency in design:

- Netflix:** Features the red 'NETFLIX' logo, a navigation bar with links like 'Conviértete en anfitrión', 'Consigue crédito', 'Ayuda', 'Regístrate', and 'Inicia sesión', and a red 'Iniciar sesión' button.
- Gmail:** Features the 'M Gmail' logo, a navigation bar with links like 'PARA EMPRESAS', 'INICIAR SESIÓN', and 'CREAR UNA CUENTA', and a red 'CREAR UNA CUENTA' button.
- Spotify:** Features the Spotify logo, a navigation bar with links like 'Premium', 'Ayuda', 'Descargar', 'Registrarse', and 'Iniciar sesión', and a dark red 'Iniciar sesión' button.
- YouTube:** Features the YouTube logo, a search bar with 'Buscar' and a magnifying glass icon, and a navigation bar with links like 'INICIAR SESIÓN'.

At the bottom right, there is a login form with fields for 'Teléfono, correo electrónico' and 'Contraseña', and a blue 'Iniciar sesión' button. Below the password field is the text '¿Olvidaste tu contraseña?'.

❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

❑ Principles of Ergonomics for UX designers

❑ Cognitive and Psychology in Design

❑ UX and Common points with Ergonomics (Heuristic Evaluation)

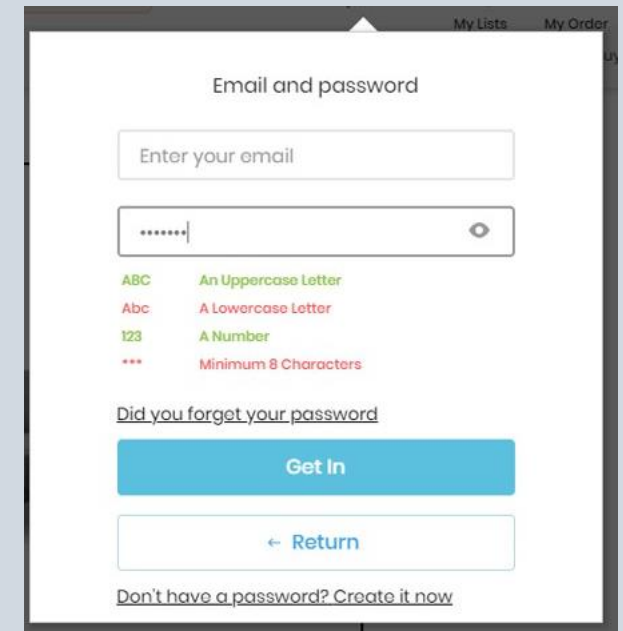
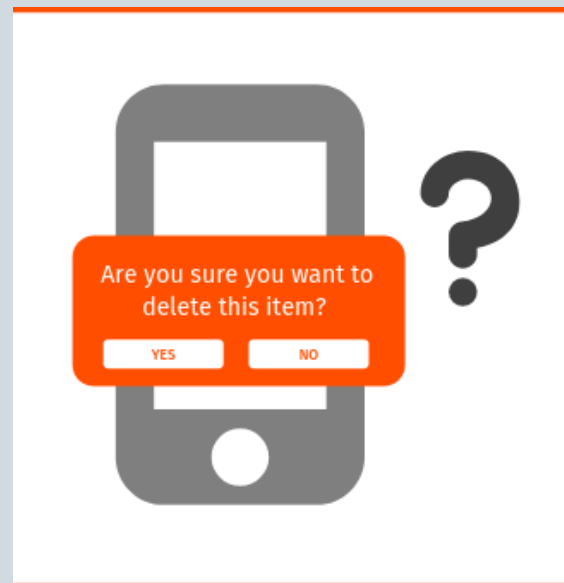


Heuristic Evaluation

○ Error prevention

Good error messages are important, but the best designs carefully prevent problems from occurring in the first place.

- Guard rails on curvy mountain roads
- Undo action after an important message is deleted in Gmail inbox.



❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

❑ Principles of Ergonomics for UX designers

❑ Cognitive and Psychology in Design

❑ UX and Common points with Ergonomics (Heuristic Evaluation)



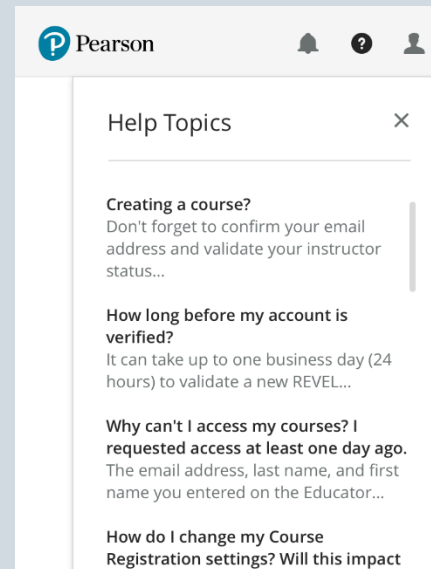
Heuristic Evaluation

○ Recognition rather than recall

Minimize the user's memory load by making elements, actions, and options visible. (contextual help, help in context, just-in-time help)

▪ Field labels

▪ Menu items (visible when needed)



❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

❑ Principles of Ergonomics for UX designers

❑ Cognitive and Psychology in Design

❑ UX and Common points with Ergonomics (Heuristic Evaluation)

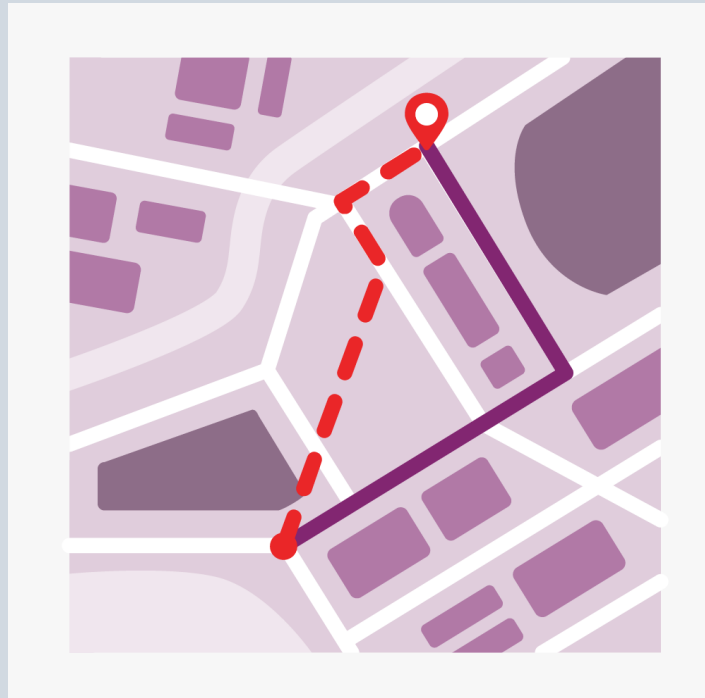


Heuristic Evaluation

○ Flexibility and efficiency of use

Allow users to tailor frequent actions.

