

# The Happiness Machine: Mobile Behavior Change

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**Abstract.** The author's firm planned, researched, analyzed, designed, implemented (in the form of sample screens), evaluated, documented, and prepared training documents for several versions of a mobile phone application conceptual prototype, the Happiness Machine, which combines happiness theory with information design/visualization and persuasion design to change people's behavior. This paper summarizes the Happiness Machine's user-experience design. A more complete description appears in the White Paper cited [18].

**Keywords:** culture, dashboard, design, development, emotion, experience, happiness, incentives, information, interface, mobile, persona, persuasion, social, scenario, user.

## 1 Introduction

Many people everywhere would like to be happier. Research by Lyubomirsky [12] shows that happiness is 50% genetic, 10% circumstances, and 40% intentional activities. The result opens up a significant opportunity (40%) to achieve greater happiness: people can change their behavior to make life happier. By combining information design, persuasion design, with a particular focus on Maslow's theory about basic human needs [20], Cialdini's science of persuasion [2], and Fogg's mobile persuasion theory [5,6] the author's firm believes the use of a suitably designed mobile application, the Happiness Machine, could persuade people to change behavior to become happier.

This combination of information design with persuasion design in order to promote behavioral change of mobile application users has been studied and realized already in several previous projects of the author's company: the Green Machine, the Health Machine, the Money Machine, the Story Machine, the Innovation Machine, the Driving Machine), and the Learning Machine [15, 16, 17, 19]. All of these past Machine projects and one described rely on the design of an application through a user-centered user-experience development-process [9] of metaphors, mental models, navigation, interaction, and appearance, the key components of user interfaces [13, 14]. A more complete description appears in the author's White Paper cited [18].

In alignment with Fogg's persuasion theory, we defined five key processes to achieve behavioral: Attract users via business marketing, increase frequency of use,

motivate initial habits changes, teach how to change habits, persuade users to change some habits (short-term change), and persuade users to change their general approach to objectives, people, objects, contexts (long-term, or life-style change).

Each of these contributed to specific clusters of functions in the information architecture of our design. The techniques that assist have been discussed in previous Machine publications cited above. To define happiness, we studied several theories and conducted an exploratory survey via social networking services. We asked 10+ professionals and graduate students ranging from 25 to 45 years old and with multi-cultural backgrounds, “What makes you happy?” They gave diverse answers, ranging from eating food, spending time with friends, shopping, and love. As secondary research, we examined writings of and about these experts regarding positive psychology, happiness theories and philosophy, emotional design, and endorphins [8]:

- Shawn Achor: Happiness Advantage [1]
- Stuart Brown: Benefits of play ([www.nifplay.org](http://www.nifplay.org))
- Bernie deKoven (Dr. Fun): Deep fun ([www.deepfun.com](http://www.deepfun.com))
- Pieter Desmet: Design for Happiness [3]
- Viktor Frankl: Man’s Search for Meaning, ([www.amazon.com](http://www.amazon.com))
- Carl Jung: Happiness in Human Mind, Personal archetypes [11]
- Jane McGonigal: Digital game to real-world collaboration ([janemcgonigal.com](http://janemcgonigal.com))
- Martin Seligman: Positive psychology ([www.ppc.sas.upenn.edu/bio.htm](http://www.ppc.sas.upenn.edu/bio.htm))

From our survey and research, happiness could be defined as relative, achieved differently by different people [7], and person-dependent (or subjective). This definition means that what could make one person happy may not be of any importance to someone else. Other insights gained included the following:

Shawn Achor, a Harvard University “happiness guru”, writes about ways to train one’s brain to be more positive, happy, and successful in life [1]. In his theory, he suggests: be grateful, make a journal of good events, meditate, find something to look forward to (anticipation is very enjoyable), commit conscious acts of kindness, infuse positivity into one’s surroundings (turn off TV’s), exercise, spend money on positive experiences or learning (not on things), etc.

We identified insights and design principles indicated below. Our analysis process includes transcribing interviews and gathering observations. Our organized research findings became the basis for the model of the user-experience (UX) design. We developed our model for deep happiness based on our earlier research: change one’s attitude, know oneself, carry out five essential practices, and reflect upon one’s experience in journals. The five practices are these: thinking optimistically, giving thanks, feeling connected, doing good deeds, and journaling. Each of these can lead to specific tactics for improving one’s happiness.

