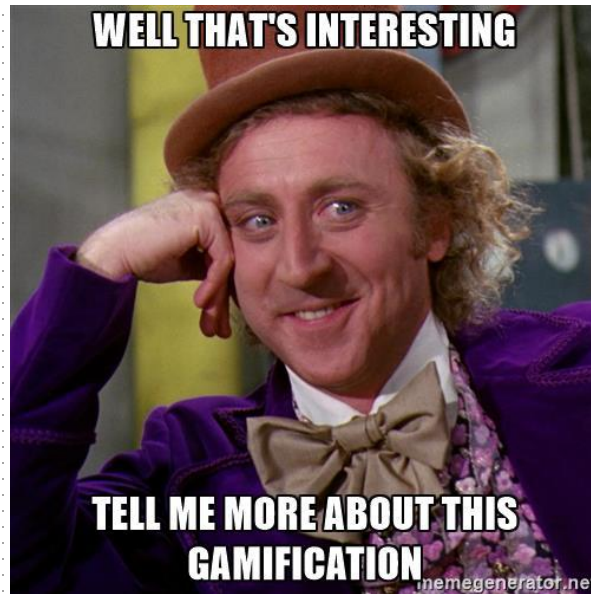# Gamification

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Gamification

- the use of game design principles and mechanics in non-game contexts

- making technology more inviting by encouraging users to engage in desired behaviors

Gamification

"Gamification is the process of adding game mechanics to processes, programs and platforms that wouldn't traditionally use such concepts.

The goal is to create incentives and a more engaging experience. In other words, it's about fun"

(Swan, 2012, p. 13).

Gamification

Level

Game mechanics

Points

Quest (Challenge)

Badges

Leaderboards

(Zicherman & Cunningham, 2010; Deterding et al., 2011; Bunchball, 2010; Fecher, 2012; Knautz, Wintermeyer, & Goeretz, 2014)

