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# Engaging Teens: Using an Engagement Event as a Research Tool for Teenagers

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**Abstract**

This paper describes the use of an engagement event as a research tool to be utilized when working with teenagers in participatory design process.

**Author Keywords**

Teenagers; energy; design; requirements

**ACM Classification Keywords**

Psychology

**General Terms**

Design

**Introduction**

Energy consumption continues to increase world-wide [1] despite the well-documented deleterious consequences of this to the global environment [2]. Reduction of household electricity consumption is one way in which individuals are being encouraged to contribute to the global reduction of energy consumption. Teenagers may be a particularly effective population to target with such strategies as it is estimated that the average teenager uses approximately 20% more electricity than the average adult [3].

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“Taking on the Teenagers – Using Adolescent Energy to Reduce Energy Use” is an interdisciplinary research project funded by RCUK that aims to investigate, develop and evaluate mobile technology solutions to reduce teen energy use. The project seeks to actively engage teenagers as design informants, evaluators and researchers. However, there is very little existing research informing designers on how to work with teens in such a way.

The present paper describes the use of an ‘energy-awareness’ engagement day as a research tool within the “Taking on the Teenagers” project. The event incorporated a diverse range of research and design activities in order to develop an understanding of teen energy-related attitudes and behavior, which subsequently informed the design and development of the energy-saving devices for teens. The event furthermore aimed to increase teen awareness of the energy awareness issues and the ongoing research in this field.

### ENERGY AWARENESS DAY

Northumbria University hosted an energy-awareness day in order to engage local teens in the RCUK-funded energy project. 101 teenagers (*Mean age = 13.65*) from four local secondary schools in the North-East of England attended the engagement event.

In the morning session, eight stalls were set up, each featuring an energy-themed activity. In groups of approximately 15, teenagers participated in a “hot-table” session wherein they spent fifteen minutes engaging in each activity, before moving onto the next. Each activity aimed to provide researchers with insights

into teen energy-related attitudes and behavior, and also increase teens’ own awareness of their energy consumption and conservation. Furthermore, activities aimed to be fun, engaging and generally appealing to the teen. Activities forming part of the session included:

- ‘Guesstimation’ of Household Appliance Electricity Use. A worksheet was developed



featuring images of household appliances that teenagers are likely to use on a regular basis (see image left). Teens were asked to rank the appliances in order of those that they believed to use the *most* electricity to those that they believed to use the *least* electricity (when used for the same

duration). Once all teens had completed the sheet, the research team advised them of the correct answers. The activity therefore aimed to increase teen awareness of their day-to-day energy consumption and furthermore identify to the researchers any gaps in teen knowledge in this area.

- *Energy Saving Activities at School.* Teens were presented with a list of energy-saving activities that they could perform at school, such as ‘Turn off computers when not in use’ and ‘Run

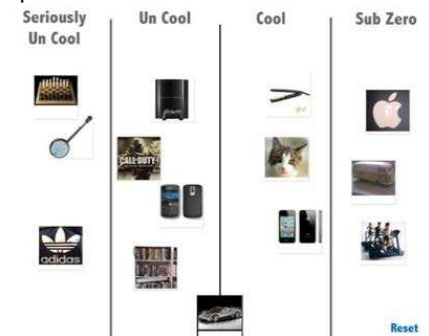
a competition between year groups to track electrical energy use with a prize for the year group who save the most electricity'. In groups, teens rated these activities in order of their willingness to perform them at their own school. Through the activity, researchers were able to gain an insight into the types of energy-saving technology-based interventions that may be appropriate within the school environment.

- *Prototype Demonstrations.* Two of the stalls showcased two high-fidelity prototypes that aimed to reduce users' energy consumption, and the purpose of the showcase was to assess their suitability for the teen population. For each prototype, teens watched a demonstration of the prototype by researchers. They then engaged in an exploratory use session wherein they were permitted to test the device and ask questions about it, and finally provided written feedback to the designers of the devices.

