MAGnUS Training @ TLU
Idea generation techniques

Mikhail Fiadotau

Lecturer @ School of Digital Technologies, Tallinn University

fiadotau@tlu.ee

1. Overview of ideation

Introduction

- Original ideas can be in short supply in the classroom
- E.g. Zagal 2013: game design/development students tend to replicate their favorite existing games if not given enough guidance
- Various ideation techniques exist to promote innovative ideas
- **Ideation** = idea generation

Zagal, J. P. (2013). *Understanding Japanese Games Education*

Types of innovation

- **Derivative idea:** *e.g. Diet coke*
- **Symbiotic idea:** *smartphone camera*
- **(R)evolutionary idea:** *the World Wide Web*
- **Serendipitous discovery:** *e.g. penicilin*
- **Computer-assisted discovery:** *DLG Idea Generation Machine*

D. Graham & T. Bachmann (2004). *Ideation: The birth and death of ideas*

How do new ideas emerge?

- In our daily lives, we frequently rely on mental shortcuts to save time and cognitive effort
- But for innovation to occur, we need to take the opposite route (**"creative destruction"**):
  - Break habitual thinking patterns and overcome cognitive biases
  - Analyze not just the recent, but also old and forgotten examples in search of inspiration
  - This is why dreams are such a rich source of ideas: no conventional thinking patterns, forgotten memories

Marcy, R.T. (2015). *Breaking mental models as a form of creative destruction: The role of leader cognition in radical social innovations*

How do new ideas emerge?

- New ideas cannot be *entirely* new (otherwise, no one can understand them); they need to be **contextualized** in familiar categories in order to make sense
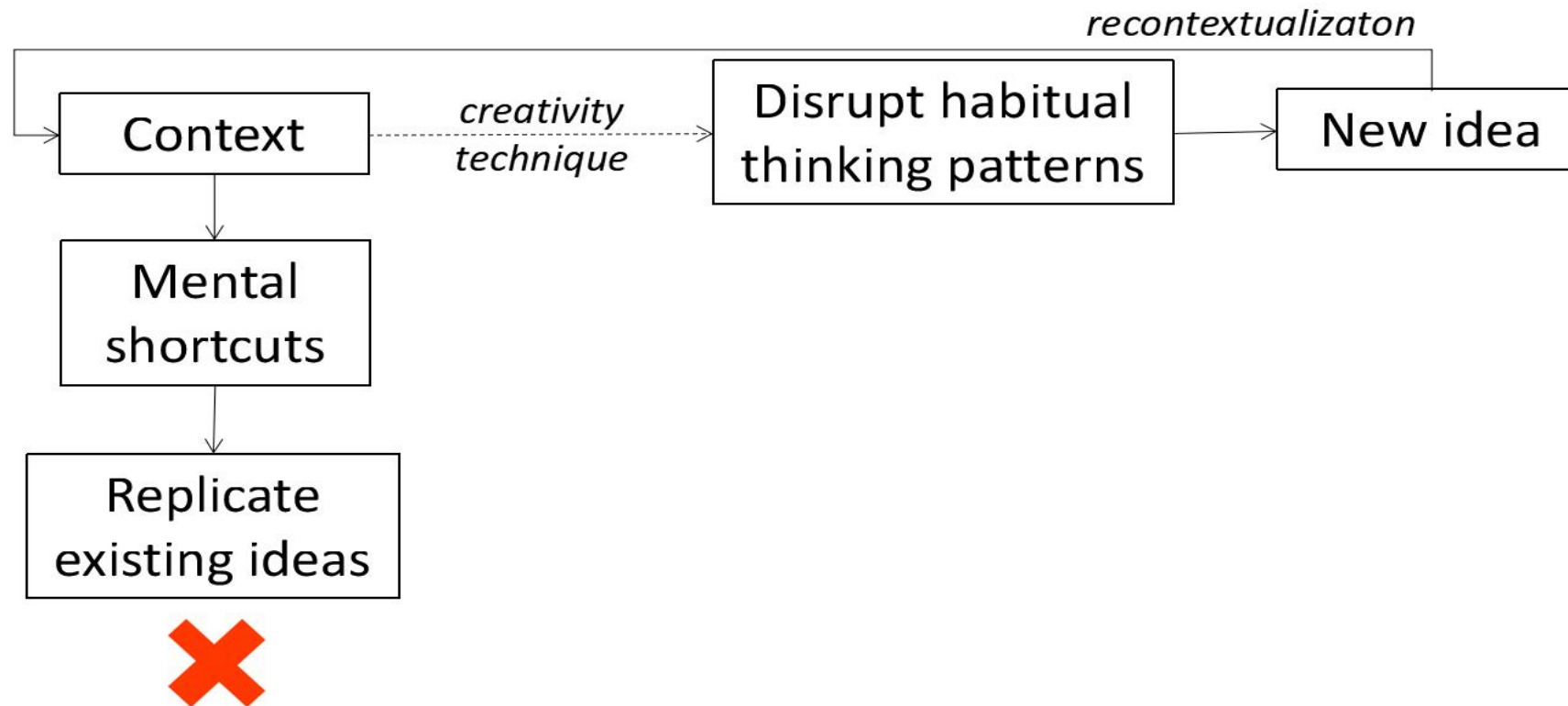
2. Ideation techniques: examples

Ideation techniques

- **Mass idea generation techniques** (brainstorming, 635): generate ideas until you run out of familiar associations. Quality follows quantity.