- Keyboard Shortcuts
- Regular routes



❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

❑ Principles of Ergonomics for UX designers

❑ Cognitive and Psychology in Design

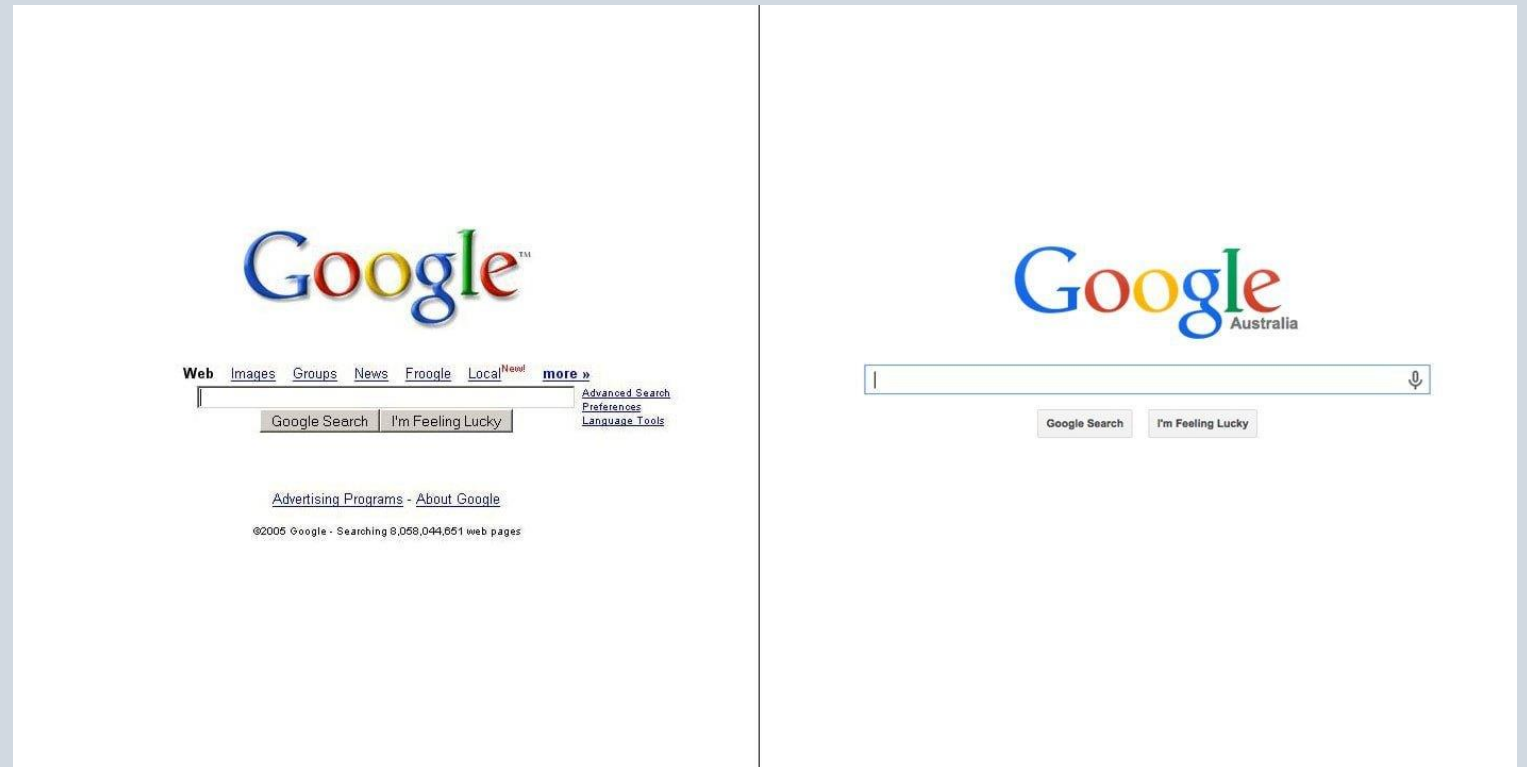
❑ UX and Common points with Ergonomics (Heuristic Evaluation)



Heuristic Evaluation

○ Aesthetic and minimalist design

Making sure you're keeping the content and visual design focused on the essentials.



❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

❑ Principles of Ergonomics for UX designers

❑ Cognitive and Psychology in Design

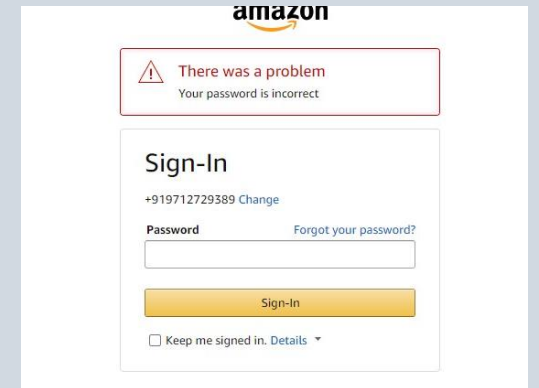
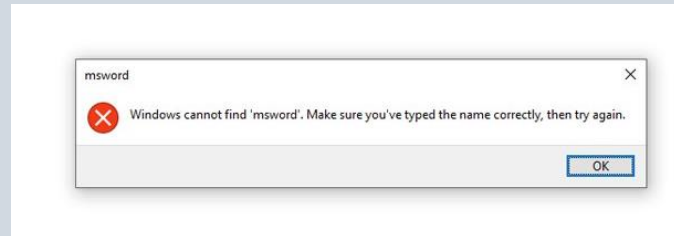
❑ UX and Common points with Ergonomics (Heuristic Evaluation)



