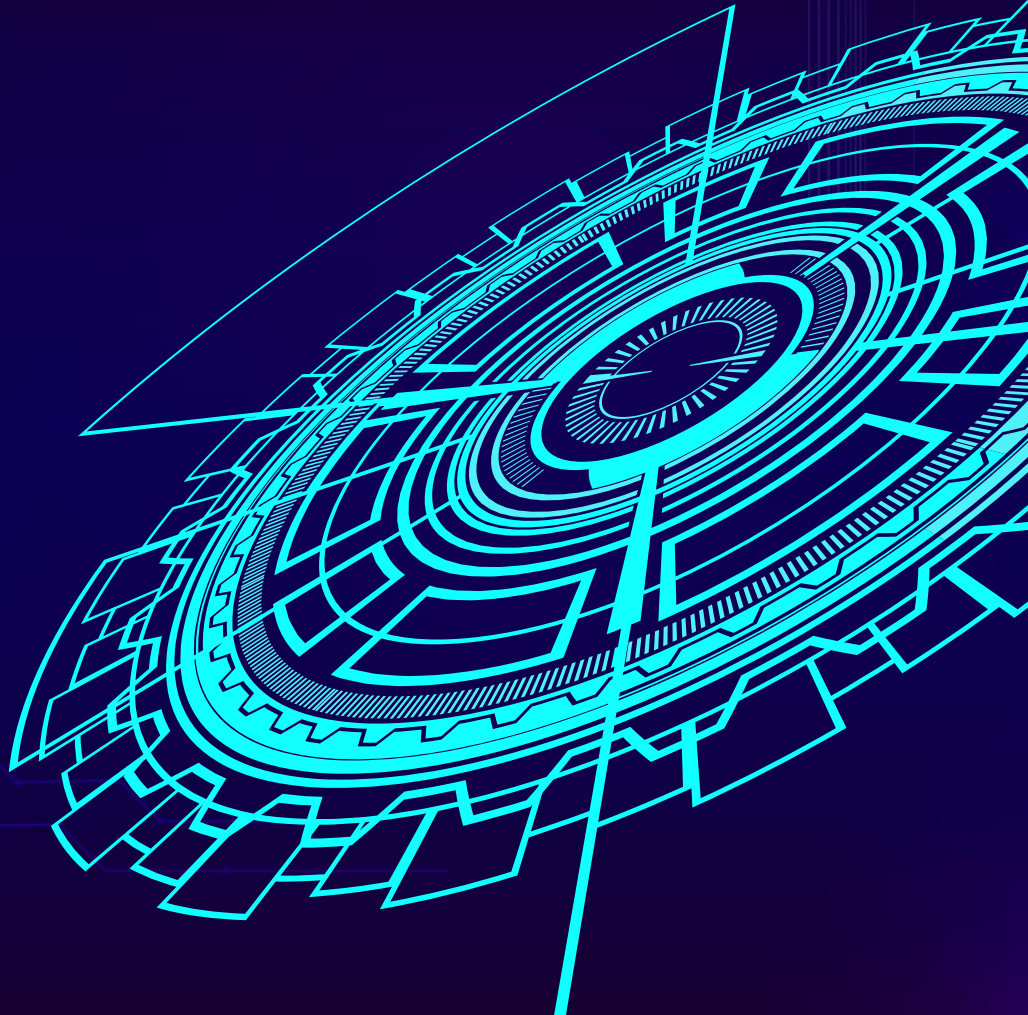# Game Jam for Sustainbility

TILT Games in Learning Symposium, 14th April 2021

Key points

01 Project origins

Can NTU use games in Teaching and Learning?
How can students work across discplines?

02 Theory and application

Game elements and dynamics applied
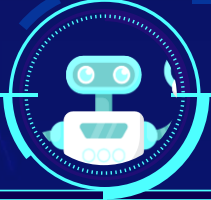Education for Sustainable Development
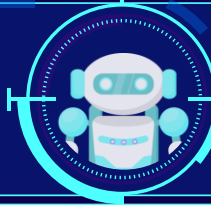
03 Project evaluation

Pre- and post- event survey

04 Tips for holding a similar event

In case you want to get involved and
hold your own Game Jam

Collaboration

Directorate
Eve Riley

Green Academy
Katalin Butt-Bethlendy,
Helen Puntha, Vanessa Odell

Confetti
Gin Rai
Paul Wallis

Art and Design (AAD)
Architecture Design and Built Env (ADBE)
Animal Rural and Env Sciences (ARES)

The origins of this project

- Project born out of the idea to explore digital games for teaching and learning. To what extent could games facilitate module learning outcomes in the future?

- `Sustainability` chosen as the focus as it is an area of interest for every industry.

