Designing for Behavior Change

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Abstract

With increasing computational ability available on smartphones, tablets and wearable devices - companies are investing time and effort in trying to use these technologies to help effectively push the way users behave. Understanding how the mind works along with technical capability allows companies to create products that can effectively change society for the better. Companies are now looking at applying behavioral sciences to help solve some everyday problems and some not so everyday problems. As part of this paper we will look at the space of sustainable transportation and how companies are using concepts of behavioral economics to help users reduce their ecological impact.

Introduction

E-mission is a mobile application that provides an automated way to collect mobility data and segment trips by modes of transportation, with the ultimate goal of influencing the development of more sustainable transportation. We are currently working on the refinement of E-mission with the aim to design certain features of the mobile application that would help inculcate habits in users that make them aware of their ecological impact and push themselves to change their behavior and mindset towards sustainable transportation. We see that there currently exists multiple other offerings in this space such as Peacox, and MatkaHupi which aim to tackle similar problems in trying to get user to be more eco-friendly by engaging them to adopt more sustainable methods of transportation. In this paper we will observe these

competing products through the lens of the frameworks provided in the book for building and designing products to drive behavior change.

Existing Products

A brief description of the existing products can be found below:

Peacox - A Usable Persuasive Trip Advisor for Reducing CO2-consumption. The project provides travellers with personalized multi-modal navigation tools that allow, help and persuade them to travel and drive ecological friendlier. [1]

MatkaHupi - This application is capable of automatically tracking the CO2 emissions of the journeys of the user and provides actionable feedback on more sustainable traveling options. [2]

Designing for Behavior Change: The Framework

In the book, Wendel walks us through a design thinking methodology to help us build products that promote behavior change. He mentions 4 high-level steps:

- **Understand** how the mind works and accepting that people think irrationally
- Clarifying and **discovering** the goals of the users in the environment
- **Designing** to help push users take action
- Improving the product through continuous **refinement**

As part of the Understand phase, Wendel talks about the C-R-E-A-T-E action funnel - Cue, Reaction, Evaluation, Ability, and Timing. He mentions - “If all of these are in place, then a person can execute the action”. Products successful at eliciting behavior change help the user pass through all of the five stages mentioned above. Product features need to be designed to prevent users from leaking at any of the stages.

In the following section, we will analyse the existing products and look at some of the features that help users move from one stage to another within the CREATE action funnel.

Analysis

When we look at the products under the above mentioned framework, an important phase of the CREATE funnel is “Ability”. The user needs to be able to perform the action immediately and the product should give him that ability. There should be limited barriers to action for the user since it is easy for users to get distracted especially if the activity is not part of their System 1. This is huge problem for products that are dealing with getting users to change their behavior in the context of a problem space that might be relatively unknown to the user such as ours - Sustainable Transportation. We want users to act in an environmental friendly manner not only once but each time they think of commuting or travelling. As a result, the ability to act plays a huge role. A very strong concept that is leveraged by products is the strategic use of Defaults. Users stick with the path of least resistance, and coupling defaults with removing the burden of action from the user (what Wendel mentions as ‘cheating’) is a powerful behavioral strategy to get users into the mindset. Both MatkaHupi and Peacox have built features that minimize the need for explicit user input.

Peacox integrates automated travel mode detection based on real-time GPS data into the trip planning thereby reducing any burden on the user for initial action. Similarly, MatkaHupi uses automatic detection of trips taken and transport modes applied by the user, by utilizing sensor fusion including positioning technologies and the accelerometer in combination with openly available public transportation route and schedule database. In both these applications, the users effort required in setting up and becoming involved in the change has effectively reduced to zero. This background capturing of data helps these applications pick up on

behavioral patterns and cue triggers specific to individuals and at times during their routine where they might be the most effective. As Wendel mentions, “in an ideal case products should be able to creep into existing behaviors, motivations and routines to be most effective, as most users are opposed to change”, and that is what the existing products are doing well.

Another important aspect of the framework that have aided the design decisions for both the products is the evaluation phase. If your system 2 gets engaged, then the user will most likely end up doing a cost benefit analysis of whether the action he does will provide any benefit or not. The effort that the user puts in must be worthwhile and of higher value than any other barriers that might creep in or distract him. In essence, these products need to increase the motivation of the user to perform the action they want. Both Peacox and MatkaHupi work towards employing tactics such as introducing peer comparison and social challenges to help motivate the user. The belief that our peers our watching our behavior and judging it - “Spotlight Effect” - is an important aspect of one’s microenvironment and can help nudge certain actions. MatkaHupi provides its users with a set of challenges designed to motivate the user to make sustainable travelling choices. After each detected trip, the application checks if the same trip could have been made faster and/or with less emissions (trip challenge). If this is the case, the application proposes as a challenge making the trip with the alternative route plan in the future. [2] With each successful completion of a challenge users are awarded with a badge and certain amount of points to help motivate them further. Similarly for Peacox, they allow users to share their ecological impact, their progress and actions with their peers on social media. Constant social comparison and challenges help nudge the system 2 towards evaluating the action as something that the user needs to perform.

Analysis: Special Mention

In the book, wendel hints at the concept of self-narrative. He says - “We can reinterpret what’s happened to us or what we have done in the past by changing the story we tell ourselves about it”. This reinterpretation affects our future behavior.

I believe it is a truly important and subtle way of getting users to change their behavior. Examples of this can be seen in many products and even in the ones we talk about in the paper. Both Peacox and MatkaHupi provide users with a dashboard with the information and history about their past trips and journeys. Visual feedback on the user's past attempts at changing their behavior through an account of their CO2 emission or carbon footprint along with other information about their past trips really helps the user gain a sense of self efficacy. The past starts to reinforce their ability to do better and helps push them for future positive behavior.

Shortcomings and Key Takeaways

Given the thought and effort that has gone behind all the products in this space to get users to start thinking about sustainable transportation, we still see that something missing from these products is educating the user.

Getting the user ready for the action by preparing him should be an important consideration for all products that aim to promote behavior change. Changing the way the user sees the world affects the way the user acts. Wendel suggests - “Education is about giving users the the information they need, and hoping that when the time comes to act, they will make an informed choice to act.” This emphasis on educating the users seems to be currently missing from existing products and something that E-mission is focussing on. However we need to be careful about how we apply educational effort in the product as it might falter if ends up being an

overload or is not cued in correctly with respect to the action required by the product. Fitting in information when the user has successfully performed an action or has taken a positive step towards sustainability would be a good way to help shape their future actions. Logistical guidance provided by E-Mission can help provide a clear set of actions and map for the user to follow and improve his ability to act. Reinforcing the association between the game and saving the environment works as a interesting way to get users into the correct mindset.

Besides this one key differentiating factor, I believe it is important to actively incorporate the framework highlighted by Wendel to help better design products for behavior change.

Appendix

[1] http://www.project-peacox.eu/project-overview/

[2] http://www.ubicomp.org/ubicomp2013/adjunct/adjunct/p227.pdf