

INTRO TO HCI

Decision Making

7/11/2024

Instructor: Yvonne Farah

With some slides content adapted from Stephen Gilbert Decision Making 2023

1



HOW DO WE MAKE OUR DECISIONS?

Let's start simple:

What to have for breakfast?



Images by Freepik



HOW DO WE MAKE OUR DECISIONS?

- Let's make it a bit more difficult

How to spend this weekend?

HOW DO WE MAKE OUR DECISIONS?

- More difficult...

Academic:

Applying for programs

What research project to pick?

Graduate school

What career paths to pursue?

Personal:

Where to live?

Who to be friends with?

How to spend my time?

What hobbies to develop?



Images by Freepik

And many many more...Life is full of decisions we need to make. Yet, how do we make these decisions?



WHAT IS DECISION MAKING?

- Decision making is the process of selecting a course of action from multiple alternatives based on specific criteria and preferences.
- Many lenses to define it: psychology, economics, organizational behavior, HCI etc.,

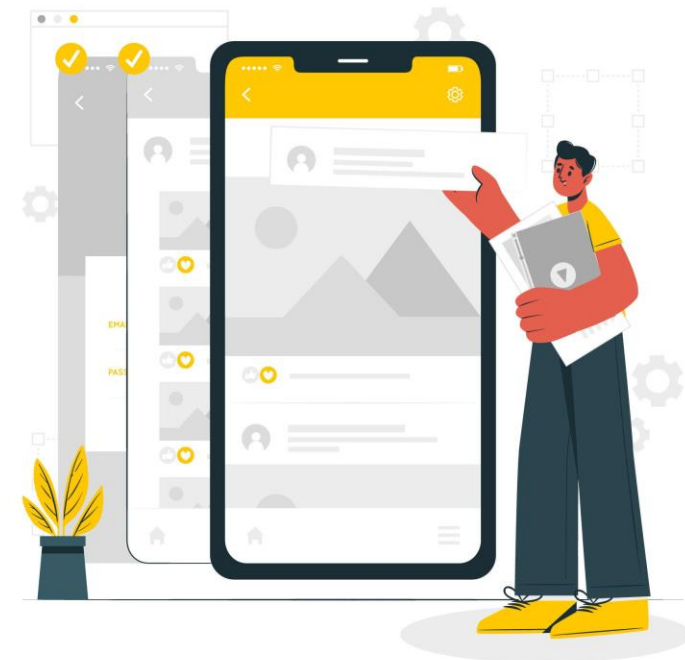


Images by Freepik



WHY DO WE CARE IN HCI?

- Why do we care in HCI?
 - **As designers, researchers, students, experts:**
 - We design for users. Decisions to enhance experience, usability, accessibility etc.,
 - We need to understand how users make decisions to: support their cognitive processes, present information efficiently etc.,
 - **As users/consumers:** by understanding and developing our decision making processes, we make more informed decisions!



Images by Freepik



RATIONAL CHOICE THEORY

- **Rooted in economics**
- In *The Theory of Games and Economic Behavior* 1944, they introduced mathematical models to study strategic decision making
- Gary Becker (1950s-1970s) extended RCT principles to **social behaviors like family dynamics and education**
- Georges Homans (1960s) explored RCT in social interactions and **social exchange theory**

“...when faced with several courses of action, people usually do what they believe is likely to have the best overall outcome”-Elster (1989)



Images by Freepik



THE RCT ASSUMES:

- **Rationality:** individuals are rational actors and will make decisions following a systematic and logical process to maximize their utility and benefit; people weigh pros and cons of each option and choose
- **Self-interest:** individuals seek to maximize their own utility
- **Complete information:** individuals have access to all relevant information to make an informed decision; people can evaluate all available options and outcomes

