**Erasmus +, Reframing Heritage Education in Egypt (ReHeEd)**

# Introduction to Gamification & Gameful Learning: definitions and basic principles.

Eirini Tsetine

Architect, MSc, PhD candidate

WP3.2 workshop
28 March – 2 April 2022

# Contents

1) Basic definitions: gamification & gameful pedagogy.

2) Three ways to think about Games & Learning in school.

3) Ten principles of "good" games & learning environments.

4) Educational theories & their relation to gameful learning.

# 1. Basic Definitions.

• **Gamification** → refers to adding game elements to a course such as leaderboards, badges, trophies, and achievements, without making underlying changes to the design of the course.

**What Is Gameful?**

• **Gameful learning** → a pedagogical approach that takes inspiration from how good games function and applies that to the design of learning environments.

• **Gameful pedagogy** → goes farther building game elements into the design of the course, such as building up points from zero, user choice, immediate feedback, learning from failure, and transparency.

# 2. Three ways to think about Games & Learning in school.

- Literal educational games →
"edutainment"

- What we can learn from good games →
10 principles

- Making school itself a good game →
**redesign** education using the **principles of game design**

# 2. Three ways to think about Games & Learning in school.

**What is a game?**

*"A game is a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome"*

(Salen & Zimmerman, 2003)

# 2. Three ways to think about Games & Learning in school.

**School …**

- A game is a **System =** an interconnection of objects, attributes, relationships, all within an environment

  …is a system

- Games are **Artificial** → there is a boundary, game designers often call this the "magic circle"

  …is a special place where one can explore the world safely

- Games have a **conflict** of some kind → cooperative or competitive, one-player or multi-player

  Here conflict is found between learners & the new challenging material

- **Rules** → define what one can and cannot do, are what turns play into a game

  …functions with rules

- **Quantifiable outcome** → score, leader board ect

  …grades, feedback, report cards etc., distinguish formal from informal learning

# 3. Ten principles of "good" games & learning environments.

1. Clear learning goals
2. Identity play
3. Embedded assessment
4. Intrinsic & Extrinsic Motivation
5. Support Autonomy

6. Encourage Belonging
7. Support Competence
8. Productive Failure
9. Encourage exploration
10. Practice & Reinforcement

# 3. Ten principles of "good" games & learning environments.

1. Clear learning goals

2. Identity play

3. Embedded assessment

4. Intrinsic & Extrinsic Motivation

5. Support Autonomy

6. Encourage Belonging

7. Support Competence

8. Productive Failure

9. Encourage exploration

10. Practice & Reinforcement

# 3. Ten principles of "good" games & learning environments.

1. **Clear Learning Goals**:

   Priciple No1 → Try to have clear goals for what you are having the learner engaged with

2. **Identity play:**

   Most games encourage identity play → the idea that one identifies with the character of the game and helps form one's own identity

3. **Embedded Assessment:**

   The game is monitoring one's progress as the player works his/her way through the game, it does not pause the gaming activity

# 3. Ten principles of "good" games & learning environments.

1. Clear learning goals

2. Identity play

3. Embedded assessment

4. Intrinsic & Extrinsic Motivation

5. Support Autonomy

6. Encourage Belonging

7. Support Competence

8. Productive Failure

9. Encourage exploration

10. Practice & Reinforcement

# 3. Ten principles of "good" games & learning environments.

**4. Intrinsic & Extrinsic Motivation:**

General thought = Intrinsic Motivation is better than Extrinsic **but**

Good games & learning environments have some **combination of Intrinsic & Extrinsic Motivation**

*Intrinsic motivation = What comes from inside of someone, thing one cares about naturally*

*Extrinsic motivation = Comes from the outside, often driven by rewards (points, grades etc.)*

**5. Support Autonomy:**

The player gets to make choices about what they do in the game → is not to let students do whatever they want but to **provide carefully curated autonomy**

6.  **Encourage Belonging**:

    A good gaming environment makes players think they are part of something → A well-designed learning environment creates a sense that the student is part of a community

7.  **Support Competence:**

    This is closely related to the ideas of autonomy & belonging.