Heuristic Evaluation

○ Help users recognize, diagnose, and recover from errors

■ No Error codes



Tell us more about yourself and your rental furniture needs here.

Name *
First Name: Harsh
Last Name: Gorasia

Phone Number *
[Empty field]

Email *
sdsdsd.com
Enter a valid email address. (eg. yourname@domain.com)

Tell us about your Profession *
Salaried

Choose the city where you want to rent furniture *
-Select-

Where do you stay? *
-Select-

Add any special requests/comments here
[Text area]

❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

❑ Principles of Ergonomics for UX designers

❑ Cognitive and Psychology in Design

❑ UX and Common points with Ergonomics (Heuristic Evaluation)



Heuristic Evaluation

○ Help and documentation

It may be necessary to provide documentation to help users understand how to complete their tasks.

- Search
- FAQ
- Information kiosk



❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

❑ Principles of Ergonomics for UX designers

❑ Cognitive and Psychology in Design

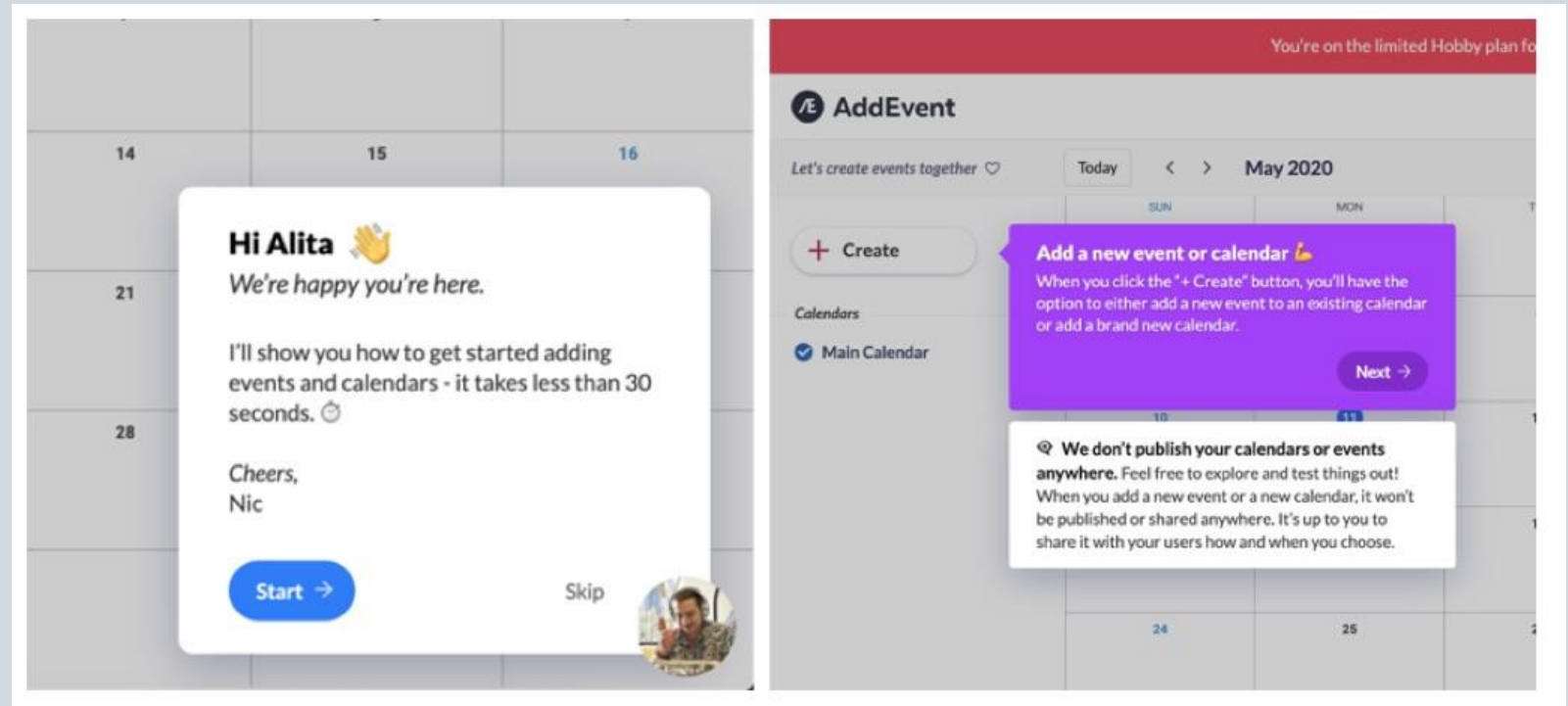
❑ UX and Common points with Ergonomics (Heuristic Evaluation)



