

POWERZ

SUMMARY SOCIOLOGICAL STUDY AND DATA ANALYTICS OF EXPERIMENTAL PHASE (FEBRUARY – JUNE 2015)

KEYWORDS

PowerZ, gamification, energy efficiency, awareness, app, users' behaviour, community, engagement

SUMMARY

This document is a summary of the sociological study and data analytics done after the first experimental phase of PowerZ from mid-February until mid-June 2015. The main purpose of the sociological study and data analytics was to determine the impact of PowerZ among the students of Nanyang Technological University (NTU). The analysis is based on quantitative and qualitative methods. The study suggests that the use of PowerZ

- Increases the awareness about energy consumption
- Works as a daily reminder for eco-friendly behaviour
- Fosters eco-friendly behaviour
- Creates an innovative way of communication between users and facility management
- Has the potential to achieve substantial energy savings

GOALS

The main two objectives of PowerZ were to a) foster new sustainable behaviour practices and b) raise awareness about energy consumption. This should lead to a decrease of the electricity consumption. Further objectives included:

- Creating a sustainability conscious community
- Enabling long-term effect of eco-friendly practices in such community

Included in the study was also feedback on how to improve PowerZ.

CONCEPT

PowerZ is an app with gamification elements (game story, achievements, avatar, levels/points etc.).



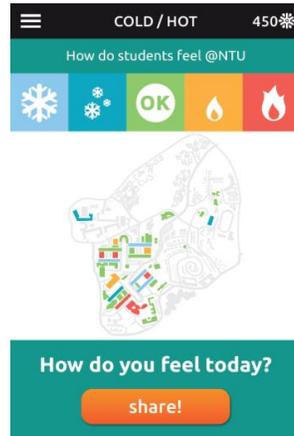
PowerZ aims to encourage students to reduce their energy consumption. Gamification elements were included into the design to combine educational elements with a fun experience for the users.

PowerZ was co-developed by the EcoCampus Initiative of NTU (lead by the Energy Research Institute @ NTU) and ENGIE Lab Singapore (formerly GDF Suez), a leader in energy services and solutions. Earthlink NTU, the biggest

student organization dealing with environmental issues at NTU, was involved in the development of the app as well as in the outreach activities. Here an overview over some features of PowerZ:



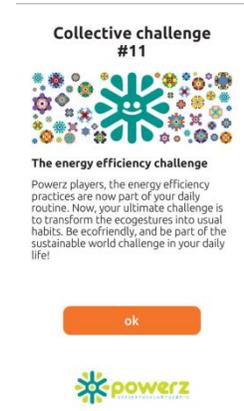
The PowerZ map represents the user community. Each user is symbolized as a flower. The more the app is used, the more the flower grows.



The cold/hot feature enables users give feedback about their temperature comfort at a specific place (e.g. lab, seminar room, library).



The ecogestures are inspirations for daily actions to save energy. The more ecogestures users do, the more points they get.



Collective challenges engage users in specific actions (e.g. focus on lights during a week).

TEST-BED AND METHOD

Before the experimental phase, a qualitative survey with a representative sample of 33 NTU students and staff and a quantitative online survey with a representative sample of 100 NTU residents were conducted to identify the main energy consumption patterns and views of the NTU population. Different workshops were held with Earthlink NTU members to gather feedback for the design of the app.

During four months, the EcoCampus Initiative of NTU and ENGIE Lab Singapore tested the app PowerZ at NTU campus. Flyers, posters and banners were used to inform about PowerZ. At different events (E-Waste days, Green Fest) PowerZ was promoted by Earthlink NTU. A lucky draw was done to motivate people to download the app (opportunity to win an I-Phone and other prizes).

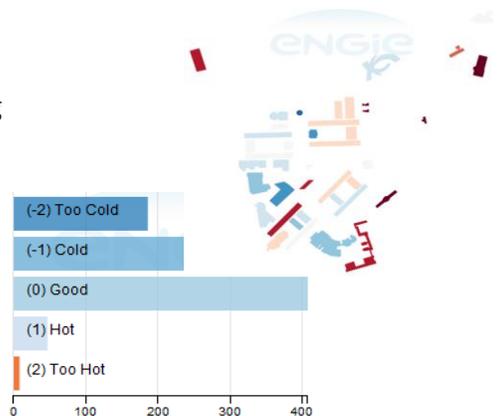


STUDENTS TRYING POWERZ

After the experimental phase, following methods were used to assess the impact of the app: seven face-to-face interviews, one workshop with 15 NTU students and an online survey with 700 participants.

KEY FIGURES AND MAIN RESULTS

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|--------------|--|
| Participants | <ul style="list-style-type: none"> • PowerZ was downloaded by about 1,850 players • 300 people used PowerZ on a regular basis • 50% of the users are female, 50% male • A majority of the users are students in Engineering and Social Science • 97% were undergraduate students, 3% postgraduate students • The average users was 23 years old |
| Features | <ul style="list-style-type: none"> • Ecogestures was the most popular feature, followed by the hot/cold feature • Each active user (300) realized about 2 ecogestures/day and 3-4 hot/cold declarations per week • 68,000 ecogestures were declared (7000 not done) • 15,000 hot/cold declarations were declared • The top ecogestures were: Reduce air-con consumption in the dorms, reduce/turn off lights, turn of the power socket, close your dorm, close door and windows |
| Social | <ul style="list-style-type: none"> • A social community of about 950 users was created on Facebook • Motivation to use the app: Lucky draw (62.9%), Learn new things and be more aware (62.3%), do something good for the environment (60.6%) • A majority of the users consider PowerZ as a daily reminder |
| Energy | <ul style="list-style-type: none"> • 20% of the NTU population could decrease the electricity consumption by 1.2% and NTU could save 4% of the thermal energy consumption by increasing AC set points • AC set points can be increased in 11 buildings due to the feedback |



LESSONS LEARNED

Valuable feedback was collected from the users and the project team on how PowerZ could be improved. The most important suggestions are:

- Include more feedback in the app. Users appreciate feedback on the impact of their actions and the collective actions to make the app more meaningful.
- Include more social elements to make PowerZ more interactive between users.
- Design a clear and effective communication strategy.
- Re-design the incentives. The iPhone 6 lucky draw created an opportunistic effect: People who only downloaded the app to win something didn't really get involved in the app.
- Improve the story telling. The purpose of the challenge, meaning of the charts, etc. needs to be clear and easy to understand.

Contacts

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