



Universität  
Zürich<sup>UZH</sup>

# Game-Based Learning

## Design Thinking Process for Game (Idea) Development



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# Design Thinking

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«**Design thinking** is a human-centered approach to innovation that draws from the designer's toolkit to integrate the needs of people, the possibilities of technology, and the requirements for business success.» - Tim Brown, Executive Chair of IDEO



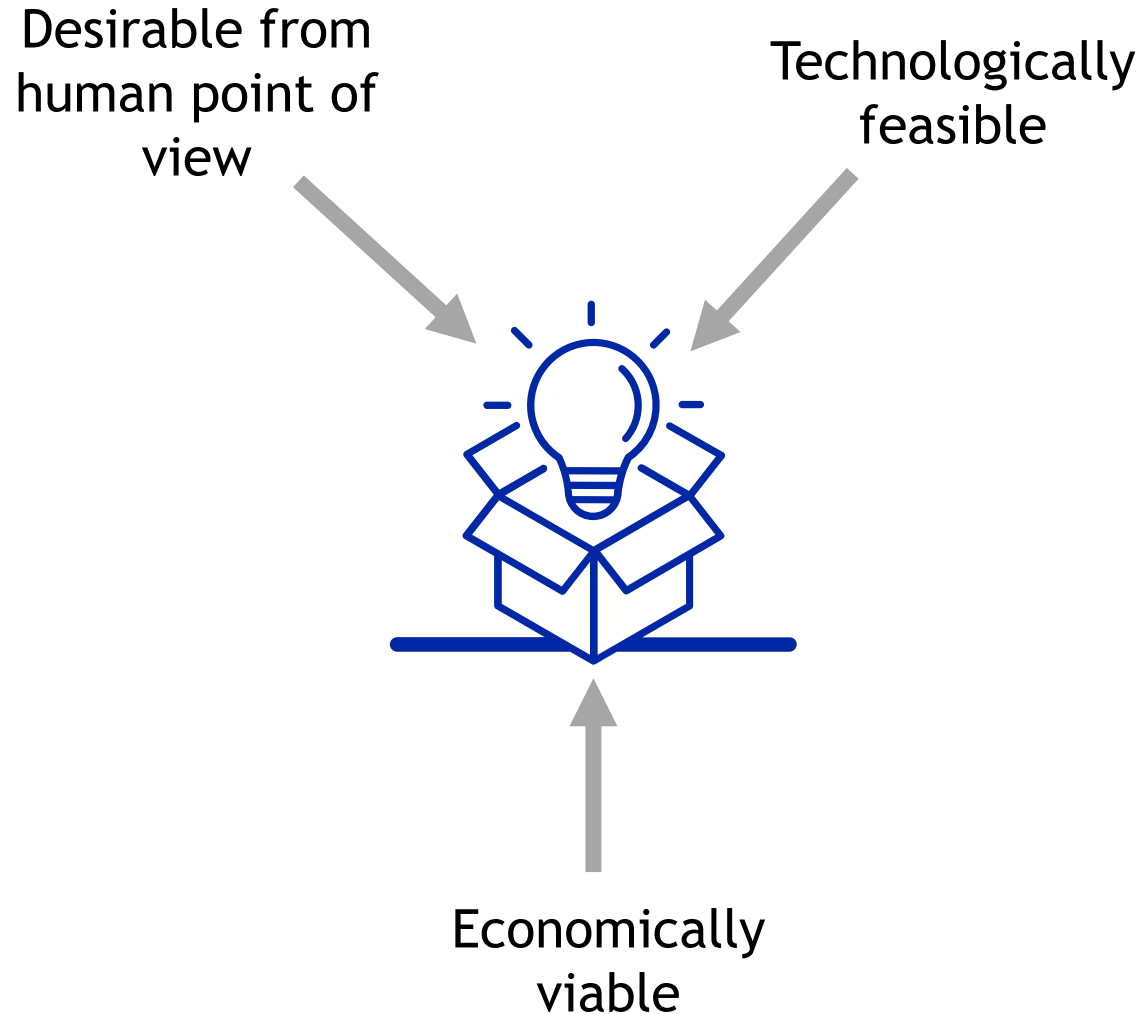
«We spend a lot time **designing** the bridge, but not enough time thinking about the people who are crossing it.» - Dr. Prabhjot Singh, scientist, physician and healthcare researcher

«We must **design** for the way people behave, not for how we would wish them to behave.» - Donald A. Norman, Living with Complexity

«Failure is an option here. If things are not failing, you are not **innovating** enough.» - Elon Musk, founder and CEO of Tesla