## 2 Market Research

To gain information about the target market’s (younger users familiar with smart phones and early adaptors in the US) use of mobile applications, we engaged graduate

marketing students at the University of California/Berkeley Extension's International Diploma Program to conduct secondary, qualitative, and quantitative research. Their report showed that 80% of the world's population now has a mobile phones, which accounts for about 5 billion people, of which in 2013, 1.08b are smartphones. Most users are between 18 and 44 years old. They use their phones mainly to write text messages (92%), to go online (84%), to write emails (76%), to play games (64%) and to use downloaded apps (69%).

Qualitative research from focus group discussions and in-depth interviews showed that socializing with friends and family, travel/vacationing, eating, and gaining appreciation from accomplishments make people happy. Quantitative research showed that almost 77% of the respondents said they think about how happy they are quite frequently. More than 50% commented that the most common way to choose new applications is to rely on relatives'/friends' recommendations, and 85% (regardless of age) want the application to be free or less than one dollar in cost. 51% were interested in the application. 29% would actually download it. Contrary to our expectations, people who showed more interest in downloading the application were those who claimed to be more happy. The following trends for content emerged: They want to see data refreshed everyday or every week, about 60% did not want to share information on social media, and the majority want to determine what makes them happy, and want tips/info based on their preferences.

### 3 Competitive Product Analysis

We analyzed 11 smartphone apps via screens and customer reviews, including these:

- Facebook: most popular online social network. ([www.facebook.com](http://www.facebook.com))
- Happier: application with which people can share their happiness moments by uploading photos into different categories of content. ([www.happier.com](http://www.happier.com))
- Foursquare: enables people to discover good places near by, search for what they've been craving, and get deals and tips along the way. ([www.foursquare.com](http://www.foursquare.com))
- Path: personal social network brings people closer to family/friends. ([www.path.com](http://www.path.com))
- Snapchat: real time picture chatting application. ([www.shapchat.com](http://www.shapchat.com))

### 4 Happiness Machine 1.0: Personas

We created three personas after considering demographic groups, behavioral segmentation, and three seemingly appropriate Jungian 12 archetypes [11]: Joe the Explorer, Carol the Caregiver, and Margaret the Social Jester. These tables in Figs. 1-3 show five tactics/guidelines across and conceptual and tactical/UX solutions vertically.

## 5 Happiness Machine 1.0: Use Scenarios

We constructed general and specific use scenarios based on the personas. The following is a specific example: In San Francisco, Joe goes to a Starbucks Sunday morning and looks on his smart phone while waiting in line. He notices photos of his

<b>Joe: Explorer</b>					
	<b>Involvement</b>	<b>Habits</b>	<b>Entertainment</b>	<b>Accomplishment</b>	<b>Connectedness</b>
<b>Conceptual Solutions</b>	Active, challenges, games, competition, escape, learn, new	Planning, managing time, seeking new and exotic adventures	Discover the new, learning the self, winning	Proof of self worth, self value, mastery, communicating accomplishments	Lighter connection, connecting with new people, showing dominance over others
<b>Tactical/UX Solutions</b>	Puzzles, games, unique accessories, challenge them	Adventure planning tool, pictures of cool ideas, journaling	Delivering insight, data, self knowledge, background information	Trophies, passport stamps, collectables	Comparing to others, bring them in touch with like-minded people, new people

<b>Carol: Caregiver</b>					
	<b>Involvement</b>	<b>Habits</b>	<b>Entertainment</b>	<b>Accomplishment</b>	<b>Connectedness</b>
<b>Conceptual Solutions</b>	Taking care of others, generosity	Donate, altruism, volunteer, active community involvement, caring, protecting, sacrificing	Seeing others take care of one another, gratitude	Helping others and making a difference, helping world become a better place live	Doing things for others, nurturing others, helping people in need
<b>Tactical/UX Solutions</b>	Reminders, organization, opportunity to help others, gratitude, journal	Taking pictures of good deeds, sharing ideas for Random Acts of Kindness, pictures and videos of philanthropy	Thank you message, sharing food recipes	Digital happy cash for donation, Charitable activities, Good Deeds Journal	Giving gifts to a friend, thanking others, community stats/facts

<b>Margaret: Jester</b>					
	<b>Involvement</b>	<b>Habits</b>	<b>Entertainment</b>	<b>Accomplishment</b>	<b>Connectedness</b>
<b>Conceptual Solutions</b>	Jokes, clever tips, ways to connect, make others laugh, advice for others	Planning for parties, capture memories, remembering good times	Live in the moment, quick/cheap fun, laid-back, enjoy life	Entertaining others, social skills	Reputation, how they are seen in the eyes of others
<b>Tactical/UX Solutions</b>	Tips to make people laugh, prank-generator, happy alarm clock	Family/friends get together planner, video and picture editing tool, collection of picture by events	New jokes, making funny faces, making funny sounds, mimicking funny gestures, drawing funny pictures	Journal for self-reflection, how many times they let themselves get sad or down	Sharable jokes and contents, including friends and family in life