- Other techniques focus on creating a single innovative idea: **fantastic binomial** (Gianni Rodari).

- Ideation techniques can focus on **problem-solving** (applying an idea to deal with an existing challenge) or **inspiration** (no practical considerations).

Fantastic binomial

- The **fantastic binomial** is a concept suggested by children's writer Gianni Rodari.

- New ideas result from **combining two ideas** that do not usually go together and then **making sense** of the combination.

- E.g. two people write a word each on two pieces of paper without seeing what the other person is writing. Then they collaborate on a story based on both words
  - e.g. *onion* and *oppression*

- Or one could pick two random words from a dictionary, etc.

G. Rodari (1974). *La grammatica della fantasia*

635 method

- **635** is a **group brainstorming** technique
- Participants are grouped in **teams of 6**
- Each participant has **5 minutes** to come up with **3 ideas** and write them down on a worksheet
- Participants then **exchange their worksheets**; they have 5 more minutes to add 3 more ideas to the sheet (6 rounds total)
- This results in 108 ideas generated over 30 minutes
- Participants thus draw inspiration from each other, overcoming individual and intra-team creative barriers

B. Rohrbach (1969). *Kreativ nach regeln*

Wargaming method

- Presentation by Pavel

SCAMPER

SCAMPER is an ideation technique based on modifying existing ideas. "SCAMPER" is an acronym:

- **S** = Substitute
- **C** = Compare
- **A** = Adapt
- **M** = Magnify
- **P** = Put to another use
- **E** = Eliminate (or minimize)
- **R** = Reverse

R.F. Eberle (1972). *Developing imagination through SCAMPER*

SCAMPER

- **Substitute:** Virtual units for real life units = *Analog Tetris*

- **Combine:** Tower defense + farming simulator = *Plants vs. Zombies*

SCAMPER

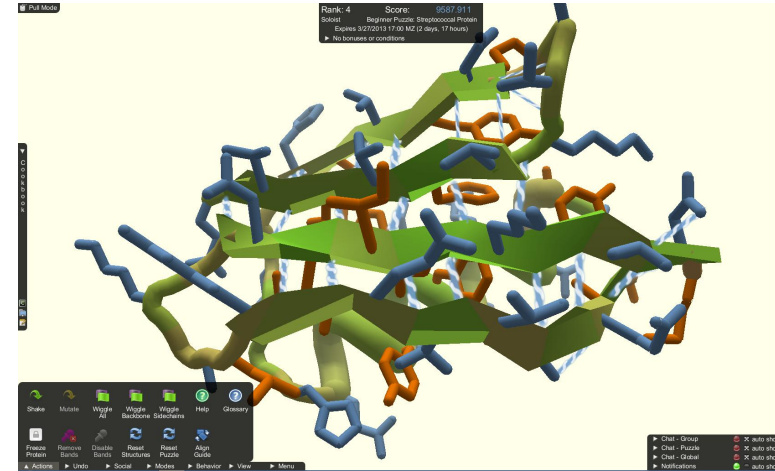- **Adapt:** TV series structure to videogames = episodic games (*Walking Dead*)

- **Magnify:** increase the number of teams in football = *three-sided football*
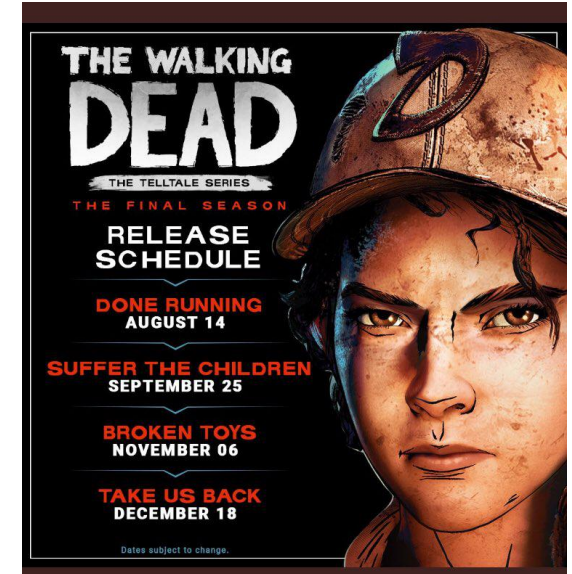
SCAMPER