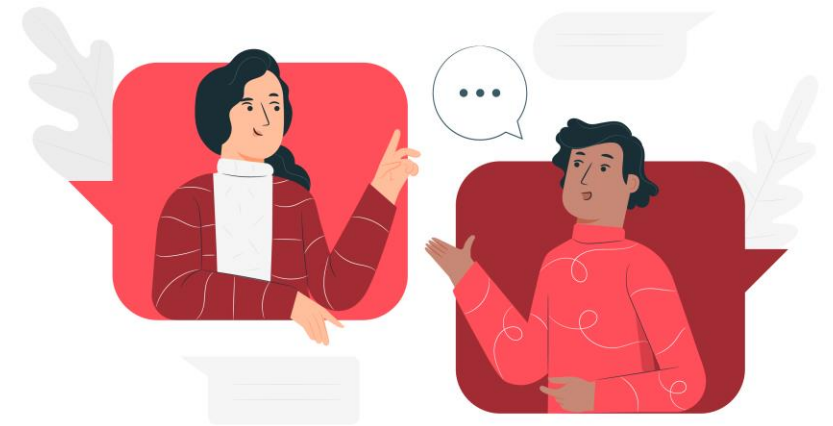


Images by Freepik



SOCIAL EXCHANGE THEORY

- Explains social behaviors as an exchange of resources between individuals (George Homans, 1960s)
- Social behaviors are formed and maintained based on costs and benefits
- **Benefits:** positive outcomes such as love, approval, status, networking, information, money
- **Costs:** negative outcomes such as time, effort, money, emotional and mental strain



Images by Freepik



WHAT DO YOU THINK?

- Do we make decisions based on costs and benefits?
(In personal, social, academic areas of our lives etc.,)

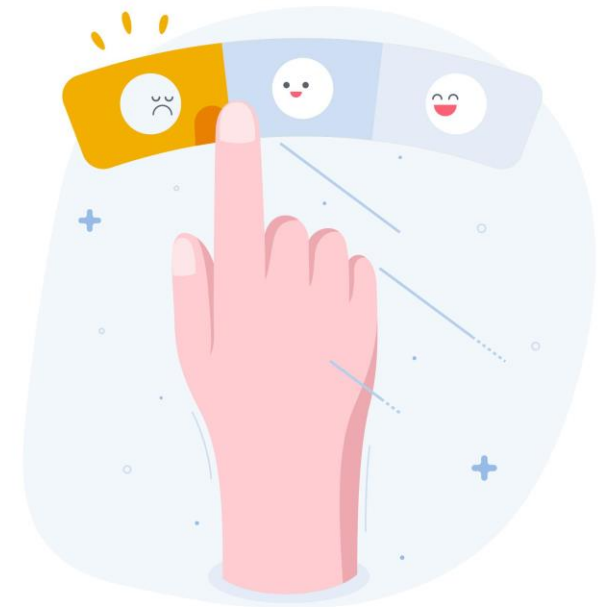


BOUNDED RATIONALITY

- Herbert Simon's Theory proposes that we are limited by our cognitive constraints, time, control over the situation and incomplete information!
- We engage in “**satisficing**”, looking for good enough decisions rather than optimal
- Satisficing impacts UX:
- Informs designers that users will not read all information: designer needs to ensure that important information is easily accessible

Satisficing can be exploited as well:

- Highlighting information such as SUGAR FREE, or specific HEADLINES on media



Images by Freepik



HEURISTICS AND BIASES

- A heuristic is a mental shortcut
- **Availability:**

Making decisions based on how easily an information is retrieved from our mind. Something that is more readily available!

Example: “You wanted to cook a new recipe this weekend, but you start thinking of how when you tried a new recipe last weekend, it was a disaster, so you decide to stick to your go to meal, mac and cheese”



Images by Freepik



MORE HEURISTICS

- **Familiarity:** we tend to have more favorable opinions of things, people and places that we have experience with
- **Affect:** making decisions influenced by our emotions. Good mood? You might see decisions as having more benefits and less risks and vice versa for bad moods (Try avoiding making important decisions when extremely happy or down!)
- **Scarcity:** we think that what's less available, is more valuable. (e.g., LIMITED TIME ONLY).



