

# Participatory learning through gamification: Reflections on the University Grand Challenge Pilot

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# FLS Sustainable World Event March 14

- Call in November 2013 for interdisciplinary **activities** (not lectures)...**thought-provoking** and **fun** (not preachy)...students must be **engaged** and **stimulated** (not bored)....
- Intended as pilot for larger plan to include ALL UoM first year students in 2015
- Part of [University's Signature programmes](#) to provide every UoM UG with the opportunity to confront key 'ethical grand challenges'

# 'Gamifying' sustainable choices

- 'Emotionally aware learning opportunity' (Elder, 2012)
- *Why?* IPCC's (2013) 'extremely likely' human contribution to increased temperatures
- Games through which students learn *how* their everyday behaviours impact the environment
- and *what* actions they can take to reduce this impact



# Gamification

- Application of game-thinking and game mechanics to engage users and solve problems in non-game contexts (Zichermann & Cunningham, 2011)
- Different to 'gaming': Gamification uses game mechanics to play out a game in real situations. NOT in a pretended or virtual reality.
- Hence, link to participatory learning

# Eco-action games

- Five games:
  - Eco-snakes and ladders
  - Eco-bingo
  - Eco-top trumps
  - Eco-play your cards right
  - Eco-twister
- 46 FLS students across two sessions
- 50 minutes per session
- 6 facilitators



# Evaluating the workshop



Three questionnaires: one pre (46), one post (46), one follow-up (13)

# Pre-questionnaire findings

- Most students felt they could do something individually that would help combat climate change (64%)...and that they would like to do more but they either:
- Didn't know what to do (56%)...or would do so if it was easier (71%)...or feel their circumstances make it difficult (33%)

# Post-questionnaire findings

- 46 students played 154 games, averaging three per person, mostly PYCR, bingo and S&L
- 42 (91%) enjoyed the games
- 41 (92%) learnt new information; 39 (85%) learnt new actions; and 35 (77%) said they **would** implement these actions at home/University



# Post-questionnaire findings

- The most planned actions (which at least half of the students said they **would** do) were:
  - Turning lights off when leaving room/house (31)
  - Put lids on pans when heating things up (30)
  - Not overfill kettle for one cup (27)
  - Turning things off standby (26)
  - Turn tap off when brushing teeth (23)
- Limiting factors revolved around student living (e.g. no control over washing machines, heating)

## Follow up questionnaire (+6 weeks)

- Favourite part of the workshop:
  - **Learning** about new environmental actions
  - Being **inspired** to take action...Realizing taking action was easy and could make a difference to the environment...Having **fun** & feeling happy
- But how had their behaviour changed?

# Planned vs implemented actions

Planned actions in post survey (46)	Implemented actions in follow-up survey (13)
Turning lights off when leaving room/house (31)	Turning lights off when leaving room/house (9)
Put lids on pans when heating things up (30)	Not overfilling kettle for one cup/ Put lids on pans (9)
Not overfill kettle for one cup (27)	Turning things off standby/Turning computers/peripherals off (7)
Turning things off standby (26)	Take shorter showers/Turn tap off when brushing teeth (7)
Turn tap off when brushing teeth (23)	Make sure washing machine is fully packed/Use eco-wash program (7)

# Further intended actions

- Further intended actions (which at least a third of students said they **intended to do in the future**):
  - Wash up in bowl, not under running tap (5)
  - Replace incandescent lights with CFLs/LEDs/eco-halogens (5)
  - Washing clothes at 30°C/ Drying clothes outside, not tumble dry (4)
  - Think more carefully about the food I buy (4)
  - Improve water efficiency: Hippo in the loo/Water Butt/Low flow tap/Dual flush (4)

# Entertain, Educate, Engage, Engender

- **Entertainment:** 91% enjoyed playing the games
- **Education:** 85% had learnt new actions
- **Engagement:** 77% would implement the actions
- **Engender:** 35% responded to a follow-up survey, all of whom had taken up new actions equating to roughly 550kg/year of carbon savings per respondent.

# What's next?

- Potentially a paper for JCLP on *Gamifying transformative learning: the case of eco-action games*
- How to conduct a more robust evaluation?
  - Objective measurement (energy/water use data, pre-, post- for involved and reference group)
  - Subjective measurement (learning, motivation, behavioural change, catalytic effect, facilitating/hindering factors)
- Scaling up?



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