



Requirements of Persuasive Systems : Case Study of a Habit Changing Application

Presented By : Noshin Nawar Sadat

Outline



INTRODUCTION



FABULOUS : SELF
CARE APP



PERSUASIVE SYSTEMS
DESIGN (PSD) MODEL



ANALYSIS



DISCUSSION



CONCLUSION

Introduction

- Fabulous : Self Care Application
 - Aims to change people's habits, more specifically, their behaviors.
 - Developed in Duke's Behavioral Economics Lab
 - Claims to have been built based on principles of behavioral psychology
 - Rating is 4.6 in the App Store and Play Store
 - Over 297,000 monthly app downloads, with monthly growth at over 40% (May 30, 2019)
 - Apple Store - Best Apps 2018 in Self-Care, Best App Finalist in Google Play Awards and Material Design Award Winner.
- Identify its persuasive features

Introduction

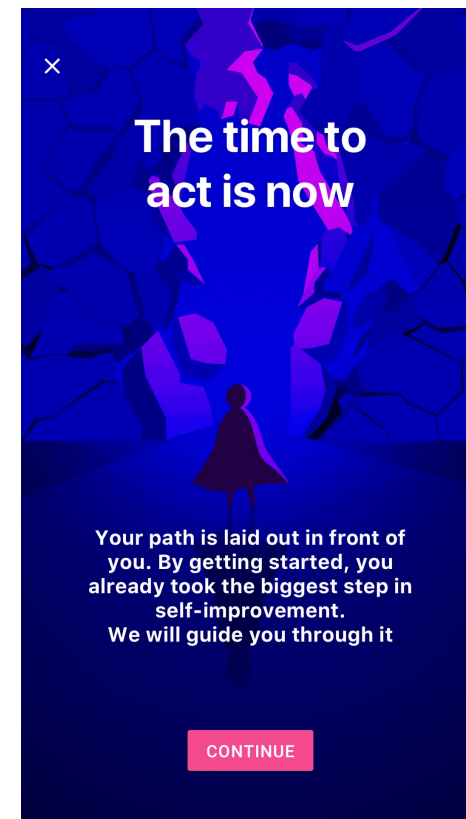
- Why Fabulous: Self Care?
 - Successful
 - High rating and downloads
 - Award winners
 - Claims to have used behavioral science

Introduction

- Goal of Study
 - Identify persuasive features in a successful habit changing application – Fabulous : Self Care
 - Leverage a most commonly used evaluation framework for persuasive systems - Persuasive Systems Design (PSD) model

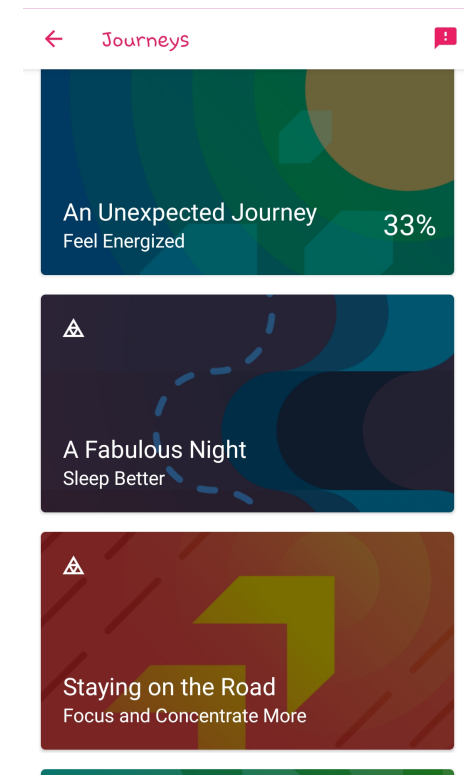
Fabulous : Self Care Application

- Fairy tale like visuals and soft sounds
- Very easy to use and intuitive interface
- Onboarding
 - A series of questions to determine gender, existing habits and confidence in changing behaviors
 - Based on the inputs, provide a personalized experience