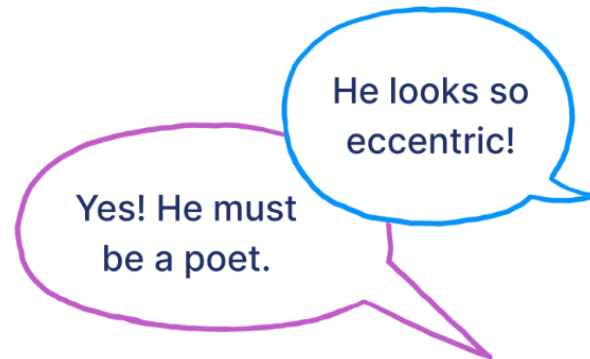
MORE HEURISTICS

The representativeness heuristic

You notice an eccentrically dressed person reading poetry in a coffee shop. If you had to guess whether they are an accountant or a poet, you'd probably guess poet. In reality, there are more accountants than poets, so your guess is based on the stereotype you already have in mind.



 Scribbr



BIASES!

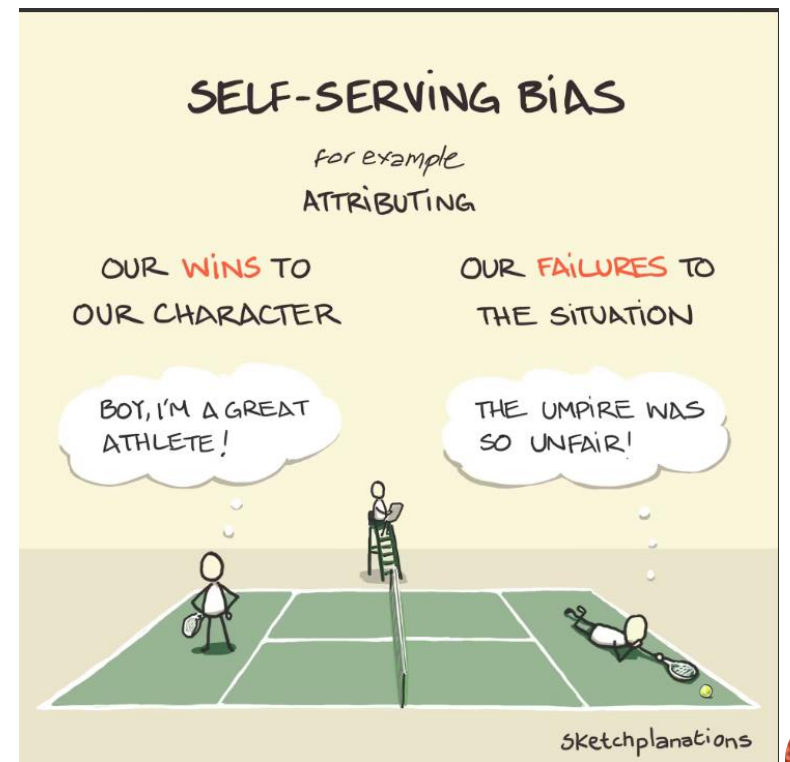
- Heuristics can lead to biases
- **Biases** are unconscious and automatic processes designed to make decision-making quicker and more efficient
- **Confirmation bias:** interpreting new information to confirm our pre-existing opinions
- Examples:
 - Researchers selectively interpreting data and ignoring unfavorable data to support initial hypotheses.
 - Social media reinforces confirmation bias by showing us stories that we are likely to agree with
 - If we decide that X is good for us (whatever X is!), we might seek information to confirm our decision.



WAIT, THERE'S MORE

- **Hindsight Bias:** perceiving past events as more predictable than they were (Roese & Vohs, 2012)

- **Self-serving Bias:** tendency to take personal responsibility for positive outcomes and blame other factors when negative outcomes happen



NATURALISTIC DECISION MAKING

- How do people making decisions in demanding, real world situations?
- Challenges: multiple decision makers, dynamic, uncertainty, constraints, unclear goals
- The field mostly focuses on professionals/experts who rely on their: expertise, intuition and knowledge to make decisions