Heuristic Evaluation

○ Help and documentation

➤ **Proactive help:** Familiarize the user with an interface



❑ What is UX?

❑ Who is UXR?

❑ Who is UXD?

❑ Principles of Ergonomics for UX designers

❑ Cognitive and Psychology in Design

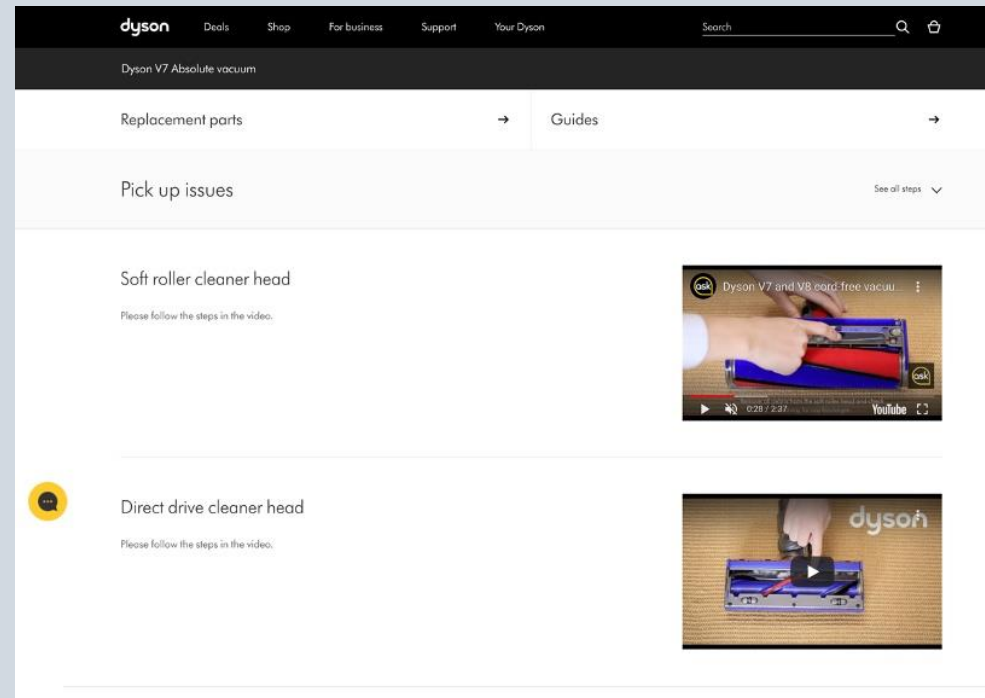
❑ UX and Common points with Ergonomics (Heuristic Evaluation)



Heuristic Evaluation

○ Help and documentation

➤ **Reactive help:** Answer questions and troubleshoot problems



THE LAST WORD

ERGONOMICS

FIT THE MACHINE TO THE HUMAN, NOT THE HUMAN TO THE MACHINE

UX DESIGN

DON'T FIND CUSTOMER FOR YOUR PRODUCT,
FIND PRODUCT FOR YOUR CUSTOMER



Recommended Books