Fabulous : Self Care Application

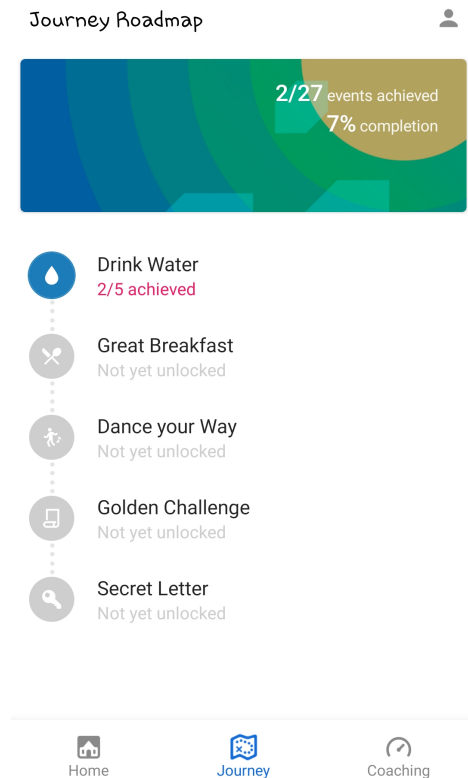
- Journeys
 - Goals range from feeling energized and eating better to leading a purposeful and well-balanced life
 - Most journeys require purchase of the full version
 - Users can take up more than one journeys at a time (not recommended)



Fabulous : Self Care Application

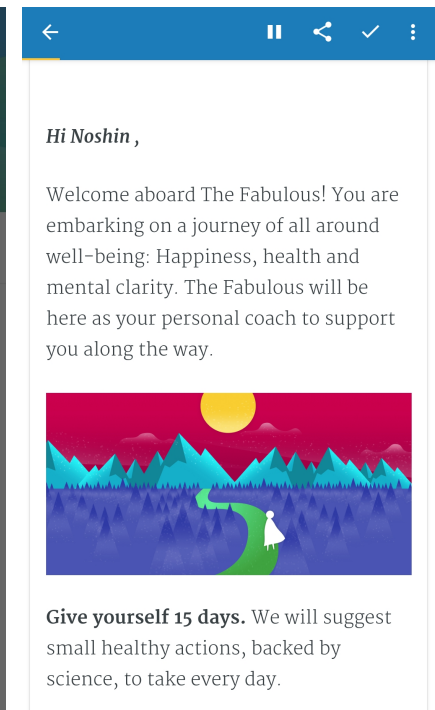
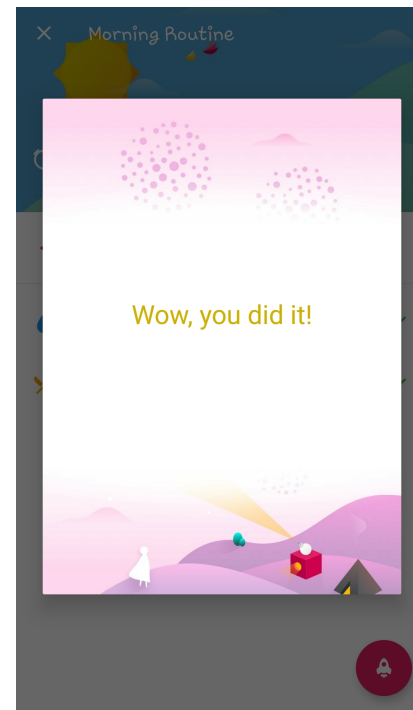
- Habits

- Each journey has a set of compulsory habits
- Except for the first habit, all other compulsory habits are locked
- Journey involves a series of challenges of increasing difficulty
 - Next compulsory habit gets unlocked and is required to be performed along with the previously unlocked habits
 - Perform the habit(s) at least three days in a row
- Also provides a list of optional habits
 - Users can take up at any time