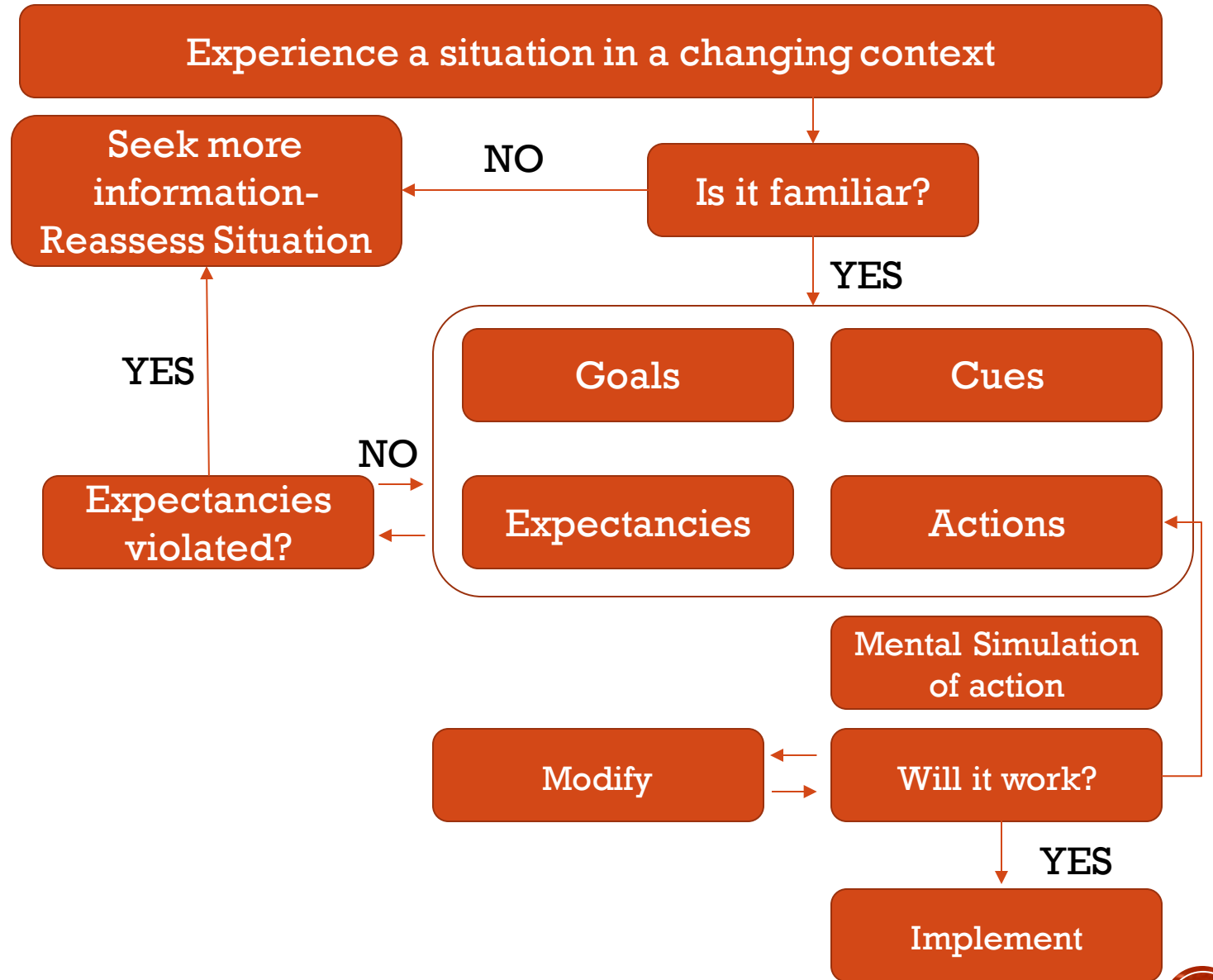
Images by Freepik



THE RECOGNITION PRIMED DECISION MAKING (RPD)



Images by Freepik



TAKEAWAY

- Decision making is hard to predict
- We make decisions based on many factors: costs and benefits, heuristics and biases, emotions, social influences, group dynamics, pressure, uncertainty and so on!
- We haven't solved it yet.
- **Now let's make a decision:** should we have a decision making assignment?



ASSIGNMENT

- Now that you are in advanced stages in your projects (e.g., prototyping an app, designing a game, collecting data)
- Pick 3 heuristics that people use in decision making
- Pick 3 design principles that you can use as an HCI researcher, to accommodate for these heuristics
- Reflect in 3 ideas, how these can be applied in your project

Example:

- **Familiarity:** people have more favorable opinions of things they're familiar with
- **Design Principle:** consistency (designing to be consistent with people's mental models); creates a sense of familiarity
- **Design in an application:** using consistent icons throughout the app interfaces