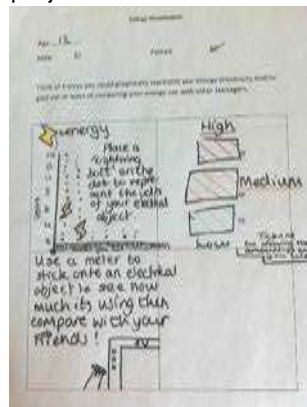


Photograph of prototype demonstration taken at the energy awareness day.

- *Barriers to Energy Saving Questionnaire.* Teens rated eleven potential barriers to energy conservation according to how important they perceived them to be. The barriers examined included knowledge, responsibility, lifestyle, habit, detachment from the problem, financial responsibility, time, inconvenient appliances, cool, role models and information. The barriers questionnaire provided quantitative data regarding the relevance of barriers to teen energy use which will inform researchers in the design of energy-saving devices (which may seek to overcome such barriers).
- *The Cool Wall.* Teenagers complete an online Cool Wall where they were required to rate pictures in order of how cool they thought they were. The categories used were seriously uncool, uncool, cool, and subzero, in line with the cool wall used in BBC TV programme Top Gear. The purpose behind the Cool Wall is to provide insights into the cool preferences of teenagers using a simple and low cost technique.



- *The Appliance Energy App.* Is a Flash application designed to inform and test teenagers on the electrical power needed to run appliances within the kitchen. The teenagers were first asked to rank a set of six appliances in order of the appliance they considered used the most electricity to the appliance that used the least. They then received feedback on how well they did before being given the chance to turn the appliances on and off being shown how much energy each used. After this the teenagers were asked to rank the items again in order to see if their score improved.
- *Energy Visualisation Worksheet* – Teenagers were asked to provide four graphic representations of how they could share their household gas or electricity usage with each other. The purpose of this task was to help inform the design of an Android app to be used in one of the technology solutions proposed within the project.



In the afternoon session, teens engaged in a poster making competition, wherein they created a poster advocating the importance of energy saving behavior to other teens. Prizes were awarded for the four best posters. Teens also completed tours of Northumbria University library and sports facilities so that they could enjoy a feel for university life.

### **FOLLOW-UP ACTIVITIES**

Immediately after the energy awareness day, each school was given a log-book to complete with details of the energy-saving activities that took place at their school following the engagement event. They were also given a disposable camera to photograph these activities.

Three months later, teenagers were invited to participate in focus group sessions. Focus groups aimed to further explore ideas and themes that had emerged as a result of the engagement event. They also sought to evaluate the event. The school energy log-book, the winning posters from the competition and photographs taken at the engagement event were used as prompts to stimulate discussion in the focus groups. Each focus group lasted between 30 and 45 minutes, and there were between 3 and 8 teenagers in each session. 37 teenagers participated in this part of the research.

### **EVALUATION**

The energy-awareness event and follow-up activities produced a diverse range of both quantitative and qualitative data that can be used in multiple ways to increase the researchers understanding of teen energy-related attitudes and behavior. Such understandings

will inform the design and development of mobile devices that reduce teen energy consumption as part of the final stages of the overall research project. The diversity of the tasks and their 'short and snappy' nature ensured that teen remained interested and engaged in the research throughout resulting in high quality data.

The energy-awareness event served a dual purpose, as in addition to informing and shaping the future stages of the "Taking on the Teenagers" project, the event also increased teen awareness of energy-related issues and the ongoing research in this field. Research impact is high on the agenda of modern day academia, and it is increasingly crucial that we engage with those who will ultimately benefit most from our research. As such, engagement events are enjoying a growing popularity amongst the academic community.

Follow-up focus groups were found to be an especially useful research tool since it facilitated the further exploration of themes generated as part of the engagement day at a time-point wherein teens had time to reflect upon the energy-awareness event. Teenagers were invited to critically evaluate the energy-awareness day in the focus group and so

researchers were able to understand from a teen perspective which activities were the most enjoyable.

### **Acknowledgements**

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