Fig. 1-3. Tables for the three personas

friends’ happy moments and sees a photo of himself and a friend eating dinner together yesterday. Joe sends a Happy Note. Then, he notices a photo of one of his friends riding a bike in Chicago. He realizes he hasn’t ridden his own bike for a long time. He clicks the Search box, which shows ten categories of location-based happy things to do. He clicks Cool Spots to find outdoor activities. One beautiful photo catches his eye showing people riding their bikes on the Golden Gate Bridge. He decides to have a good time there. While he waits for his order, he sees a “fast video” of his friend performing a magic trick. He is very intrigued by how this this trick surprises and delights people. So, he downloads an app and learns this trick. He shares this happy moment and calls it: “Learning my first Magic trick at Starbucks.”

## 6 Happiness Machine 1.0: Information Architecture

The information architecture has five modules. To reduce screen clutter, the top-level modules do not appear, but are called back quickly by right-swiping:

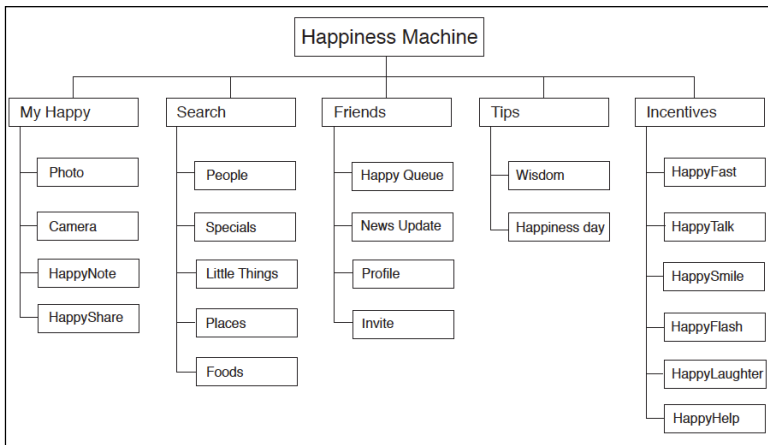


Fig. 4. Information Architecture of the Happiness Machine 1.0

**Dashboard/Profile:** My Happy: The “home screen” contains information needed at any time; camera/video to capture/share happiness moments; HappyNotes: to give/receive compliments to/from people; and HappyShare or Happy/Bank (based on the Happiness Bank of Estonia [4]), which helps users to share/save good deeds.

**Search:** Users gain access to a collection of world-wide happy stories and wisdom. Users, also, can leave their own stories for others, about people, places, foods, etc.

**Friends:** Social connections link to comparisons and competitions. Users can share happiness moments with others and review feedback comments and recommendations. In this way they can learn from others who may be “subscribers.”

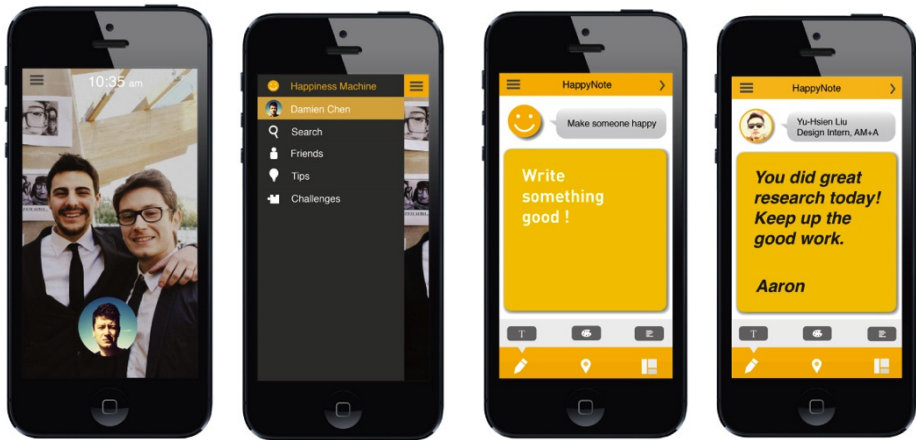
**Tips:** A Happiness Advisor, like push services based on user data, current location, and/or preferences, provides personalized, tailor-made offers and recommendations.

**Incentives:** Games, competitions, awards, rewards, and shops all increase motivation and frequency of use. Examples: HappyFast teaches new skills (like magic tricks), HappyTalk (see [www.mouthoff.com](http://www.mouthoff.com)), lets users animate funny speaking screen captures of themselves and share them. Happy Smile encourages users to smile more and helps them practice. HappyLaff collects people’s recorded laughter. HappyHelp generates location-based good deeds [10].

