The Bright and Dark Sides of Gamification

Fernando Andrade, Seiji Isotani
University of São Paulo

Riichiro Mizoguchi
Japan Advanced Institute of Science and Technology
Agenda

- Gamification
- Bright side
- Dark side
- Framework for Intelligent Gamification
- Conclusion
- Future works
Gamification

Baker (2008)

Gamification

BRIGHT SIDE

DARK SIDE
Gamification

- The use of game elements, mechanics and game-thinking in non-game context to motivate people and change behavior

(Kapp, 2012).
Gamification
The Bright side
Bright side

- **Motivational tool** *(Kapp, 2012)*
  - Improves the commitment to the tasks
  - Increases the enjoyment with the system
  - Increases the sympathy for a domain
Increasing Motivation

Personal Trainer
Continue assim!

381/50 meta cumprida
1 dia de ofensiva
< 1 hora restante

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Motivational Loop

Flow Theory

Motivational Loop

- Flow
  - Learner Growth Model Improved by Flow theory (Challco, 2016)
  - Skill or Knowledge required for the task

- Domain context
  - Increasing the task difficulty level

- Gamification
  - Increase the difficulty to acquire a reward or to unlock one
Domain sympathy

- Changes behavior
  - Reduces the resistance towards a domain

- CSCL
  - Persuasive technic
Dark side
Undesired Competition

In students with low performance and low self-efficacy:

- Negatively affects their sense of competence
- Reduces overall interest and engagement.
Off-task Behaviour

- Distracts the student
- Students spend too much time customizing
- Reinforces Gaming behavior to achieve more points

(Godwin, 2015)
Addiction

Meaning the interest above the expected in gamification features.

Addiction to video-games and internet games is highly associated with:

- Disruption of academic performance or house chores;
- Preoccupation with gaming;
- Overstrain to obtain rewards;
- Mood modification.

(Chaoying, 2015; Jeong, 2015; Sun, 2015)
Addiction

- The student creates a dependence on game elements to stay engaged in the system
  - Creates a strong need for extrinsic reward, harming intrinsic motivation
Addiction - Fading

Possible strategies of fading

- Increase the difficult to acquire a reward
- Change element location
- Change element aesthetics
- Remove the element

(Ueno, 2015)
Dealing with both sides
FIG – framework for intelligent gamification

- Interface level
- Instructional level
- Data level
FIG – framework for intelligent gamification

- Domain Knowledge
  - Skills levels
- Player Styles
  - Game elements available
  - Rules applied to each element
- Personality traits
- Generic user data

- Knowledge attrib.
- Interaction patterns attrib.
- Gamer Profile attrib.
- Psychological attrib.
- General Behavior attrib.
Different people engage in a game for different reasons, and the same game can have different meanings for each person. (Yee, 2006)
Player typologies

Yee (2006)
- Advancement
- Escapism
- Customization
- Role-Playing
- Discovery
- Teamwork

BrainHex (2008)
- Seeker
- Survivor
- Daredevil
- Mastermind
- Conqueror
- Socialiser
- Achiever

Mechanics
- Competition
- Socializing
- Relationship

Achievement

Immersion

Yee (2006)

BrainHex (2008)
Psychological attributes

- Personality test
  - Mayer-Briggs test
  - Big Five
    - Neuroticism (high)
    - Extraversion (low)
    - Conscientiouness (low)

(Jeong, 2015)
FIG - Patterns

- Interaction pattern
  - Observable data
    - System logs
    - Time spent
    - Gamification elements triggers

- Psychological
  - Group risk
    - Frustrated
    - Depressed
- Game Elements Interactions
- Student Knowledge Model
- Student Motivational Model (Mood)
- Student Personality Model
- General knowledge about the student
Gamification Model

\[ GA_x = \{ \text{Rules}_{(x)}[] \leftrightarrow \text{Profiles}_{(x)} \} \]
FIG – Gamification Relationship

Point system

Controller

User

Profile

Leaderboard

GA_1

GA_2

GA_n
\[ \text{GA}_1 = \{ \text{Rules}^{[1]} = [\text{Position}], \ \text{Rules}^{[2]} = [\text{Color}], \ \text{Rules}^{[3]} = [\text{Size}], \ \ldots, \ \text{Rules}^{[n]} = [\text{Reward-eq.}] \} \]

\[ \text{GA}_1 = \{ \text{Rules}^{(x)} [\] <-> \text{Profiles}^{(y)} \} \]
How to Fade using FIG??
GA\_1 = \{ Rules\_1[,] \leftrightarrow Profile\_1 \}
\vdots
GA\_n = \{ Rules\_n[,] \leftrightarrow Profile\_n \}
\vdots
GA\_X = \{ Rules\_X[,] \leftrightarrow Profiles\_X \}
Conclusion

- Off-task Behavior
- Undesired Competition
- Addiction
Future Works

- Improve Risk Model
  - Establish & evaluate psychological rules

- Empirical tests
  - Framework Evaluation
References


Thank you!