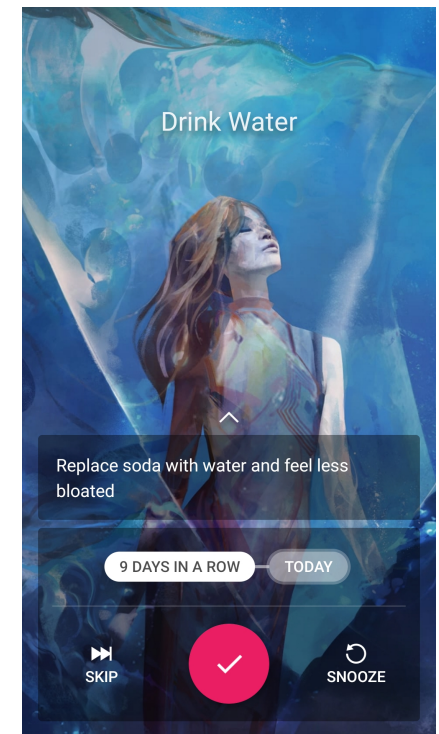
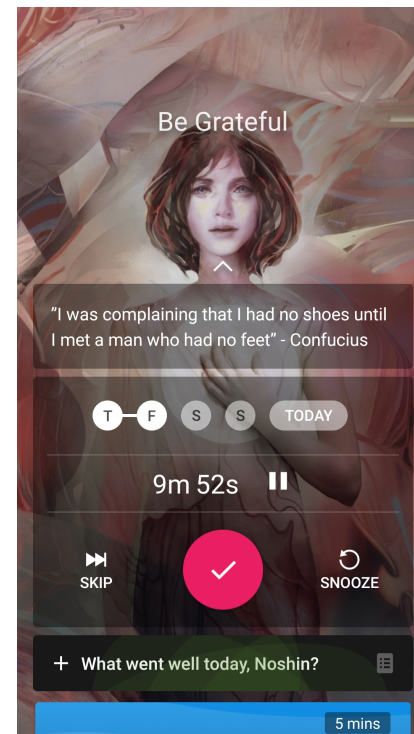
Fabulous : Self Care Application

- Congratulatory messages and letters after completing each challenge that include
 - Why the habit they have worked towards is important to their ultimate goal
 - Information on the next habit/challenge
 - Importance of next habit
 - Suggestions to easily perform next habit



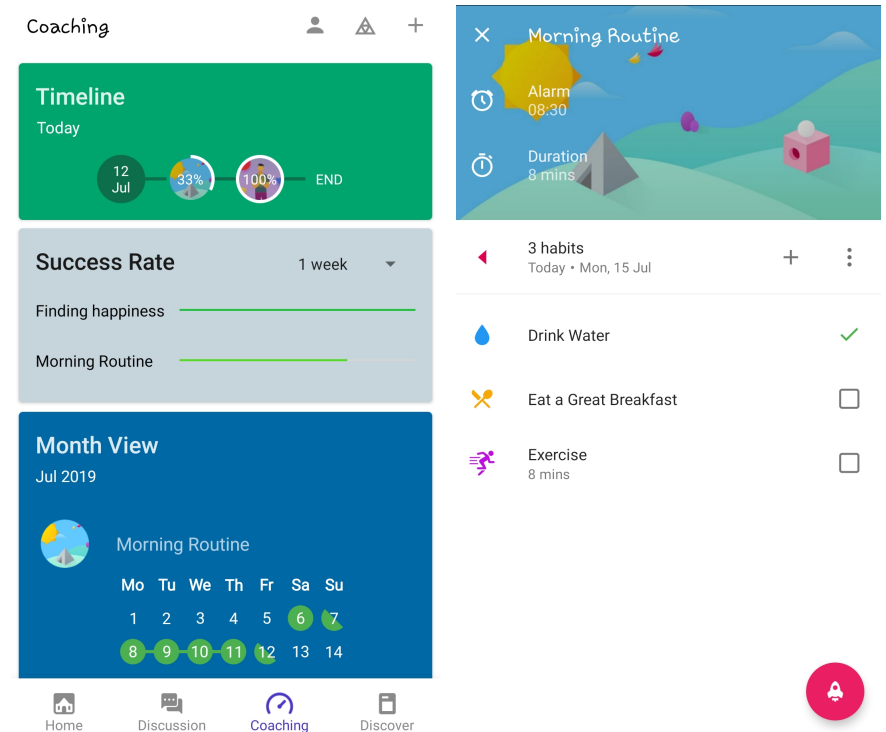
Fabulous : Self Care Application

- Tracking habits
 - Through user inputs
 - Prompts user with a hovering notification
 - Snooze
 - Skip
 - Tick
 - If it is an activity that requires a set period of time (e.g. exercise for 8 minutes), it starts a timer
 - If it is a simple activity like drinking water, tapping the play option ticks off the habit immediately.



