GAMEFICATION IN HIGHER EDUCATION

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GAMIFICATION CONCEPT



GAMIFICATION IN HIGHER EDUCATION

- The definition of gamification is *the application of game-like mechanics to non-game entities to encourage a specific behavior.*

- Gamification of education is a developing approach for increasing learners' motivation and engagement by incorporating game design elements in educational environments.

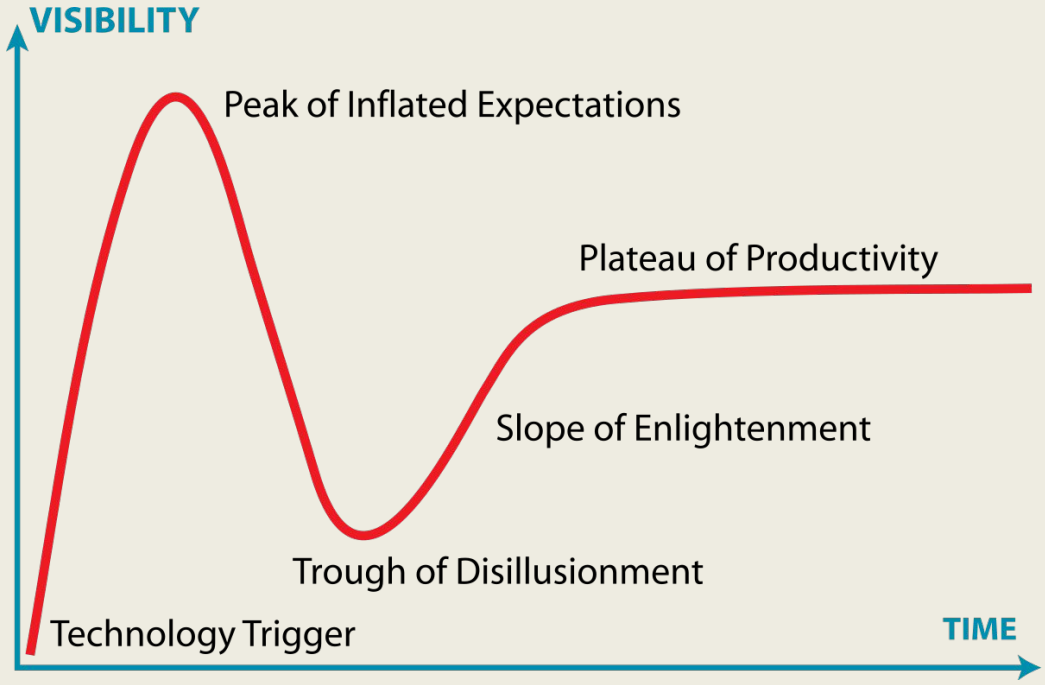


HISTORY

- The idea of incentivizing people is not new but the term “gamification” didn’t enter the mainstream vocabulary until 2010
- As with any new and promising technology it has been applied in a diversity of domains, including marketing, healthcare, human resources, training, environmental protection and wellbeing
- To support learning in a variety of contexts and subject areas and to address related attitudes, activities, and behaviors, such as participatory approaches, collaboration, self-guided study, completion of assignments, making assessments easier and more effective, integration of exploratory approaches to learning, and strengthening student creativity and retention

WHAT IT IS NOT

- Gamification is not game-based learning, nor does it require students to play games, with toys, use electronics. It also doesn't necessarily require you to create elaborate systems of experience points, unlocks, and badges (though you could).



- gamification is motivating,
- gamification is engaging,
- gamification can improve attendance and participation

Gartner hype cycle

CONNECTION WITH FORMAL EDUCATION

- Formal learning typically involves a mix of instructional activities and supporting materials, such as lectures, tutorials, assignments, projects, labs, exercises, class discussions and team work.
- Learning activities which involve tasks that are decomposable into simpler subtasks or tasks where performance is measurable (according to an obvious rewarding scheme or skills) are better candidates for gamification.
- Incorporating a suitable combination of game elements within learning activities could improve the outcome.

WHEN DOES IT MAKE SENSE TO USE?

- To encourage a specific response or behavior
- To increase the visibility and perceived importance of otherwise ‘minor’ and less visible actions
- To promote competition
- To engage students
- To help students track their own progress



RELEVANCE OF GAMIFICATION IN HIGHER EDUCATION

- E-learning
- Zoom
- To differentiate or personalize instruction
- To motivate students–whether previously disengaged or already excelling
- Promote critical and strategic thinking
- To support both struggling and talented students
- To clarify learning progress
- To improve the potential of existing learning models like project-based learning or blended learning

ELEMENTS OF GAMIFICATION

Components	Mechanics	Dynamics
■ achievements, ■ avatars, ■ badges, ■ collections, ■ content ■ levels, ■ points, etc	■ elements that move the action forward. ■ Including cooperation, feedback, resource acquisition, rewards	■ progression and relationships

Example: points (components) provide rewards (mechanics) and create a sense of progression (dynamics).

QUESTIONS

- Do more game elements produce better results than less?
- Is the task of identifying the right combination of game elements with respect to a given context and user group practically feasible?
- How to balance points and rewards with play and intrinsic engagement?
- How students with different personalities, dispositions and learning styles are influenced by game elements?

- No easy answers – no „one fit for all" solutions
- Intrinsic and extrinsic motivation
- Learner's personality

CULTURAL DIFFERENCES

- Understanding differences in learners' drivers, what they value and what they dislike is important to the design of reward, progress, and feedback systems with potential to achieve desired outcomes for the intended groups of learners.