- **Put to another use:** Puzzle game used for science = *FoldIt*

- **Eliminate (or minimize):** eliminate most of the controls = one-button game (*Flappy Bird*)
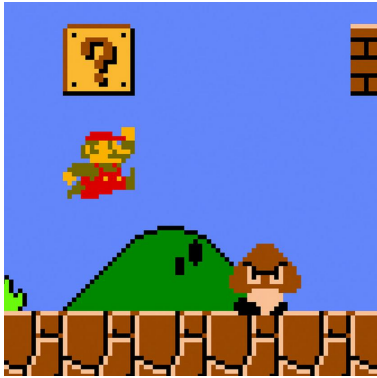
SCAMPER

- **Reverse:** character growth in RPGs = the hero gradually grows weaker (*To Ash*)

SCAMPER demonstration

- Let us give it SCAMPER a try
- On the next slide, you will find the names of several existing games
- Think of how SCAMPER can be used to transform any of them into **math-teaching games**
- Just the basic idea is enough (e.g. *"You need to combine this game with …"*)
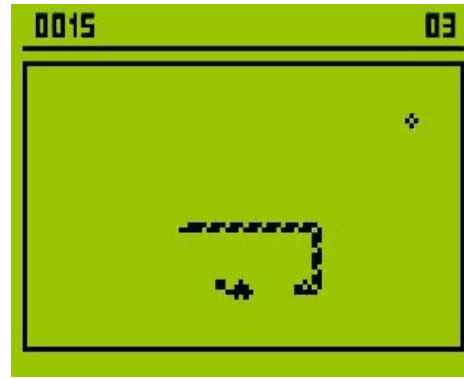- You will have **120 seconds** to think of an idea

Super Mario Bros

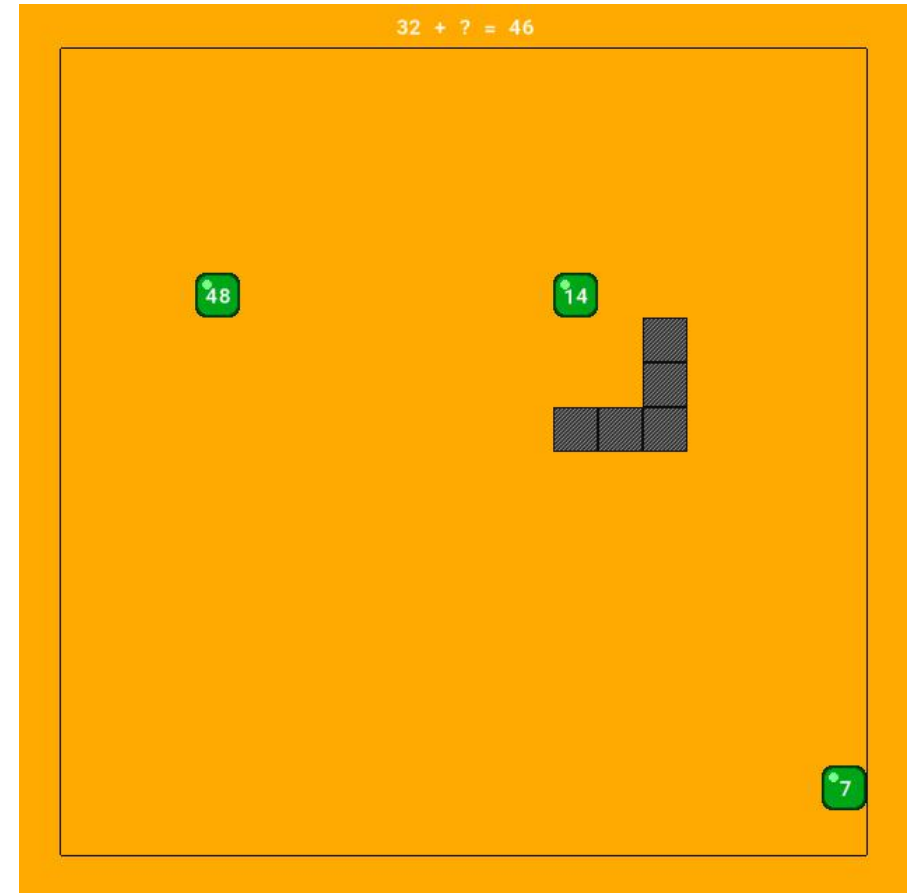*Chess*

Minecraft

Monopoly

Mafia

Snake

- Substitute
- Combine
- Adapt
- Magnify
- Put to another use
- Eliminate/minimize
- Reverse

02:00

SCAMPER demonstration

- Introduce your ideas!

- Example idea: **Math Snake** = Snake *combined* with simple equations

- (Used as an example of a previous version of Basics of Game Development)

PlayGen cards

1. *PlayGen* is a card game for making games.

2. It has four types of cards, corresponding to **four gameplay elements**:

  – **game mechanics:** what does the player *do* in the game?

  – **motivation drivers:** how does the game keep the player engaged?

  – **social mechanics:** how does the game enable players to interact and relate to each other?

  – **victory conditions:** how do you win the game?

PlayGen cards demonstration

- Work in **teams**
- **Draw one card** of each type
- **Think of ideas** for games based on your cards and **discuss** them
- (Ideally, the games should relate to your educational field)
- You can replace one of your cards with one of those remaining in the deck
- Present your ideas!