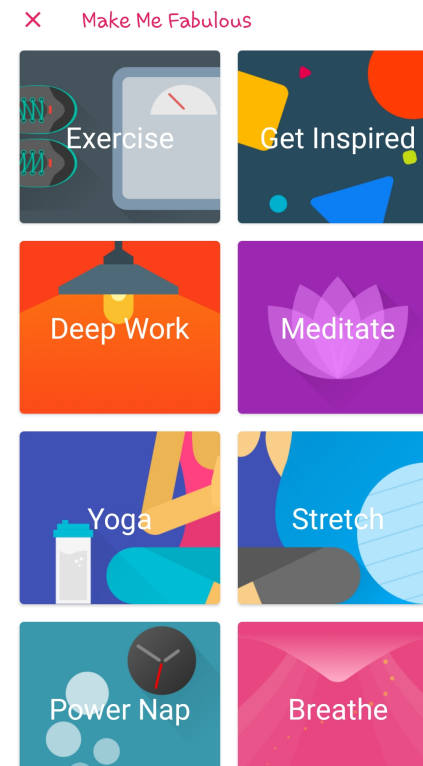
Fabulous : Self Care Application

- Monitoring user progress
 - Percentage of journey completed
 - Weekly and monthly success rate
 - Monthly view of their performances in the daily routines
 - Daily timelines to see the list of habits to be performed



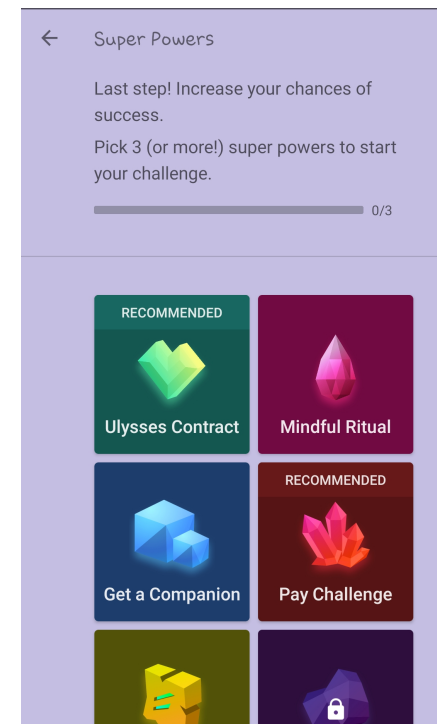
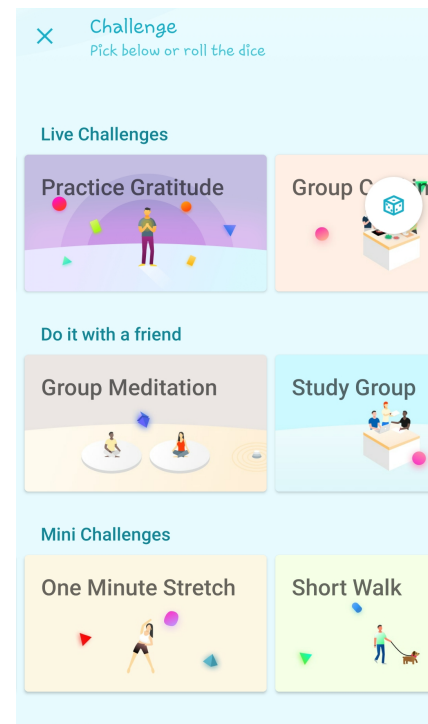
Fabulous : Self Care Application

- Additional features
 - Contents for exercise, yoga, meditation and so on
 - Editorials and infographics on healthy living



Fabulous : Self Care Application

- Additional features
 - Users can take part in some individual and group challenges
 - Not related to the main journeys of the application
 - “Super powers” to ensure success
 - Individual super power - making the Ulysses contract (where the user has to think of a trick that would absolutely make it necessary for them to complete the challenge)
 - Social super power - getting a companion (to complete the job with or to monitor the user)



Persuasive System Design (PSD) Model

- Proposed by Oinas-Kukkonen and Harjumaa
- Framework for persuasive system design and evaluation
- Derived from existing knowledge base of behavioral economics and captology
- Most often used for analysis and evaluation of persuasion context and persuasive features