- Can students create games for other students to learn from?
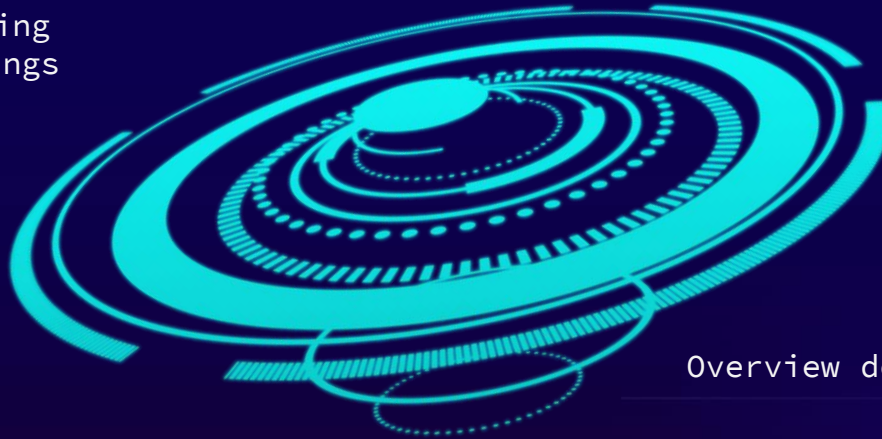
Project timeline

Nov 2020
Scoping meetings

Jan 2021
Planning meetings

Feb 2021
Student recruitment

March 2021
2-day online Game Jam

Student prep info:

Sway promo
Stream SiP requirements
Overview doc for AAD/ADBE/ARES students

Theory, game elements and dynamics applied

## Self-determination theory

Autonomy
Competence
Relatedness

## Feedback, Rewards and Achievements

Regular check-points, judges, marking grid
Sustainability in Practice (SiP) certificate
BAFTA Albert portfolio
Addition to professional portfolios
Confetti Award: Amazon vouchers

Resulting Game Dynamics

Race and escape
Collecting, acquiring resources
Strategy
Constructing and creating

Goals, Rules, Objectives

Clear purpose
Cooperation and competition
Learning objectives (ESD)
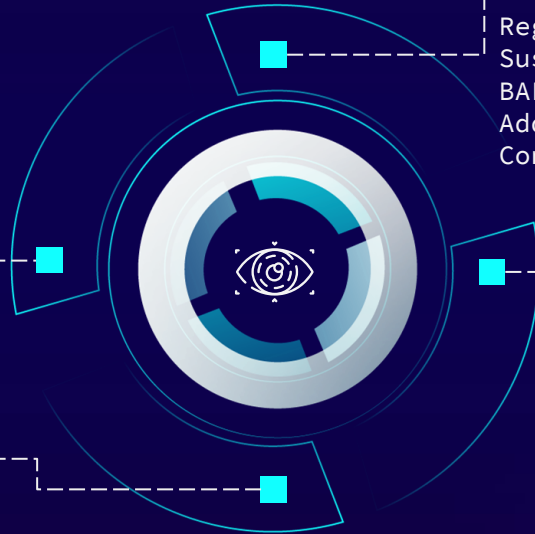
ESD learning outcomes: SiP Certificate
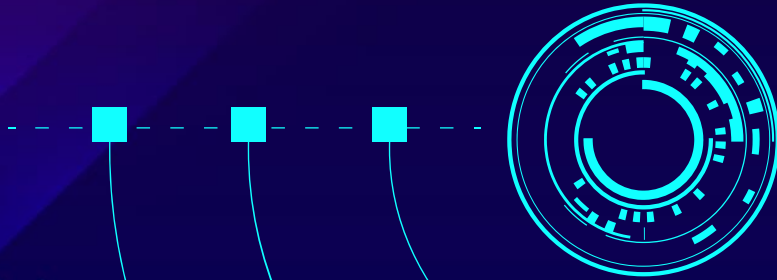
Objective 1 — The United Nations's Sustainable Development Goals (SDGs)

Objective 2 — Use your knowledge and skills from your discipline

Objective 3 — Display solution(S) in a creative, original form
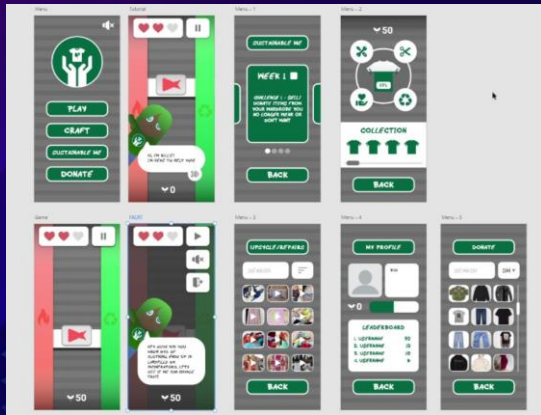
ESD learning outcomes: Evaluation