    One needs to match the difficulty of the gaming or learning environment to the student, to give them things that will challenge them, but we know they can accomplish with support

# 3. Ten principles of "good" games & learning environments.

1. Clear learning goals

2. Identity play

3. Embedded assessment

4. Intrinsic & Extrinsic Motivation

5. Support Autonomy

6. Encourage Belonging

7. Support Competence

8. Productive Failure

9. Encourage exploration

10. Practice & Reinforcement

# 3. Ten principles of "good" games & learning environments.

8. **Productive Failure**:

   Games support failure → by not punishing the player, they encourage behaviors like trying to accomplish the same goal in a different way

   In school we need to make failure an important step of the learning process & not a setback

9. **Encourage exploration:**

   Dedicated players do not usually go to the next level of the game immediately, they rather explore the system for hidden elements → this could be applied to taught subjects as well

10. **Practice & Reinforcement:**

   Video games allow for infinite times of practicing a level →

   In a good learning environment students should get lots of repetitions through challenging content

# 3. Ten principles of "good" games & learning environments.

1. Clear learning goals
2. Identity play
3. Embedded assessment
4. Intrinsic & Extrinsic Motivation
5. Support Autonomy

6. Encourage Belonging
7. Support Competence
8. Productive Failure
9. Encourage exploration
10. Practice & Reinforcement

**GAMEFUL LEARNING**

# 4. Educational theories & their relation to gameful learning.

## A) Motivation Theory

- **Motivation is a prerequisite for learning**.

  It is what first attracts someone to something, what gets one engaged with it and what keeps one engaged until it is accomplished.
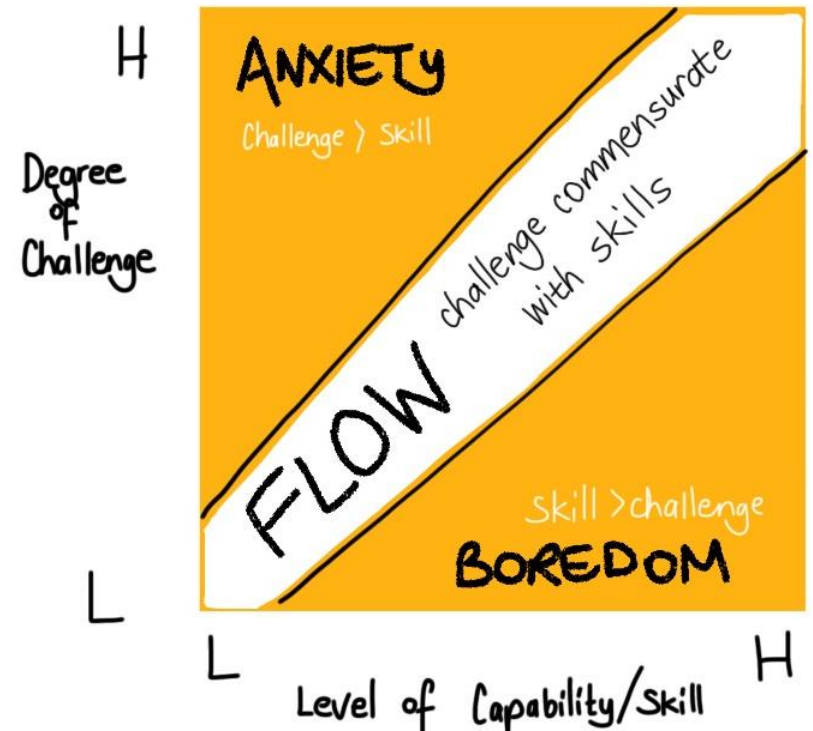
- **Everyone is always motivated**, but not necessarily to do the things we (the teachers) want them to do

  **Flow state** =  when someone is deeply engaged with an activity and there is a balance between how difficult the challenge is  and how the person accomplished it.

FLOW Mihali Czikszentmihalyi

Degree of Challenge

H

ANXIETY
Challenge > Skill

FLOW challenge commensurate with skills

skill > challenge
BOREDOM

L

L

H

Level of Capability/Skill

# 4. Educational theories & their relation to gameful learning.

## B) Achievement Goal Theory

It is a descriptive theory of how students orient themselves towards academic performance

**Basic division: 1. Mastery orientation**

- Related to better academic outcomes
- The goal is to master the material

**2. Performance orientation**

- The goal is to perform adequately
- performance approach-> students want to look good, get good grades
- Performance avoid-> students don't want to appear bad

# 4. Educational theories & their relation to gameful learning.

## C) "Growth Mindset" Theory

Coined by Carol Dweck
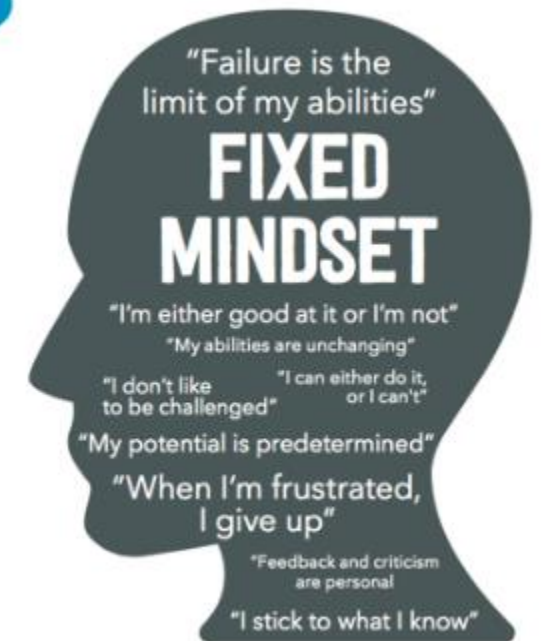
Characterizes learners as being of a:

**1. Fixed Mindset**

People have the notion that intelligence is just something someone is born with & cannot change

**2. Growth Mindset**

How well one does, how intelligent someone becomes is a function of effort & exercise

**Students can learn to have a "growth mindset"**



"Failure is an opportunity to grow"
GROWTH MINDSET
"I can learn to do anything I want"
"Challenges help me to grow"
"My effort and attitude determine my abilities"
"Feedback is constructive"
"I am inspired by the success of others"
"I like to try new things"



"Failure is the limit of my abilities"
FIXED MINDSET
"I'm either good at it or I'm not"
"My abilities are unchanging"
"I don't like to be challenged"
"I can either do it, or I can't"
"My potential is predetermined"
"When I'm frustrated, I give up"
"Feedback and criticism are personal"
"I stick to what I know"

# 4. Educational theories & their relation to gameful learning.

**D) Self Determination Theory**

Consists of 3 major components:

**1.** The learner's **Sense of Autonomy**

**2.** The learner's **Sense of Belongingness**

**3.** The learner's **Sense of Competence**

**3 of the 10 principles of gameful learning**



Autonomy

Belongingness

Competence
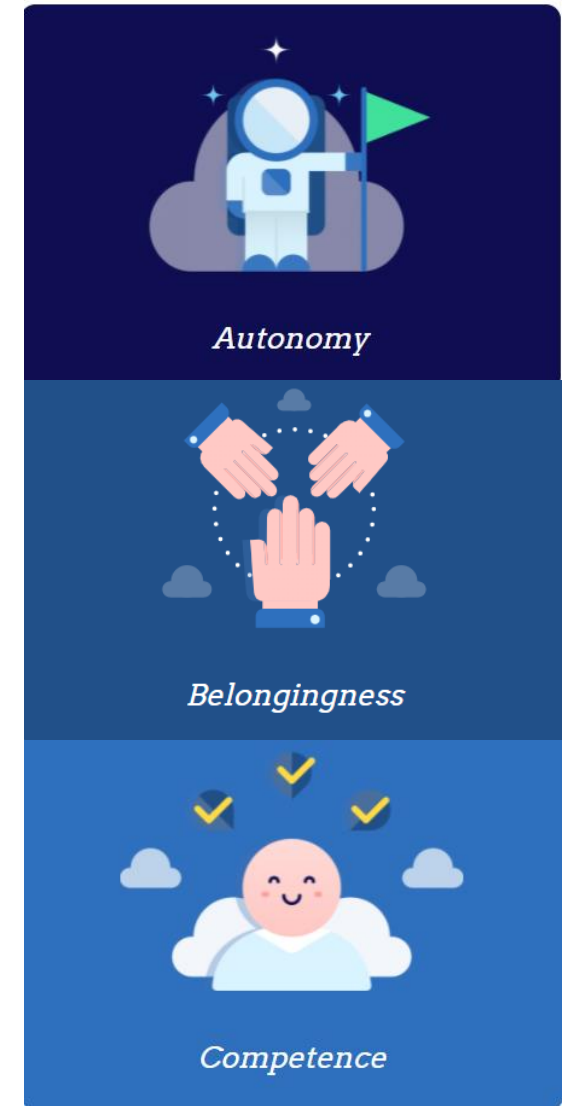
### Choice

Supporting autonomy means students have some choice over their learning environment. This instills a feeling of ownership over thier education.

### Feedback

One of the most engaging aspects of games is getting immediate feedback in response to your actions. Rubrics, auto-graded quizzes, and peer feedback are some methods to help ensure students get immediate, descriptive feedback.

### Freedom to Fail

In gameful courses, you can set up learning opportunities in a way that minimizes risks for students so that they'll be more likely to choose assignments outside their comfort zone and expand their skill set, and less likely to stick with assignments where they *know* they'll do well.

### Build up points from zero

In a traditional grading system students start with the best grade they will ever get. On day 1 they have 100% and lose points as they complete assessments throughout the course. In a gameful system students start at 0 points and earn their way toward their goal in a way that suits their unique situations.

# Bibliography

## Subtitle

- Add text, images, art, and videos.
- Add transitions, animations, and motion.
- Save to OneDrive, to get to your presentations from your computer, tablet, or phone.

## Subtitle

- Open the Design Ideas pane for instant slide makeovers.
- When we have design ideas, we'll show them to you right there.

Thank you!