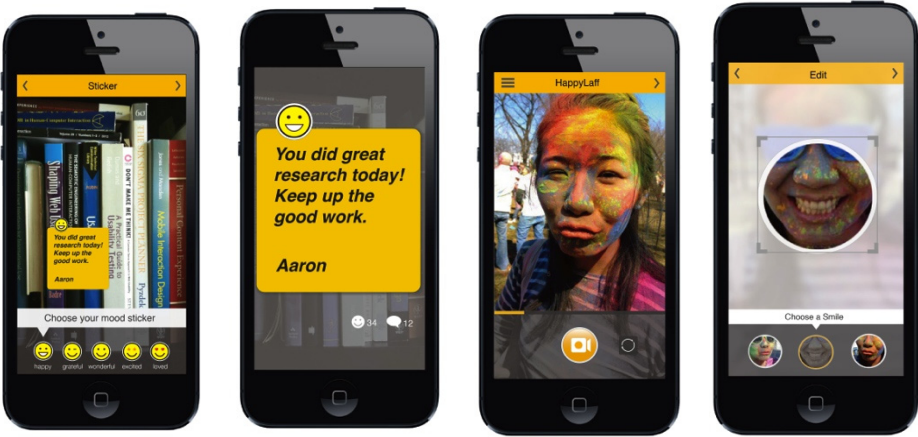
We focused on three key functions: **HappyNote:** Makes verbal compliments visible and valuable. Users can give them, see compliments given to other friends, and share their own received compliments. **HappyLaff:** Recorded laughter is a powerful catalyst to remembering and enjoying moments. Users can select the best 30 seconds from their own or others’ recordings. **HappySearch:** Users can find celebrities’ or others’ happy moments based on users’ locations. They can also create stories.

Based on previous considerations, AM+A prepared initial designs of selected screens.

## 7 Happiness Machine 1.0 Screen Designs



**Fig. 5-8.** The **Landing Screen** gives access to the main menu. The **swiped page** displays the five major modules. The **HappyNote** one receives is from people who care about or love the users. **Creating HappyNote** provide users with tools to write, check-in, and select shapes of Notes. **Select people and make a compliment:** By clicking the bubble “Make someone happy” one can choose a recipient.



**Fig. 9-12. Post it:** The HappyNote becomes an overlay appearing with the camera. Users can choose any background and/or add Smileys for posting a HappyNote. **Receiving HappyNote:** Users who get HappyNotes can collect them. Social networks help users get HappyNotes. **Full-size HappyNote:** Users can view larger versions of received HappyNotes. **HappyLaff:** Users capture best 30 seconds of laughing moments. **Select Smile:** Users can select three best smiles and filters to beautify smiles. Friends enjoy users' laughter videos by clicking smiles. Besides seeing who likes their videos, users could also listen to friends' secondary laughter.



**Fig. 13-16. HappySearch:** Users can discover happiness moments wherever they go. They, also, can create happiness moments and leave them for others to enjoy. **Search options:** HappySearch provides users with five options People, Specials, Little Things, Places, and Foods. **Happy people** Users can find an artist, a celebrity or a famous designer's joyful experiences that they have created based on the users' location. **Viewing:** Users can select specific happy memories.

## 8 Happiness Machine 2.0

### 8.1 Happiness Machine 2.0: Information Architecture and Use Scenario

In further analysis/design, the information architecture shows new modules/functions:

**Set Up:** Users will go through initial Set-Up page, which will require them to answer questions about their personal preferences for happiness.

**Happy Score:** Quantifies users’ happiness to give overview of happiness.

**Happy Points:** Earned after completing personalized tasks. Users can use points as virtual “digital cash” to purchase games and other items or for donations.

**Happy Tracker:** Dashboard visualizes users’ overall happiness and gives an overview of users’ objectives/goals and achievements of behavior change.

**Happy Journal:** Questions at top guide users what to write about, e.g., people met.

**Happy Tasks:** Lists activities for users to do, depending on preferences and interests.

**Happy Tips:** Provides focused, just-in-time, crowd-sourced, updated knowledge about topics related to the habits they wish to either remove or adopt.

**Social Network:** Users engage in focused, subject-matter-based connections with friends, family, and/or like-minded people who either share similar goals or wish to support others in achieving behavior-change objectives.

**Incentives:** Presents users with engaging ways to change their behavior, e.g., a leaderboard, to allow users to compare progress with others.