Family of gaming techniques

- Serious games
- Playful (ludic) design
- Visual Enchantment
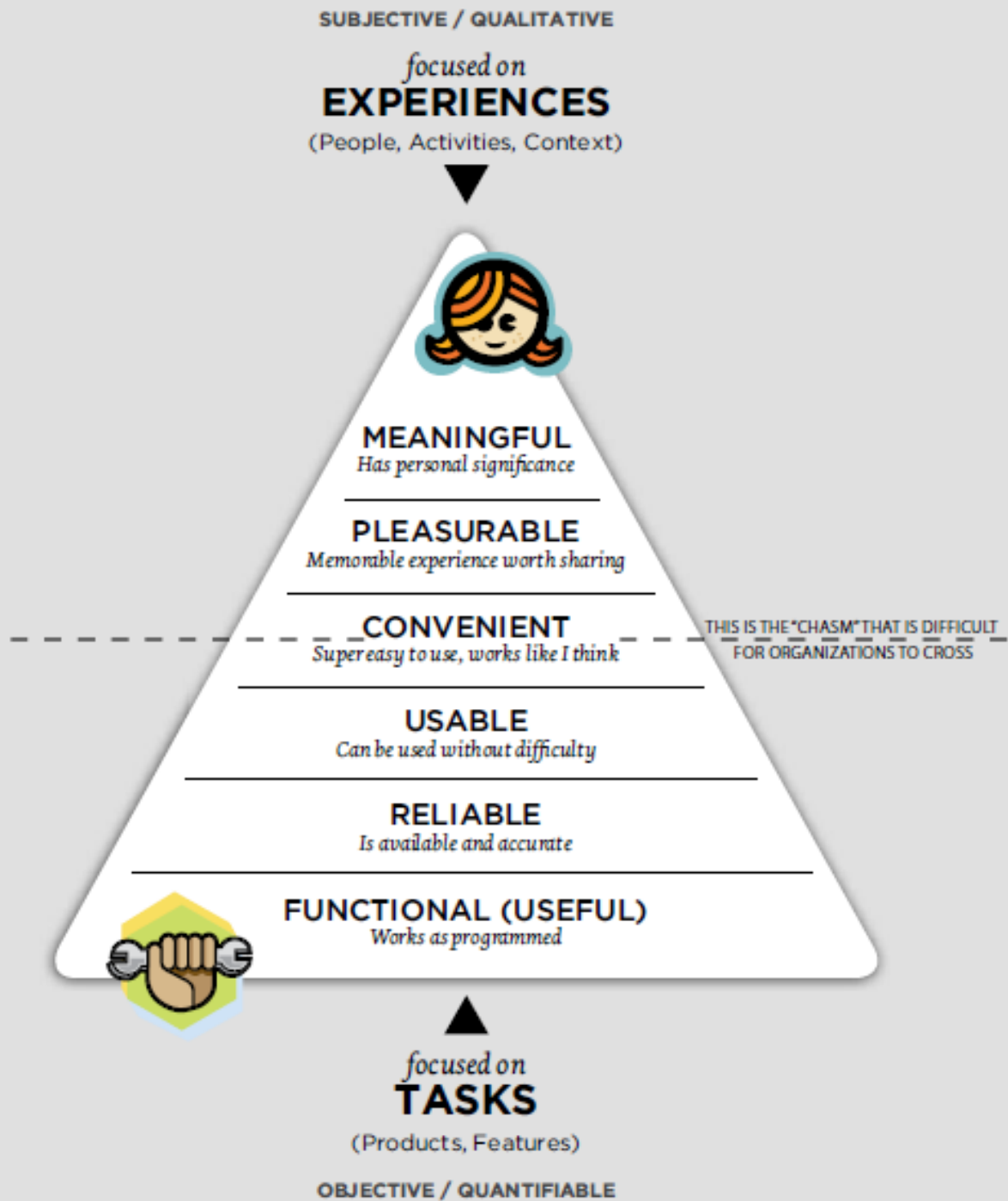- Virtual and/or physical

Why gamification

- Natural human experience
- People prefer games over other activities
- Growing population of gamers

Some interesting statistics

-   40% of Global 1000 organizations use gamification as the primary mechanism to transform business operations
-   80% of current gamified applications fail to meet business objectives, primarily due to poor design

Source: http://www.gartner.com/technology/research/gamification/

SUBJECTIVE / QUALITATIVE

focused on
EXPERIENCES
(People, Activities, Context)

▼

MEANINGFUL
Has personal significance

PLEASURABLE
Memorable experience worth sharing

CONVENIENT
Super easy to use, works like I think

THIS IS THE "CHASM" THAT IS DIFFICULT
FOR ORGANIZATIONS TO CROSS

USABLE
Can be used without difficulty

RELIABLE
Is available and accurate

FUNCTIONAL (USEFUL)
Works as programmed

▲

focused on
TASKS
(Products, Features)

OBJECTIVE / QUANTIFIABLE

Player Centered Design

| Efficiency | Effectiveness | Satisfaction | ✚ | Engagement |

User-centred design

Player Centered Design involves the following steps:
- Know your player
- Identify the mission
- Understand human motivation
- Apply mechanics
- Manage, monitor and measure

Know your player

Bartle's Player Type

acting

Killer
<1%

Achiever
~10%

players · world

Socializer
~80%

Explorer
~10%

interacting

Source: Kumar, J. M. & Herger, M. (2013). Gamification at Work: Designing Engaging Business Software.

Identify the mission

- Current and target scenario

Identify the mission

Current scenario: The majority of people take the escalator instead of the stairs

Target scenario: We want people to take the stairs

Mission: Encourage majority of subway passengers to take the stairs instead of the escalator in a fun and engaging way.

