

Introduction to gamification in education

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Definition

"The use of design elements characteristic for games in non-game contexts"

Deterding et al (2011) [10.1145/2181037.2181040](https://doi.org/10.1145/2181037.2181040)

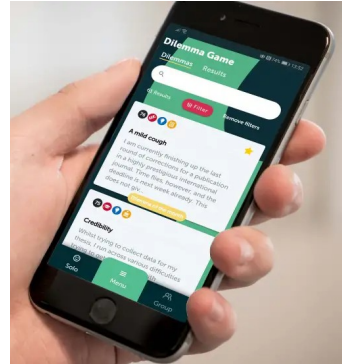
Exemples of gamification

Quiz



Mentimeter

Apps



The Dilemma Game

Fitness

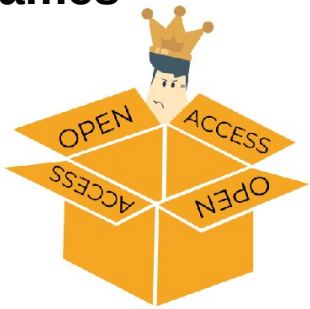


Card /
board /
serious
games



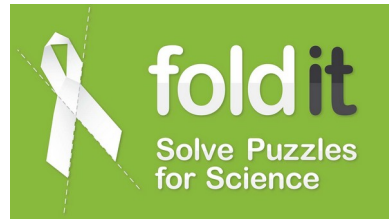
Copyright The Card Game

Escape
games



Open Access Escape Room

Citizen Science



FoldIt

Role-playing



Open Access Mystery



The Publishing Trap



Super Open Researcher

Why gamify ?

- Why would people pay for 'working' their chosen sport/hobby, instead of working harder for the job they get paid for (Coonradt 1984)
- Kids, nowadays, are said to lack in self-discipline and are easily distracted. But they have great 'work ethics' to play video games where they spend hours levelling up their fictional character (Chou 2015)

Gamification improves engagement and learning in an educational context

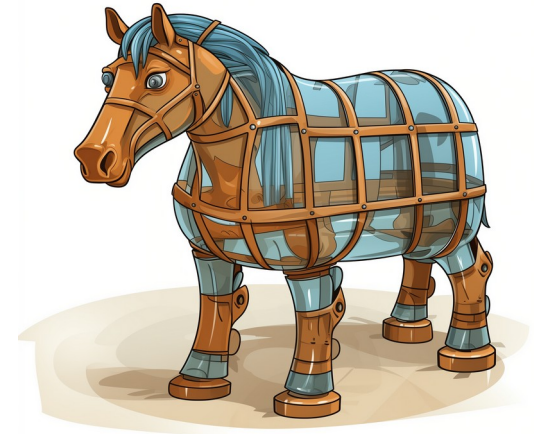
Welbers et al (2018) [10.1177/2042753018818342](https://doi.org/10.1177/2042753018818342)

Nah et al (2014) [10.1007/978-3-319-07293-7_39](https://doi.org/10.1007/978-3-319-07293-7_39)

Cheong et al (2013) <https://aisel.aisnet.org/pacis2013/206>

Pitfalls

- An empty Trojan horse: simply incorporating game mechanics and elements doesn't make a game fun (Chou 2015)
- State-of-the-art but low-selling video games VS simple but very popular games (e.g. Minecraft)
- Simply adding PBL (Points, Badges and Leaderboards) doesn't necessarily make for good gamification



Points - tracking/feedback
Badges – goals/rewards
Leaderboards - competition

Learning Outcomes

**The content and learning objectives are
the key to good gamification**

NO – “what popular game mechanics and elements should I use ?”

YES – “what do I want them to remember and feel – what game elements and mechanics help me achieve that ?”

Why am I thinking of gamification ? Is it really the appropriate way of teaching about this topic ??

Game mechanics

Forget about monopoly!

Explicit / implicit

Solo / cooperative / competitive

Luck, Skill, Knowledge, Logic, Creativity

Draw 1 Play 1



- Auction / bidding
- Action points / time tracks (turn order)
- Trick-taking
- Engine building
- Resource/hand management
- Role-playing / hidden roles / voting
- Tile placement
- Worker placement
- Drafting (open/closed) / set collection
- Hidden movement
- Deck building
- Input / output randomness / push-your-luck
- Memory / stacking / balancing / dexterity
- Roll-and-write
- ...

