
Hip to be Square: Designing Serious Apps for Coolness

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Abstract

This paper discusses previous work in developing intervention apps for sustainability that are designed to be cool and improve user engagement. While much work has been carried out by the HCI community in sustainability, particularly energy consumption; little has been done to improve interaction with this relatively mundane but serious topic to engender a compelling and cooler experience. Using the theme of 'it's cool to be uncool' for sustainability, we discuss the design of an eco-feedback Facebook application for deployment in a trial study. The Power Ballads Facebook app mashed mainstream 'pop' chart music with domestic energy data using aversive stimuli. Presented here are the pilot findings that suggest participants found the app cool.

Keywords

Energy, Cool, Sustainability, Engagement

ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

General Terms

Design, Experimentation

Introduction

Given the importance of contemporary sustainability issues such as food and energy security, the HCI community has carried out extensive research into designing technologies that support interventions in these areas [7],[11]. Most of these interventions are based on generic design, usually for displaying and recording information and pay little heed to the different cultural groups that may adopt them. We believe that 'Designing for Coolness' could play an integral part of the user's experience when interacting with sustainability interventions and may help to decrease disengagement levels, thereby increasing success rates.

The concept of cool is nebulous in nature, spans different cultures with different contexts, with cool in one demographic positively uncool in another. Work by Willis in the 60's [10] identified two distinct cultural groups at the time in the UK, *bikers* and *hippies*, and described their styles or 'coolness' as being a shared material experience. More recently we see cultural groups such as *hipsters* whose exploitation of cool involves seemingly arbitrary objects with limited utility such as fixie bikes and the adoption of dated technology. Cool could then be seen as inherently local to a cultural group, with its manifestations seemingly random or strange to an outsider. The issue of locality could pose problematic when designing for *inclusive* coolness.

Recent work by Reid *et al* [9] and Fitton *et al* [5] in designing cool sustainability technologies for teenagers revealed they wanted to tap into specific group dynamics such as peer pressure, personal goals and achievement, with emphasis on personalisation. They

also found clear age and gender differences on perceptions of cool. Social identity plays an integral part of being seen as cool by peers, also mirrored in hipsters' highly personalised and unique appearance.

While cool may be defined within a cultural group with its own rules and guidelines, inclusive design for coolness is a challenging area of research. The work presented here offers early findings in exploring the theme of 'it's cool to be uncool' when applied to sustainability interventions.

Can Eco-Feedback be Cool?

Previous work in designing sustainable technologies has used artistic and ambient prototypes that are aesthetically pleasing and could easily be termed 'cool'. Work by Gustafsson and Gyllenward [8] produced the 'Power Aware Cord', an innovative approach to ambient per-appliance energy monitoring. It utilised feedback in the form of ambient light emitting from the cord to indicate an appliance's current consumption, see *figure 1*. Ambient lights are also used in the Wattson energy monitor [4] which is available in a wood finish in *figure 2*. Both these ambient technologies provide an alternative way of monitoring energy consumption, allowing the owners of such devices to express their sustainable interests outside conventional means.

Games have also been used to raise awareness of energy consumption behaviours in teenagers with game rewards of displaying cool information [2]. Designing for cool would then appear to have a place in the design space for sustainability interventions using eco-feedback.

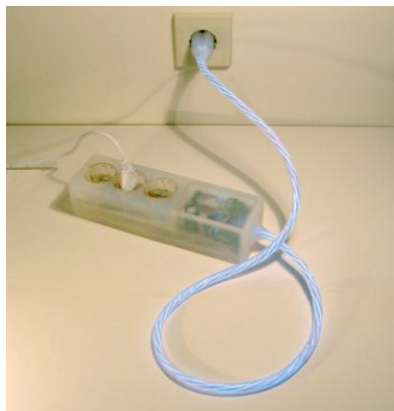


Figure 1. Power aware cord ambient energy feedback

Power Ballads

Power Ballads [6] is a study investigating the use of aversive feedback that uses punishment, as opposed to reward, when interacting with domestic energy usage through a Facebook application. Punitive, yet playful, feedback is displayed publicly on the users Facebook wall when they consume more energy in two compared time periods. The aversive stimuli in this case is a Facebook wall post stating the user in question is listening to 'uncool' pop music whilst consuming more energy than previously, see *figure 3*.

It has been suggested that aversive feedback is not appropriate for online behaviour-change interventions [3],[1] and often refer to the problem of users becoming disengaged when punishment is delivered. It is argued that the easiest way for a user to avoid punishment in such an application is to stop using it, rather than the user changing their behaviour. Users of the app could completely avoid the aversive stimuli by not logging into the application; however this was



Figure 2. Wattson home energy monitor with ambient display

not the case in Power Ballads, indicating they were engaging with the feedback despite the potential of playful embarrassment in their alleged uncool music choices.

Our app implementation utilised both the Facebook Graph and Pachube API's to display participants live online energy data on the Facebook platform, using the Current Cost Energy Bridge. Using a mixture of purposive and convenience sampling, nine lead participants were recruited: 4 of which were female, from nine households. The study ran for 5 weeks and the aims were twofold: 1) To investigate the effectiveness of aversive feedback to *engage* users in eco-feedback applications and 2) Analyse user comments generated from the aversive feedback posts for emergent themes that could then be exploited in subsequent eco-feedback applications.

Some of the user's comments indicated they thought the app was cool:

"I was already using an energy meter from British Gas to minimize our electricity usage. cool idea though! perhaps could be personalised towards things that people would find more embarrassing within their peer groups..."

"it made a post when we had to use the washing machine a lot one day... I had never heard of the artist/song that was posted on my FB feed, was more baffled than anything else but thought I could show off a bit! :)".

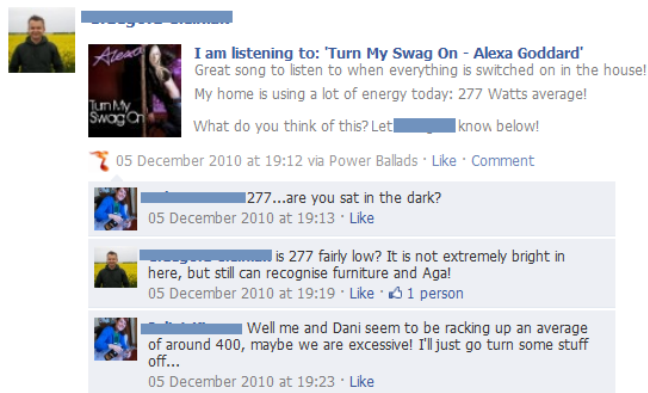


Figure 3. Anonymised example of an aversive feedback post

Conclusion

Our initial pilot findings in Power Ballads demonstrated when participants were exposed to aversive stimuli it did not necessarily bring about disengagement. The theme of 'its cool to be uncool' via alternative feedback engaged the participants and resulted in a positive experience. We are carrying out further work exploring the theme in our 'KillaWhats'¹ student energy study.

¹ KillaWhats on Facebook <http://apps.facebook.com/killawhats>

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