# Design Thinking

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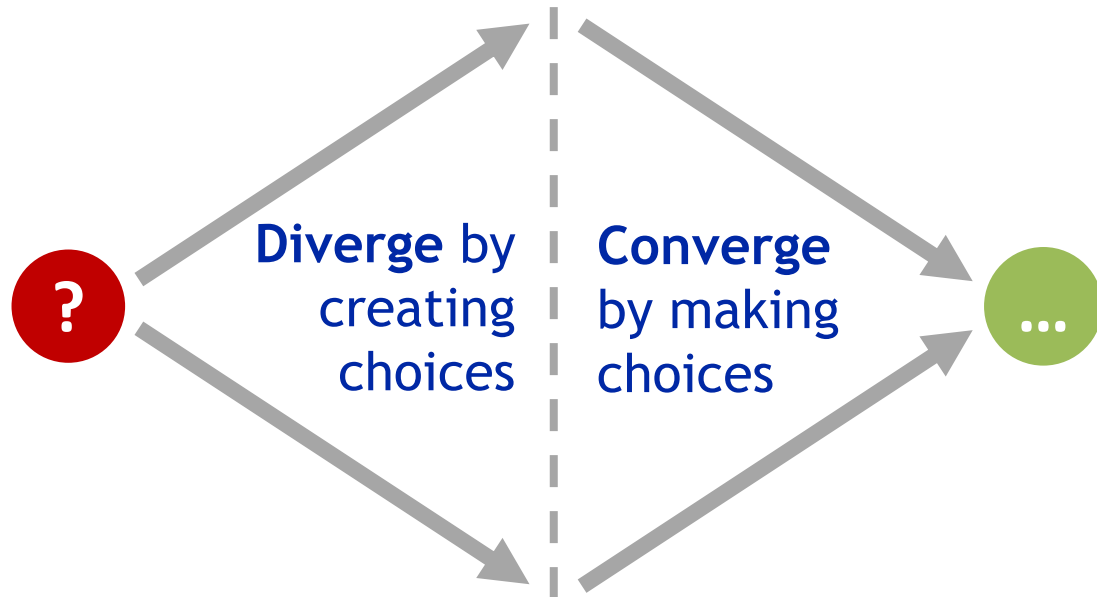


- No single definition!
- Idea, strategy method and way of seeing the world.
- Way to solve problems through creativity.
- Thinking like a designer can transform the way organization design products, services, processes, strategies - and games.
- Not the only and not a fail-safe approach.
- Combines desirability from a human point of view with technological feasibility and economical viability.

Source: Based on IDEO (2022).

# Design Thinking

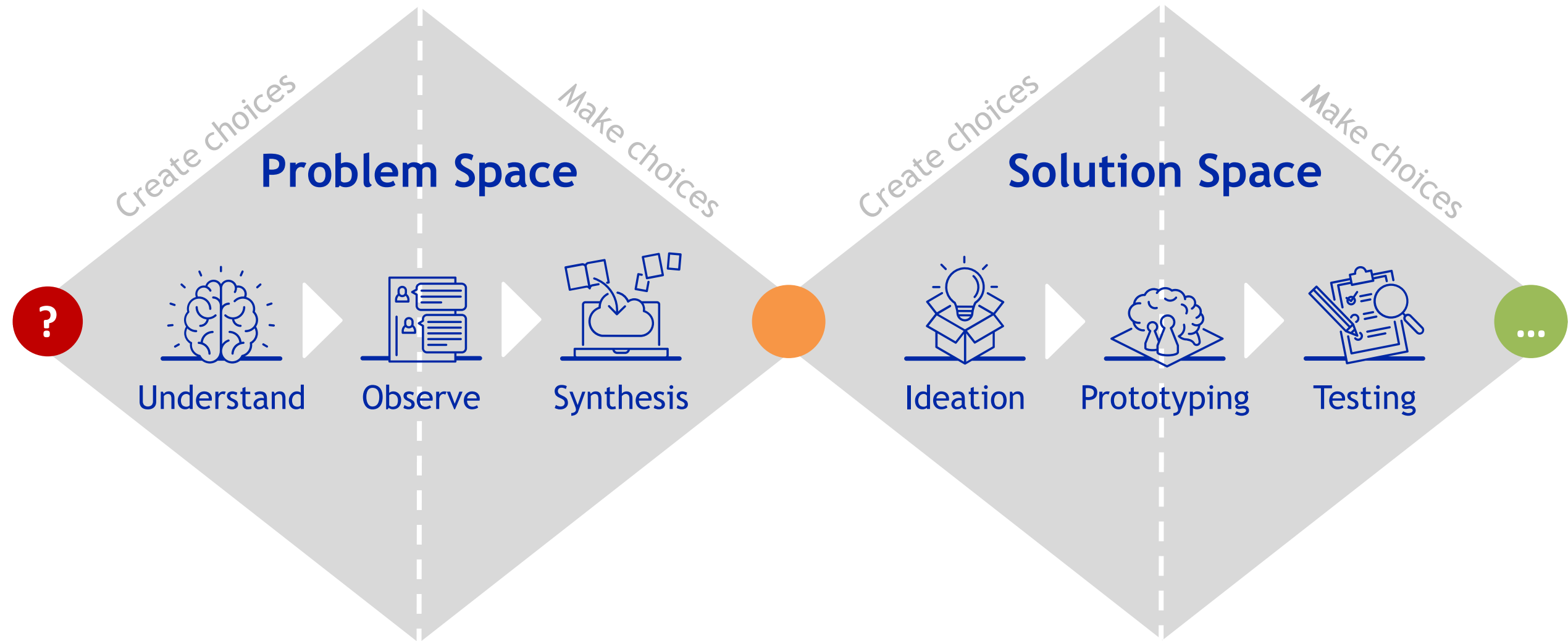
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- Many of the **questions** and **problems** we (as business, government or educational organization) face are dynamic, multifaceted, and inherently human.
  - How can we support students while learning topics in the field of ...?
  - How can we make sure that the students can apply their theoretical knowledge in a practical oriented environment?
- Design thinking offers an approach for **addressing** these and other big questions.