GAMEFICATION STUDIES

Source: Christo Dichev & Darina Dicheva: Gamifying education: what is known, what is believed and what remains uncertain: a critical review

Paper	Game elements	Gamified activity	Reported Outcome
(Amriani et al., 2014)	Points, badges, leaderboard, status, levels, unlockable content, customization	Learning interactions in Virtual Realty	Improved participation and engagement?
(Hew et al., 2016)	Points, badges, leaderboard	Project activities	The effect of gamification on engagement?
(Holman et al., 2013)	Badges, leveling, autonomy, leaderboard, grade predictor	Overall class activities	The impact of grade predictor on planning the work over the course
(Knutas et al., 2014)	Points, badges, up-vote, down-vote	Collaborative learning	Improved student collaboration?
(Lambruschini & Pizarro, 2015)	Points, badges, leaderboard	Course participation	Boosted communication, participation, punctuality?
(Landers & Landers, 2015)	Leaderboards	Course project activities	Improved time on task
(Latulipe et al., 2015)	Stamps, tokens, leaderboard	In-class course activities	Encouraged harder work and engagement?
(Lehtonen et al., 2015)	Points, badges, leaderboard	Online Java exercises	Increased use of an open learning environment
(Smith et al., 2014)	Merit points, badges, voting	Online discussions	Improved participation and quality of online discussions
(Utomo & Santoso, 2015)	Badges, progress bar	Online learning activities	Fostered learning activities?
(Auvinen et al., 2015)	Badges, heatmap	Online exercises	Differences in reacting to gamification vs. feedback?
(Boticki et al., 2015)	Badges	Mobile driven learning activities	Motivated a specific category of students?
(Christy & Fox, 2014)	Leaderboard	Assessment	Created stereotype threat in specific

RISK OF GAMIFICATION

- Negative results such as those of Hanus and Fox (2015), who reported that badges, leaderboard and virtual coins incorporated in a communication course can have a detrimental effect on students' motivation, satisfaction, and empowerment
- Limits of gamification.



ENDLESS POSSIBILITIES FOR RESEARCH

- ABC studies: Affective/Behavioral/Cognitive outcomes
- Focusing on behavioral and cognitive effects caused by gamification.
- Focusing on the effects of gamification on different groups of learners.
- Focusing on the learner's perception of different game mechanics and principles.
- Focusing on the measures used for assessing the outcomes.
- Future perspective: need for systematically designed studies and rigorously tested approaches confirming the educational benefits of gamification



GAMIFIED LIFE

- Terry Heick wrote that “life is itself ‘gamified’—loosely, through informal social competition, to the buzz extreme couponers get comparing receipts, to comparing 401k portfolios, gaining access to ‘Platinum’ or ‘Black’ credit cards, or collecting frequent flyer miles. Even sticking a push-pin into the map of every traveling destination you’ve ever visited is a form of ‘gamification.’ As are Boy Scout Badges. You’re making a game out of something that isn’t.”

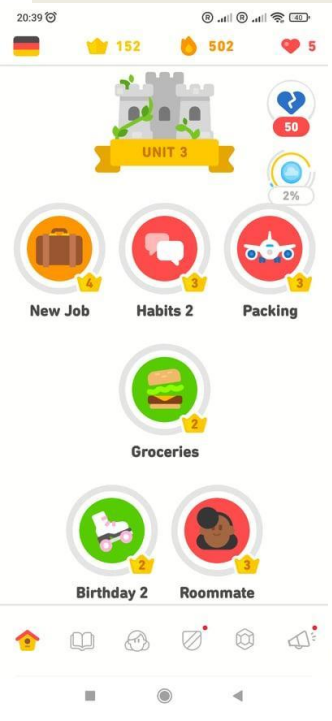


PSYCHOLOGY OF GAMES

- According to Lieberoth (2015), it might not be the game itself that stimulates individuals, but rather the packaging: the fact that an activity resembles a game. The simple framing of an activity as a "game" can potentially alter an individual's behavior.
- To demonstrate this insight Lieberoth designed an experiment focusing on the psychological effects of framing tasks as games versus including game mechanics. The outcomes indicate that engagement and enjoyment increased significantly due to the psychological effects of framing the task as a game.
- Furthermore, no actual increased interest or enjoyment was measured by adding actual game mechanics to the task, when it was already framed as a game.
- This study reveals an interesting psychological perspective of gamification in educational environments: merely making an activity seem like a game impacts learners' engagement.

DUOLINGO

- My personal gamified learning program – learning German
- Listening comprehension
- Vocabulary
- Translating sentences

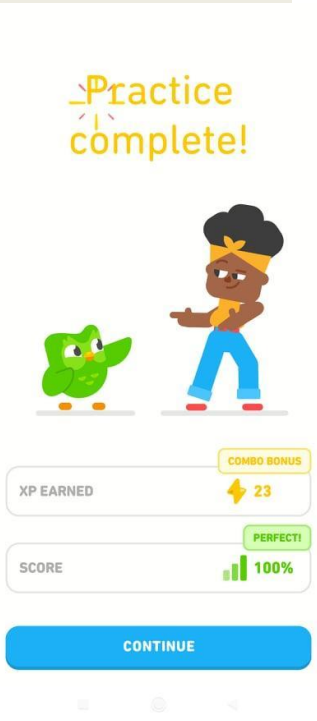












IMPACT OF GAMIFICATION

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THANK YOU FOR YOUR ATTENTION


QUIZ!

POP QUIZ

For which biological process does the biochemical energy storage (ATP) is necessary in muscle work?

contractio n



relaxation