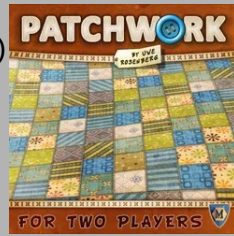
Auction / bidding



Action points



Time track (turn order)



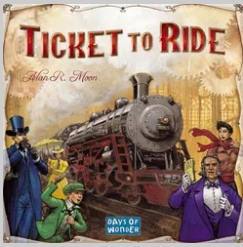
Trick-taking



Engine building



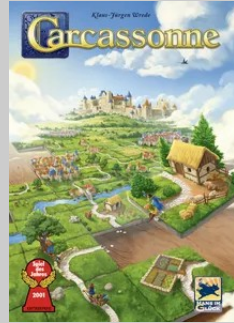
Resource / hand management



Role-playing / hidden roles / voting



Tile placement



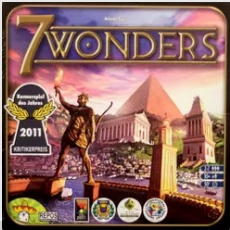
Worker placement



Set collection



Open / closed drafting



Creativity



Hidden movement



Deck/bag building



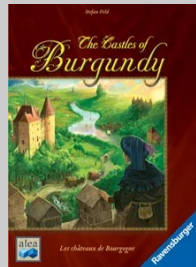
Memory



Stacking / balancing / dexterity



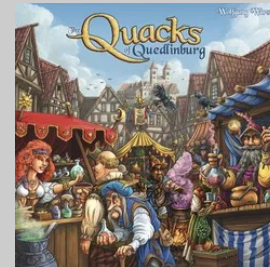
Input randomness



Output randomness



Push-Your-luck



Roll-and-write



How to gamify

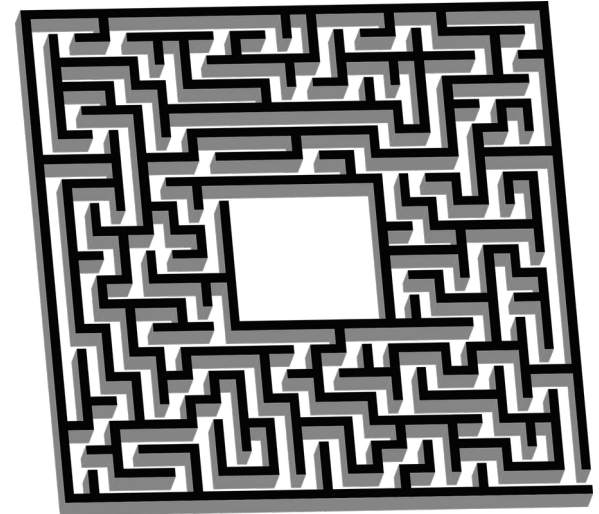
- Define the **learning objectives**
- Knowledge, Skills or Behaviour ?
- Audience ? (PhDs, students, researchers)
- Number of people ? In teams or alone ?
- Duration ? Number of sessions ?
- Environment, setting, context ?
- Other educators to help ? Guided or independent ?

Rules are bad - simple rules (e.g. draw 1 + play 1)

Cloning existing games for educational purposes is okay

Repeat rules within the game

Playtest the game (many times...)



Additional resources

- Accessibility and inclusion in board games:
Heron et al (2018) [10.1007/s40869-018-0057-8](https://doi.org/10.1007/s40869-018-0057-8)
[Meeple Like Us](#)
- System for running escape games in classrooms:
Nicholson (2018) [10.1080/00094056.2018.1420363](https://doi.org/10.1080/00094056.2018.1420363)
[Escapelf](#) creation guide and design worksheets
- Gamification examples and cases:
[Yu-kai Chou website](#)
- Core drives of gamification:
Octalysis framework – Yu-Kai Chou (2015) *Actionable Gamification: Beyond Points, Badges, and Leaderboards*
- Scale to measure learners' enjoyment of e-learning games:
Fu et al (2009) [10.1016/j.compedu.2008.07.004](https://doi.org/10.1016/j.compedu.2008.07.004)