Persuasive System Design (PSD) Model

- Persuasiveness is a non-functional requirement
- Persuasive features
 - 28 persuasive techniques
 - 4 categories, each with 7 techniques
 - Primary Task Support
 - Facilitate user interaction with the system and assist in performing tasks
 - Dialogue Support
 - Improve user-system dialogues and guide user through the task
 - System Credibility Support
 - Make the system more credible to the eyes of the user
 - Social Support
 - Motivate user by leveraging social influence

Analysis : Persuasive Features

- Primary Task Support
 - Reduction
 - Reduce user's efforts in performing the target behavior
- Fabulous : Self Care
 - Reduction
 - One tap inputs
 - Small and incremental habits
 - Salient and convenient choices

Analysis : Persuasive Features

- Primary Task Support
 - Tunneling
 - Guide the user towards their target behavior by providing means for action.
- Fabulous : Self Care
 - Tunneling
 - Guides the user through several fixed habits in order to attain a goal (complete a journey).

Analysis : Persuasive Features

- Primary Task Support
 - Tailoring
 - Provide tailored functionalities based on different user groups.
- Fabulous : Self Care
 - Tailoring
 - No evidence of tailoring
 - Same journeys, letters and overall experience for extremely different inputs

Analysis : Persuasive Features

- Primary Task Support
 - Personalization
 - Offer personalized content based on user input.
- Fabulous : Self Care
 - Personalization
 - Allow users to
 - Take challenges they want on challenges they want
 - Defer a challenge if they feel like they are not ready for it.
 - Set the dates and times according to their own convenience.

Analysis : Persuasive Features

- Primary Task Support
 - Self-monitoring
 - Provide tracking and monitoring user performance and status.
- Fabulous : Self Care
 - Self-monitoring
 - Presents the user's progress information

Analysis : Persuasive Features

- Primary Task Support
 - Simulation
 - Provide means to view cause and effect relationship of target behavior.
- Fabulous : Self Care
 - Simulation
 - No simulation techniques were observed in the application.

Analysis : Persuasive Features

- Primary Task Support
 - Rehearsal
 - Provide means for rehearsing target behavior.
- Fabulous : Self Care
 - Rehearsal
 - Helps users rehearse exercises, yoga and meditation by providing timed guides as well as audio tutorials

Analysis : Persuasive Features

- Dialogue Support

- Praise

- Provide positive feedback using words, images, symbols or sounds.

- Fabulous : Self Care

- Praise

- Users receive congratulatory messages as well as encouraging letters to boost their self-efficacy.

Analysis : Persuasive Features

- Dialogue Support

- Rewards

- Give credit for performing target behavior.

- Fabulous : Self Care

- Rewards

- No extrinsic rewards like badges or points.
 - Letters are the only form of rewards.

Analysis : Persuasive Features

- Dialogue Support
 - Reminders
 - Remind users to perform target behavior.
- Fabulous : Self Care
 - Reminders
 - Reminders according to user convenience

Analysis : Persuasive Features

- Dialogue Support
 - Suggestion
 - Suggest methods to complete the target behavior.
- Fabulous : Self Care
 - Suggestion
 - Provides suggestions to the users in order to help them perform the new habits and complete challenges

Analysis : Persuasive Features

- Dialogue Support

- Similarity

- Imitate the user in some specific way.

- Fabulous : Self Care

- Similarity

- Makes use of careful wording as well as tones of speaking in the audio, which makes it seem like it is sympathizing with the user and that both are on the same boat on this journey.

Analysis : Persuasive Features

- Dialogue Support

- Liking

- Have an appealing look and feel.

- Fabulous : Self Care

- Liking

- Clean and simple interface with beautifully designed graphics.

Analysis : Persuasive Features

- Dialogue Support

- Social Role

- Adopt a social role.

- Fabulous : Self Care

- Social Role

- Adopts the role of a life coach and guides the user in their journey.

Analysis : Persuasive Features

- System Credibility Support
 - Trustworthiness
 - Provide truthful, unbiased and fair information.
- Fabulous : Self Care
 - Trustworthiness
 - Allows users to be in complete control of their information.