Understand human motivation

Trigger

Ability

Motivation

Source: http://www.behaviormodel.org/

Case study 1: Foursquare

- A mobile game, a way of exploring cities, a way of telling friends where you are, and a way of tracking where friends have been and who they have been co-located with

Case study 1: Foursquare

Game mechanics: points, badges, leadership board

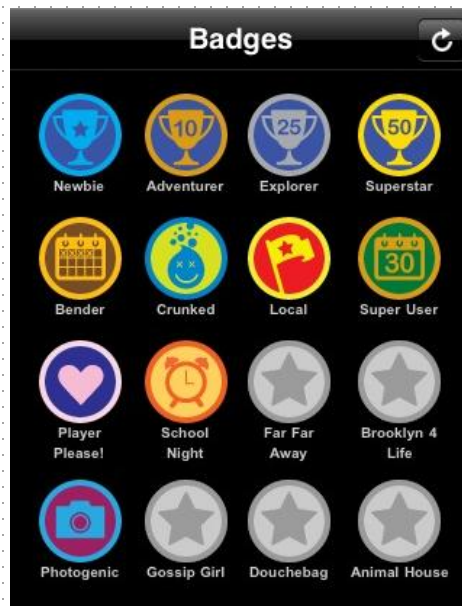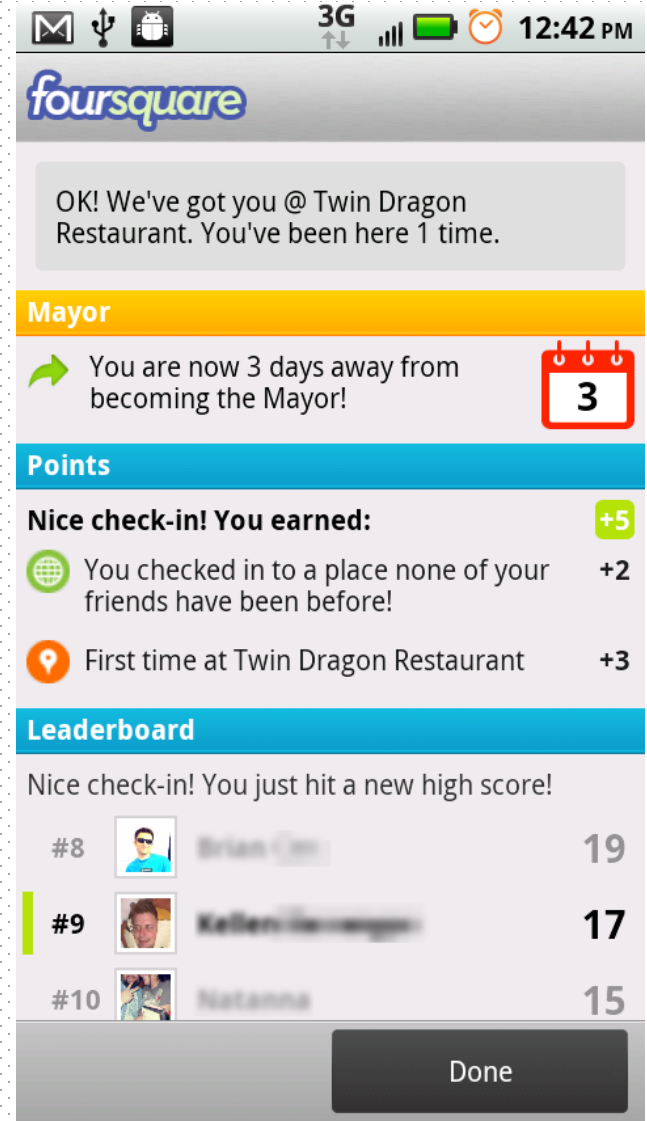Motivation drivers: collecting, achievement
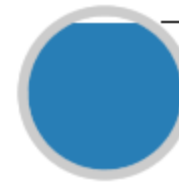
Image: © Foursquare

Case study 2: LinkedIn

Game mechanics: Progress indicator

Motivation driver: Feedback

Case study 2: LinkedIn

Game mechanics: network indicator

Motivation driver: Connecting, feedback

Your LinkedIn Network

197   **Connections** link you to 5,185,178+ professionals

1,037,246   **New people** in your Network since November 15

Game mechanics: endorsement buttons

Motivation driver: Achievement, feedback

Most endorsed for...