This is an example use scenario: Introduced by their friends, users download the application, learn its objectives, learn tasks to do to make them feel happier, see push notifications prompting them to practice customized activities as a part of their daily routine, and, before sleep, write in a journal, to reflect and to adopt changes. Sample screen designs follow.

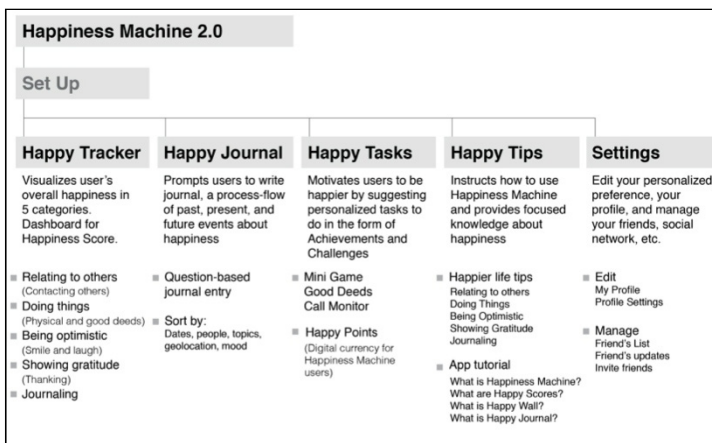


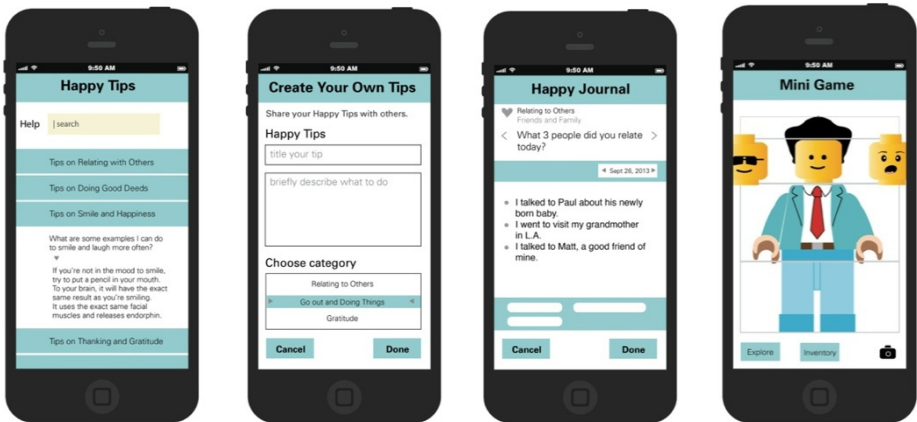
Fig. 17. Happiness Machine. 2.0 Information Architecture



## 8.2 Happiness Machine 2.0: Screen Designs



**Fig. 18-21. Landing Screen:** The Landing Screen expanded shows the five major functions with their detailed metrics within. **HappyTasks, Good Deeds, and Happy Call Monitor:** Happy Tasks allow users to find charitable activities or other good deeds and to track contacts with people for whom they have taken on responsibilities of communication and caring.



**Fig. 22-25. HappyTips:** Users can read/write tips. **HappyJournal:** Questions guide about what to write. **MiniGames:** Presents playful games, e.g., Lego® person.

### 8.3 Happiness Machine 2.0: Revised Visual Design



Fig. 26-33. Revised screens are more consistent with Apple iOS

## 9 Conclusions and Next Steps: Happiness Machine 3.0, 4.0, and 5.0

The Happiness Machine shows how to help users become happier. In October 2013, eight graduate design students at the Inst. of Design, Illinois Inst. of Tech. (IIT), Chicago, developed two new versions during the author’s one-week mobile user-experience design workshop. Similarly, in November 2013, 20 graduate students developed 4 solutions for China/India at the School of Design, Polytechnic Univ., Hong Kong. In December 2013, 30 Chinese professionals, faculty, and graduate students at the De Tao Academy, Shanghai, developed 8 Chinese solutions. AM+A plans to continue development of other functions and versions for other cultures.

**Acknowledgements.** At AM+A, Designer/Analysts Yu-Hsien (Jonathan) Liu, Min Lee, and Kia Hwee Chew prepared text and images; Megan McQuade, Business-Development Assistant, edited the text. At the Univ of Calif./Berkeley Ext., International Diploma Program, Prof. Bob Stein and his graduate students (Khaled Aboelwafa, Fernanda Barbugiai, Alicia Cheng, Benitua Hung, Augustin Roggio, Meghana Panth, Cindy Suryadinata, and Basak Yolgecti) conducted market research, including surveys and interviews.

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