Pre- and post-event survey completed

Competencies adapted from newly published QAA/AdvanceHE Guidance on Education for Sustainable Development (ESD)

11. How competent do you feel in the following areas (1- Not at all competent, 5- Highly Competent) *

	1	2	3	4	5
Deal with uncertainty	○	○	○	○	○
Assess the consequences of actions	○	○	○	○	○
Apply different problem-solving frameworks to complex sustainable development problems	○	○	○	○	○
Understand and respect the needs, perspectives and actions of others	○	○	○	○	○
Reflect on your own values, perceptions and actions	○	○	○	○	○

8

Games produced

ConvEco

Jeremy Bearimy
https://www.leonjplumb.com/jeremy-bearmey-hero-of-greenstown

Evergreen Island

Winner: Graze Craze

Students found **gaining skills and experiences for their CV** to be the most enjoyable aspect (97%*)

Working on the Games Jam for **36 hours** was the most challenging aspect (70%), but also one of the most enjoyable aspects (76%).

Overall more elements were found to be enjoyable than challenging.

SURVEY RESULTS

*Based on 34 students

Every student was proud of the artefact they produced.

As a result of the Games Jam there was an increase in the proportion of students feeling _informed_ about sustainability and it _impacting their daily decisions_.

86% of participants would like to see digital games used on their course, and 95% would like to see games outside their course.

SURVEY RESULTS
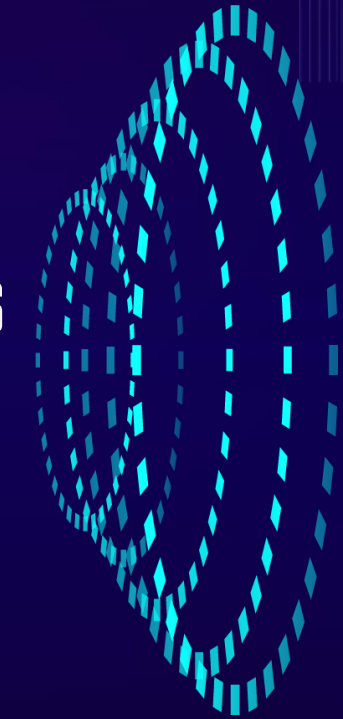
*Based on 34 students

Planning to continue

Because the best games have a broad context that involves core attributes of successful learning:

* Planning and strategy improve critical reasoning skills
* Investigating and exploring excite natural curiosity
* Collaborating reinforces the fundamentals of teamwork and the proper distribution of responsibilities across diverse talents
* Encountering something beautiful, profound, or awe-inspiring provides for moments of revelation and perhaps personal transformation. *(Mick, 2020)*

Games can also help us move from information exposure to action and behaviour change *(Ouriachi et al, 2020)*
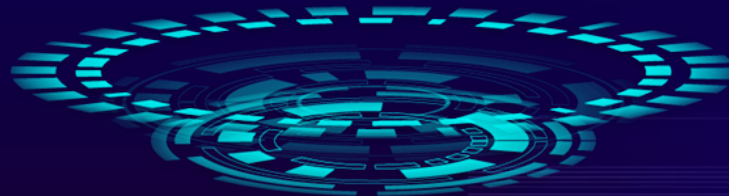
TiPS

Collaborate

Different schools and departments have different lead times and different communication preferences. Work with these differences when planning.

Go with the flow

No matter how much you plan, you'll have to improvise A LOT. You need to be ok with that and make the most of the opportunities arising.

Evaluate

One thing you can and should plan is your learning outcomes and how you will identify and evaluate the learning that takes place.

Recommended reading

Mick, B., 2020. The Convergence of Gaming and Learning: Higher Education Should Pivot to a Game-Based Instruction Model. *Planning for Higher Education,* **48**(2), pp. 20-24. Available at: https://search-proquest-com.ntu.idm.oclc.org/docview/2401308572?accountid=14693&pq-origsite=primo##

Ouriachi, T., Chih-Yen, L. and Elving, W.J.L., 2020. Gamification Approaches for Education and Engagement on Pro-Environmental Behaviors: Searching for Best Practices. *Sustainability,* **12**(11), pp. 4565. Available at: https://search-proquest-com.ntu.idm.oclc.org/docview/2410068814/8857DF6A2D3D4F54PQ/1?accountid=14693

QAA and Advance HE guidance on ESD, Available at: Education for Sustainable Development (qaa.ac.uk)

Ryan, R., Deci, E., 2000. Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being [online]. *American Psychologist*, 55(1), pp.68-78. Available at: http://search.proquest.com/docview/57772155

Vlachopoulos, D., Makri, A. The effect of games and simulations on higher education: a systematic literature review. *Int J Educ Technol High Educ* **14,** 22 (2017).Available at: https://doi.org/10.1186/s41239-017-0062-1