66	Start-ups
64	Enterprise Software
49	Business Intelligence
48	Gamification
33	Entrepreneurship
18	Analytics

Some motivation drivers

1. Collecting
2. Connecting
3. Achievement
4. Feedback
5. Self-expression

Some useful links for game mechanics:
- [SCVNGR's playdeck of game mechanics](#)
- [Gamification wiki: list of game mechanics](#)

Manage, monitor and measure

Player Centered Design

enterprise context

Measure · Mechanics · Mission · Manage

Player

Motivation

Monitor

legal considerations

ethical considerations

keep it fun!

Source: Kumar, J. M. & Herger, M. (2013). Gamification at Work: Designing Engaging Business Software.

Game mechanics – part 1

Old World

Currently

1. Player = User/Consumer. Allowed to customize & express themselves – social interactions.

Game mechanics – part 2

Old World

Currently

Come back in **2 hours** to sell or feed your **Baby Swissguard Basslet!**
If you don't, they will die...

2. Game Dynamics = Pacing of the game, reward schedules, habit/addicting, appointments to come back, etc.

Game mechanics – Part 3

Old World

New World

3. Progress = Levels, leader board, badges, points

Game mechanics – part 4

Old World

New World

4. Aesthetics = The emotional component…how does the game evoke trust, curiosity, surprise, envy, pride, connection

Game Thinking – the narrative

Game Thinking
What is the user journey? How will we show progression?
How will the user connect with others?
What is the onboarding strategy – what are the first 30 seconds like for the user?
Is there a clear path for the user – do they know their next actions?
How will the user be allowed to customize/express themselves?
What strategies will make users want to come back repeatedly?

The 4P's of gamified engagement:
a methodical approach to driving engagement

Progress
Player Customization
Prize(Award) Strategy
Platform

Progress: Recognizing the user's advancement or status
(such as points, levels, badges, status, leaderboards)

Player Customization: Enabling the user to express themselves
(such as uploading pictures, sharing about self, social connectedness)

Prize/Award Strategy: Providing meaningful and interesting recognition, benefits, and rewards
(such as use of scarcity, surprise/delight, virtual items in addition to tangible, community awards or visualizations)

Platform: Creating strategies to bring the user back to the system.
(Such as clear calls to action upon sign-on, strategic onboarding, newsfeeds to create excitement/buzz, appointments to come back)

Don't & problems of gamification

Don't
- Treating Gamification to be same as game design
- Using Gamification to fix a bad business model/ poor design
- Forcing users to play
- Do no evil (ethical issues)
- Don't overdo

Problems
- User rejection
- Motivation decreases over time
- Direct competition

Selective bibliography

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Towards the Gamification of Inquiry-Based Flipped Teaching of Mathematics

A Conceptual Analysis and Framework

Petros Lameras (PLameras@cad.coventry.ac.uk)
Nektarios Moumoutzis (nektar@ced.tuc.gr)

Making mathematics accessible to learners...

Provide carefully designed/selected situations

> that afford **personalized explorations**
>
> during which the learner can develop mathematical thinking
>
> given his/her current knowledge and skills.

Facilitate thoughtful exploration of representations or prompts and their logical relationships following **inquiry-based learning principles**.

Offer a suitable learning environment that reverses the typical lecture (information provision) and homework (learner activities) elements following a **flipped classroom model**.

