



Intertwining Gaming Aspects with Environmental Learning

Vy Chung, Program on the Environment, University of Washington
Site supervisor & Faculty advisor: Alexa Schreier,
Program on the Environment, University of Washington



@vy_chungt

Background

- The method of teaching environmental education focuses on changing environmental attitudes.
- For students, environmental education should be a tool to learn about the environment.
- However, students lack the basic ecological knowledge required to understand how the environment behaves.
- Thus my research aims to look at the implementation of elements from games into lessons to see how the gamification of tasks encourages engagement from students.
- **Gamification:** components in-game that are used to enhance learning



Internship & Method

- Intern with the Friend of the Conservatory (FOC) at the Volunteer Park Conservatory.
- I worked with my team to develop an environmental education field trip curriculum for students of 3rd to 5th graders.
- Literary analysis of past experiential environmental learning using (digital) gamification to encourage students' participation.

Research Question

To what extent do different digital gamification elements increase student engagement in environmental education?

Results

- Experimental gamification lessons such as **DGBL (digital-game-based learning)** received positive feedback from participants;
 - The motivation through competitiveness
 - More encouragement of collaboration learning



Fig 1: Students are participating in outdoor activities and had an opportunity to use their iPad to record specimens during their walk to share their findings later in class

Teacher Option on Include Digital Gaming Activity in Environmental Education

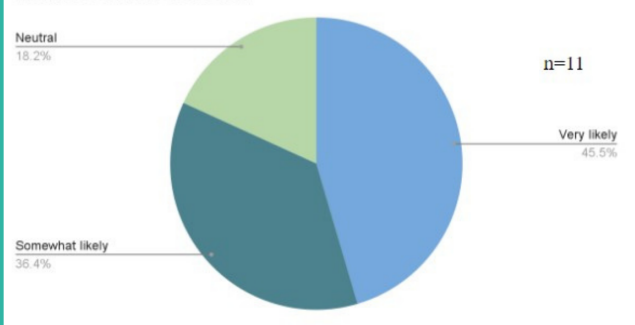


Fig 2: The graph above shows the data collected from elementary teachers who participated in answering a survey asking for their opinion on the inclusion of gamification in learning lessons. Sample Size: n=11

Results (pt.2)

- The students take charge of their own learning, with educators providing crucial information and helping the students analyze the given environmental problem.
- When asked, elementary school instructors are most likely to include game-based activities in their lessons (Fig 2).

Implications

- Environmental education games is not a new concept
- Many developers are using video games for environmental awareness
- Pokémon GO has recently promoted with Ecosia committed to planting up to a total of 100,000 trees
- By Including game features, more students engage with learning

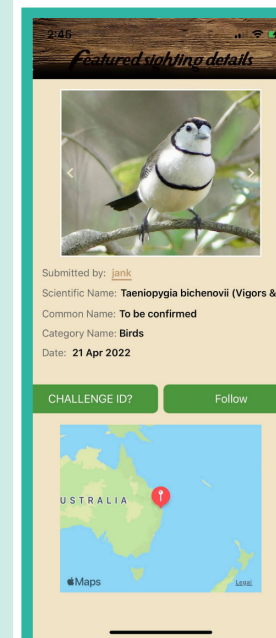


Fig 3: Australian mobile environmental education game, designed with the intention of encouraging players to be more observant of species that can be found in their travel and surrounding

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