Education on the Horizon: Teaching and Learning with Technology

Week 5: Game-Based Learning Pt. 1

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Can you describe what is a *game*?

Did you think of the following keywords?

- competitive, has rule/goal, like sports game
- fun, can be a social activity, like family game
- problem-solving, you can become better at the game through practice
- engaging, time-absorbing
- ...

The big question: Can we implement game-like elements in education, and why?

Concepts

- Gamification: the use of game design elements in non-game contexts
- Gameful learning design: redesigning core elements of a learning environment according to game design principles.

Buzzword or Solution?

Demystify Gamification

- A gameful learning environment doesn't need to look like a video game.
- Gameful learning is inspired by the game design principles, but more fundamentally, by human psychology.

Let's look at the psychological principles behind the game-based learning 🕶️

Operant Conditioning

- A form of learning (stimulus-response association)
- It's a learning process in which a behavior is sensitive to, or controlled by its consequences.

Types of consequences

- If behavior increases or maintained, then the consequence is a "Reinforcement"
  - Ex: Students are praised for respectfully disagreeing with another classmate; they learn to do this more often in the classroom.

- If behavior decreases, then the consequence is a "Punishment"
  - Ex: Students are reprimanded for laughing when a classmate makes a mistake; they don't like being reprimanded so they stop doing this in the classroom.

Reinforcements in the game are...

- Constant: every small achievement is rewarded explicitly (experience point, badge, equipment)
- Well-Defined: it's clear how to get the rewards
- Varied: visual, auditory, societal...

Reinforcements in a traditional classroom are often...

- Inconsistent: not all students, all improvements can be acknowledged due to large class size
- Vague: students are confused about their progress
- Singular: score, teacher's evaluation

Punishments in the game are...

- Minor: lose a game won't cause you real harm
- Reversible: you can always restart a game and it's OK to practice as long as you want
- Transparent: you know why you lose the game

Punishments in the classroom are...

- Major: high-stake exam
- Permanent: once you fail a class, there's nothing much you can do
- Opaque: you don't know for sure why you fail a class

Good operant conditioning schedule (like in game) will encourage students to...

- Actively seek challenges
- Not concerned about failure

Related talks

- Learning for own *growth,* not for *avoiding failure*: growth mindset

Take-home points

- Gameful learning environment ≠ Learning in video games
- It's about using the psychological principles behind good games to motive students
- We can learn from games about how to reinforce student's learning process

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