Analysis : Persuasive Features

- System Credibility Support
 - Expertise
 - Demonstrate knowledge, experience and competence.
- Fabulous : Self Care
 - Expertise
 - Mentions that it was developed in the Duke's Behavioral Economics Lab under the guidance of behavior change scientist Dan Ariely

Analysis : Persuasive Features

- System Credibility Support
 - Surface Credibility
 - Have a competent look and feel where visual design reflects the context.
- Fabulous : Self Care
 - Surface Credibility
 - Interface is simple and intuitive, and the contexts are well represented by the graphics.
 - No grammatical or spelling error is observed.

Analysis : Persuasive Features

- System Credibility Support
 - Real World Feel
 - Provide information of the organization and/or the people behind its contents and services.
- Fabulous : Self Care
 - Real World Feel
 - Mentions about the organization (Duke's Behavioral Economics Lab) and the people (Dan Ariely) behind it.

Analysis : Persuasive Features

- System Credibility Support
 - Authority
 - Refer to people in authority.
- Fabulous : Self Care
 - Authority
 - Provides information about scientific evidences and their references to justify their methods.

Analysis : Persuasive Features

- System Credibility Support
 - Third Party Endorsement
 - Provide endorsements from respected sources.
- Fabulous : Self Care
 - Was incubated in a lab that studies behavior change.

Analysis : Persuasive Features

- System Credibility Support
 - Verifiability
 - Provide means to verify accuracy of content.
- Fabulous : Self Care
 - Verifiability
 - Provides names and references to stated facts so users can verify them if they want.

Analysis : Persuasive Features

- Social Support
 - Social Learning
 - Allow observing of the progress of other users performing the target behavior.
- Fabulous : Self Care
 - Social Learning
 - User can view how many people are attempting the challenge, have completed the challenge or are working towards it in real time.

Analysis : Persuasive Features

- Social Support
 - Social Comparison
 - Show comparison of user performance with that of other users.
- Fabulous : Self Care
 - Social Comparison
 - Users can compare their own progress against other users and see whether they belong to the group that has completed the challenge or not.
 - Users can also share the letters which they receive after completing each challenge.

Analysis : Persuasive Features

- Social Support
 - Normative Influence
 - Gather people of same goals together to exchange information.
- Fabulous : Self Care
 - Normative Influence
 - A discussion board where users can post and comment about their experiences while going through the journeys (interaction and networking).
 - A closed Facebook group for its users

Analysis : Persuasive Features

- Social Support
 - Social Facilitation
 - Discern other users performing the target behavior
- Fabulous : Self Care
 - Social Facilitation
 - Users can view how many people are at the same progress level as themselves in the individual or group challenges outside the main journey.
 - A discussion group which can give them an idea about the other users who are in the same journey.

Analysis : Persuasive Features

- Social Support
 - Co-operation
 - Provide means for cooperation.
- Fabulous : Self Care
 - Co-operation
 - A question/answer feature where users can anonymously ask each other for motivation as well as recommendations.

Analysis : Persuasive Features

- Social Support
 - Competition
 - Provide means for competing with other users.
- Fabulous : Self Care
 - Competition
 - Users can invite their friends and compete with each other in completing challenges.

Analysis : Persuasive Features

- Social Support
 - Recognition
 - Publicly recognize people who have performed the target behavior.
- Fabulous : Self Care
 - Recognition
 - No recognition technique was observed in Fabulous.

Discussion : Verdict on Fabulous : Self Care

- Has all persuasive features except for
 - Tailoring (might be present in the paid version)
 - Simulation
 - Recognition
- Unobtrusive
 - Considers user context
- Cannot handle cheating

Discussion : Limitations of the Study

- Effectiveness based on application ratings
 - Might have been subject to bias due to the application's availability, pricing, marketing as well as release date
- Only one person was responsible for analyzing the application
 - Could be subject to several biases
- A major challenge for e-health applications is their inability to engage users for the long term
 - Interest and engagement with a new technology are at their peaks immediately after the introduction of the new technology
 - Human behavior typically takes a very long time to change
 - A longitudinal study with a large number of participants and with the full (not free) version of the application is essential to truly determine the effectiveness of Fabulous in changing behaviors.

Conclusion

- Used PSD model to identify persuasive features in Fabulous : Self Care application
- Application met all requirements except for tailoring, simulation and recognition

Thank You!