

Maximizing performance and minimizing dropout rate with the help of flow: a gamified mathematics course



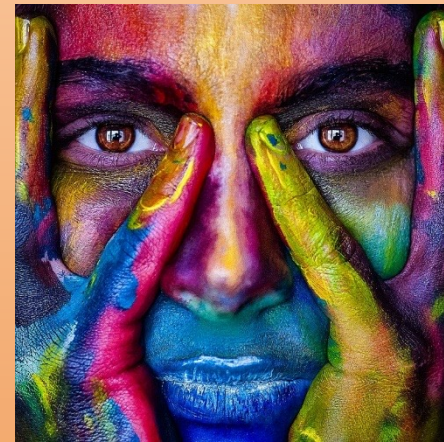
Csaba Szabó, Sára Szörényi

Eötvös Loránd University

Budapest

MTA ELTE Research Group in the Theory of Learning Mathematics

What is in common?



What is in common?

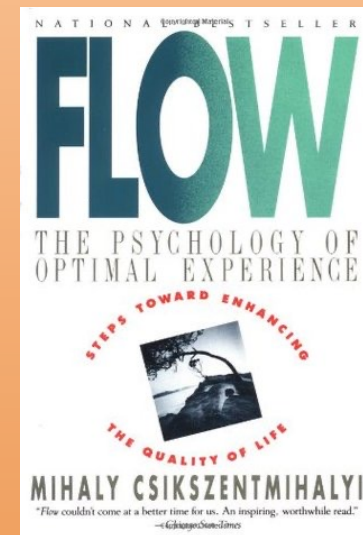
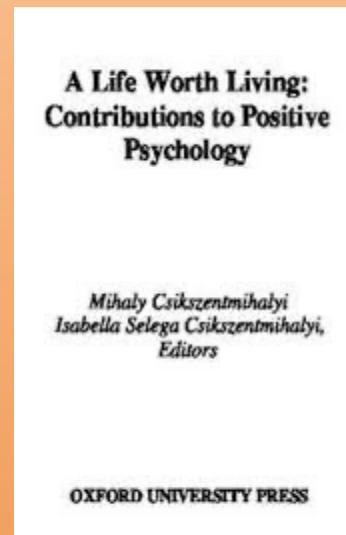


The flow experience

The flow?



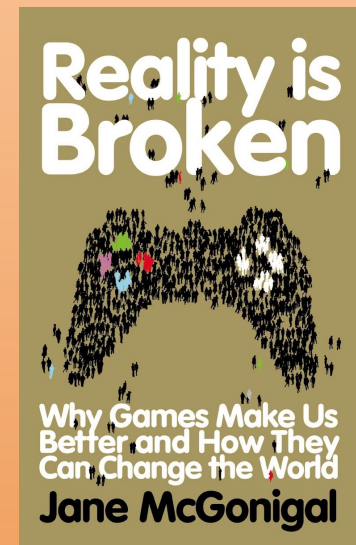
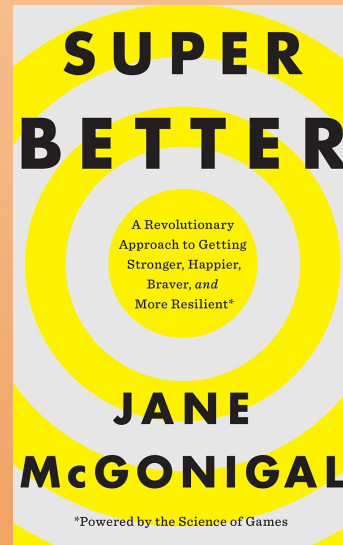
- satisfying, often exhilarating
- rarely experienced in everyday activities
- „play is the flow experience par excellence”
- positive psychology



The flow!



- game designers and developers
- popular games
- back to everyday activities



Definition



Gamification (2002)



the use of elements of games in non-related
game contexts (2011)



Definition



Gamification (2002)



the use of elements of games in non-related
game contexts (2011)



Definition



Gamification (2002)



process of enhancing a service
gameful experiences
support value creation (2017)





The foundations



PBL system

XP



Player types





The course



- Number theory 1.
- 2020/21 fall semester
- 72 students
- 60 min. lectures
- 90 min. tutorials
- Teams, Canvas





Learning psychology



Test enhanced learning



Distributed learning



Cumulative testing





Weekly list of exercises



For explorers

- Interesting problems
- Easter eggs



For socializers

- „Explain to someone...”
- Forums





Heti feladatsor



For achievers and killers



best solutions



leaderboards





Challenges



“Boss fight”
exam



Beat your
instructor!





Results



Evaluations

Test of courage
+14%

Beat your instructor!
+32%

Drop-out rate
17% instead of 45%

Engagement



Flow experience → Engagement



during activity



state



Engagement