Source: Based on IDEO (2022).

# Design Thinking Process (DTP)



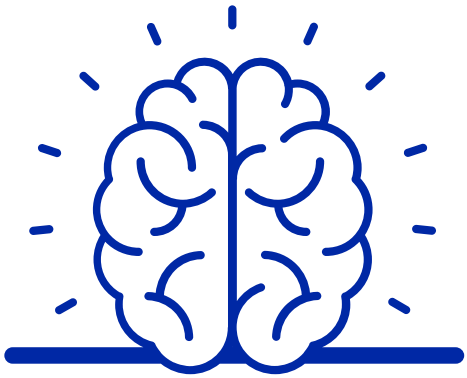
Source: Based on Design Council UK (2019) and Stadelmann (2021).

# Step 1 DTP: Understand

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## Applied to GBL:

- Understand the question respectively problem (e.g., difficult conceptual topic) as a team and identify involved stakeholders (e.g., students, lecturers)
- Make sure everyone of the team knows the design thinking process and the specific task



## Instruments for GBL:

- Initial workshop to define relevant ideas respectively topics for a game
- Clustering the ideas according to topics (e.g., identify 3 to 5 topic clusters)

## Hint:

- Right amount of fuzziness of the task: Narrow versus wide questions

# Step 2 DTP: Observe

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## Applied to GBL:

- Observe (e.g. visit lectures, look at exam results) and talk to relevant stakeholders (e.g., students, lecturers) while dealing with the question respectively the problem

## Instruments for GBL:

- Analyze relevant lectures and exam results as well as survey among students and lecturers regarding difficult topics that could be applied in a GBL setting
- Conduct research about existing games in the identified topic clusters from the previous step

## Hint:

- Gather as much information as possible

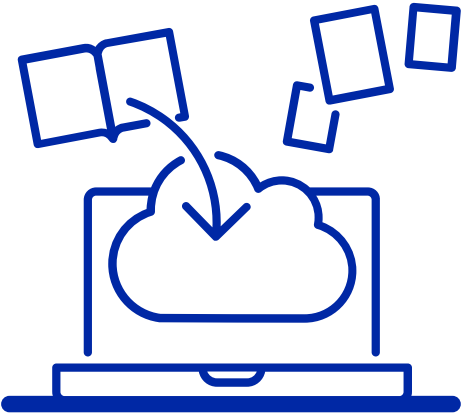


# Step 3 DTP: Synthesis

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## Applied to GBL:

- Share, consolidate and summarize the gained information
- Decide on which question respectively problem to focus with the creativity of one's team



## Instruments for GBL:

- Evaluate the survey(s) and information gained throughout the previous step
- Prioritize (e.g. make a list or an overview) and decide on potential topic(s) in need for a game (e.g., through voting)

## Hint:

- Difficult phase for the team as everybody can be right



# Step 4 DTP: Ideation

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## Applied to GBL:

- Brainstorming with creative phases for ideas that could solve the question respectively problem



## Instruments for GBL:

- Define (possible) learning objectives
- Conduct research about existing games and/or game ideas
- Various forms of brainstorming for specific game ideas within workshops

## Hint:

- Work with diverse teams (also in terms of content, IT and design knowledge) of 4-6 people

# Step 5 DTP: Prototyping

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## Applied to GBL:

- Build (a) playable prototype(s) of selected game ideas to test its technological feasibility
- Make sure that the game idea(s) match your specified learning objectives

## Instruments for GBL:

- First step elaboration of the game idea e.g. using an idea napkin (incl. name and visualization, function, users, problem solved, next steps to bring the idea to life)
- Model/prototype games in e.g., Excel (for game model), Balsamiq (for visualization)

## Hint:

- Identify critical functions of idea and talk to experts in the respective field about whether the prototype reflects the reality sufficiently well



# Step 6 DTP: Testing

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## Applied to GBL:

- Let stakeholders testplay and interact with the game prototype (e.g., make decisions in Excel)
- Get structured feedback to improve your game prototype



## Instruments for GBL:

- Organize group testing sessions
- Prepare settings that allow structured feedback for your game prototype (e.g., test card)

## Hint:

- Focus is on improving and not on selling your game prototype

# Literature

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Design Council UK, 2019, Framework for Innovation: Design Council's evolved Double Diamond, retrieved from <https://www.designcouncil.org.uk/our-work/skills-learning/tools-frameworks/framework-for-innovation-design-councils-evolved-double-diamond/> on 16 December 2022.

Ideo, 2022, Design Thinking Defined, retrieved from <https://designthinking.ideo.com/> on 1 September 2022.

Stadelmann, 2021, Design Thinking for Learning and Teaching, Workshop at the University of Zurich.