Designing a Multi-Modal Habit Reward System

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I hereby declare that this dissertation is all my own work,
except as indicated in the text:

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Contents

1 Executive Summary

Habits are actions we do with almost no conscious thought. Building a positive habit requires a methodical process, from a trigger to a reward. For example, when you eat breakfast, you might write in a journal about your life. Daily actions are often easier to sustain than longer ones, although the process of creating a habit takes up to 66 days of repetitive use. Technology can change peoples behaviour and encourage them to form a habit by guiding users through a series of experiences. Trigger, Action and Reward. Theories have explored different methods of providing people with rewards, however, literature shows that these implementations are never as affective as the theory states.

This project focuses on habit reward systems and how theoretical methods of sustaining habits are put into practice. This project aims to implement different types of reward deliveries through different modalities and also provides a set of design recommendation for building habit forming systems.

2 Introduction

Old: Systems to assist with habit adoption are intended to start new behaviours and try to maintain the same behaviour even when users disengage with the system. Existing systems aimed at improving habit adoption use single modality constructs to enforce habit behaviour, like visual cues or vibrating alarm reminders. However, prior research has established a dependency between on-going habit adoption system use and lasting change. In this paper, we propose and evaluate three systems that use different modality configurations for habit adoption in conjunction with gamification. The aim is for users to keep engaged with the habit adoption when the system is removed. A 30 day user study will be conducted to evaluate the use of each system and test how users compliance with conducting the habit improves when the system is in place and then again when the system is removed. We conclude with an implementation and evaluation of the three proposed systems for habit adoption and present a set of implications for the design of a system in this domain.

Motivation

Maintaining habit behaviour when the system is removed is difficult! We try to counter this and we can feasibly find a way for people to adopt a habit without relying on a system.

Project Type

In this paper, we propose and evaluate three configurations for habit adoption. The proposed project is split 40/60 between researching different configurations and implementing three configurations.

Aims and Objectives

The aim is to achieve habit adoption when a configuration is removed.

Methodology

Prior research into different habit adoption systems will refine the design requirements for three system configurations. System A, B and C.
Will use design requirements from [1]. These systems will be constructed using a staggered

approach to optimise the use of time. After testing of each system configuration, each individual system will be evaluated and the results will be compared to produce a set of implications for the design of a system.

Deliverables

Three evaluated systems to adopt habits. Design requirements from the results of testing these three systems.

Added Value

Results of studies and design requirements.

3 Habit Formation

How habits are formed.

3.1 How Habits are Formed

3.2 System Dependency

3.3 Techniques for Sustaining Habit Adoption

4 Multi-Modal Interaction

How modalities affect habit adoption

4.1 Single Modality Impact on Habit Adoption Techniques

4.2 Cross-Modal Interaction

5 Gamification & Habits

What elements in games can we use to make people adopt habits

5.1 Why Games

5.2 Impact on Habits

5.3 Impact on Multi-Modal Interaction

Habit formation, Don't Kick the Habit [2], stopping the behaviour when one stops using behaviour change apps.
Measuring Habit strength [3] [4].

Multi-Modal interaction, using multiple modalities for habit formation [], using wearable devices, such as a Fitbit device is plausible for a study [5].

Gamification elements [6], can we use any elements from Free-To-Play games?

6 List of Habit forming methods

6.1 Design Considerations

7 Evaluation

8 Conclusion

Will this be a successful project?
Can we obtain the value that this project adds?

9 Work Plan

9.1 Scope

9.2 Expected Timeline

The construction of the three system configurations will be staggered.

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System A: building | testing  | evaluating |            |
System B:          | building | testing    | evaluating |
System C:          |          | building   | testing    | evaluating
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9.3 Gannt Chart

Full page image

9.3.1 Deliverables

9.4 Risk Analysis

Table of risks and mitigation techniques.

10 References

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