Employ **game mechanics** to promote engagement

The GamifyMaths framework
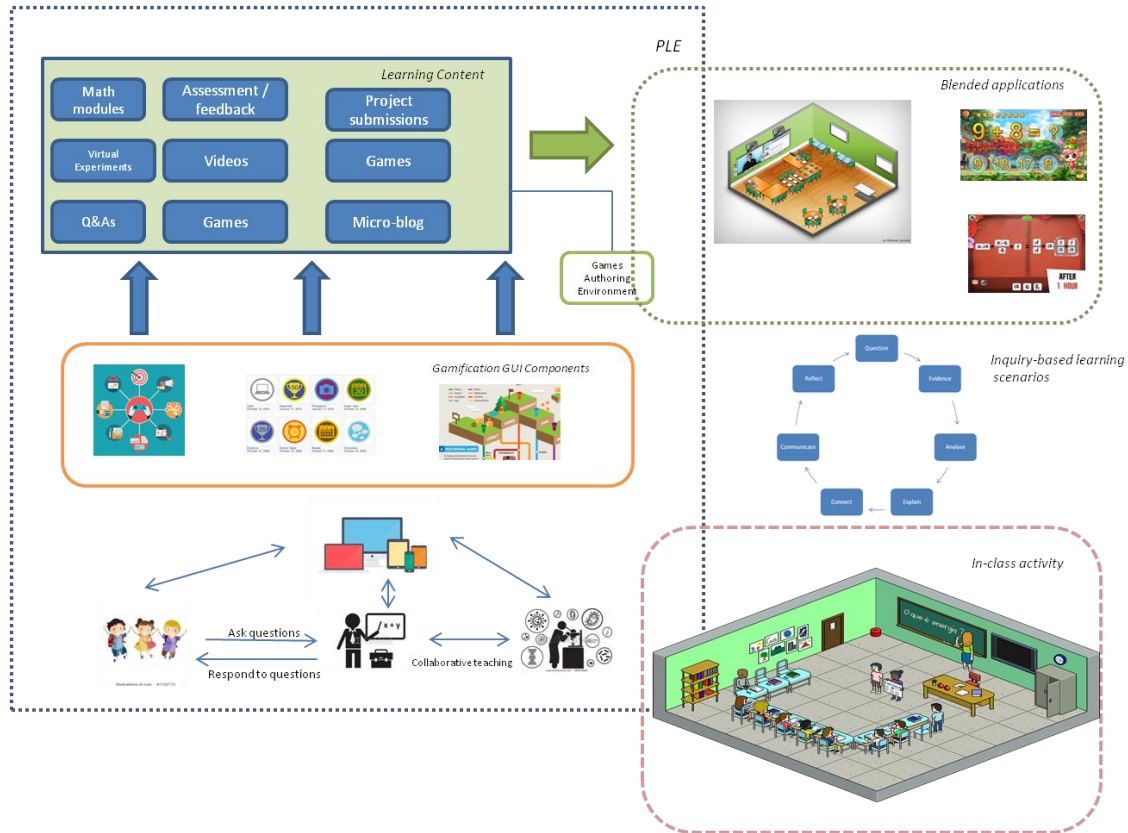
IO2 (01-11-2022 - 01-01-2024)

Learning scenarios and guide for gamifying online and hybrid mathematics education at university level

R2.T1 State-of-the-art report on gamification tools for online and hybrid mathematics in higher education

R2.T2 Learning scenarios for gamifying online and hybrid mathematics education

R2.T3 A teacher guide on applying gamification on online and hybrid mathematics education

R2.T4 Evaluation and adaptation of the learning scenarios

What to research and develop:

Motivation psychology: Self-Determination Theory: This theory suggests that people are able to become self-determined when their needs for competence, connection, and autonomy are fulfilled.

Shape game mechanics (levels, points, challenges, badges, leaderboards)

What context: Online, hybrid, physical, blended, active, PBL, scrum, flipped, modular

Design and develop a gamified learning framework, make specific applications and evaluate