Pass It On

Lo-Fi Prototype

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Introduction

Pass It On is a mobile application that allows people to receive challenges that improve their everyday lives as well as those of the people around them. They can pass on challenges that they've completed to their friends, and create a chain of happiness that spreads virally and exponentially.

Our Mission Statement

PassItOn aims to harness the power of mobile to instill user positivity through daily challenges that are designed to increase gratitude and improve offline interactions.

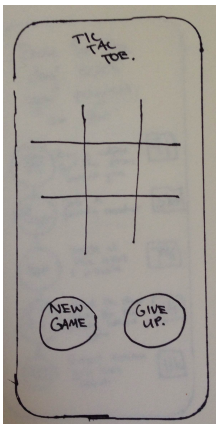

Figure 1
Primer

In order to accomplish our mission, we used low fidelity prototyping to evaluate the efficacy of our current design, to make sure that we really are increasing people's gratitude and instilling positive thoughts. We tested a paper prototype with three subjects, evaluated the results, and thought of improvements that enhance our app.

Paper Prototype

The prototype is entirely paper-based. As our final product will be a mobile app, interaction is primarily done via touch. The user operates the prototype much like a normal smartphone app, using previously-learned as well as new gestures, to navigate between screens. In other words, the prototype represents the flow a normal user would go through while actually using our app.

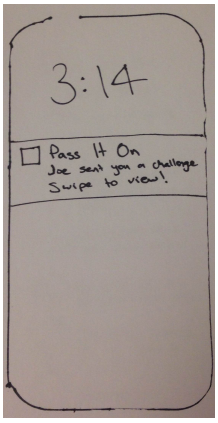

Figure 2
Notification

In order to ensure that users understood how to use this system, they were first presented a paper prototype that represented a simple tic-tac-toe game with touch-based controls (Figure 1).

The first screen represents the alert provided by their phone when they receive our notification (Figure 2). Since this functionality is provided by the phone's operating system, it was drawn to closely model that of an iOS device. Users would interact with this much like how they would on a real iOS device, by swiping to the right on the notification text to enter the app.

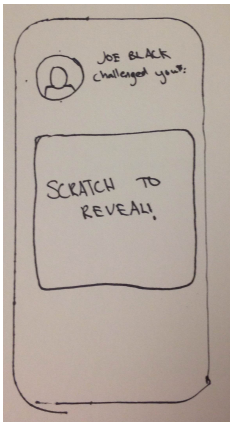

Figure 3
Reveal Challenge

The next screen they see represents the challenge that they have received from a friend (Figure 3). The rounded rectangle in the middle represents a scratch off sticker. Users interact with this user interface element by

rubbing their finger over the screen to reveal the content underneath. In terms of the paper prototype, the next screen was presented as soon as the user lifted their finger after moving it in a back-and-forth motion across the entire area.

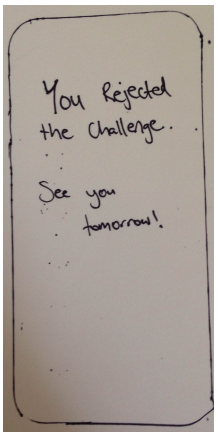

Figure 5
Reject Screen

After revealing the challenge, the user would see the details of how to perform that challenge, as well as two buttons (Figure 4). One would complete the challenge, while the other would reject it. Rejecting the challenge would lead to a screen informing the user to wait until tomorrow for another challenge.

Finishing a challenge presents the user with a screen that allows them to pass on the challenge they just completed onto one of their friends (Figure 6). The intended metaphor in this screen was that of a slingshot; users would pull back on the challenge icon, aim at a friend's picture, and release. This was simulated by placing an additional piece of paper over the screen, allowing the user to manipulate it, and simulating the shot by shifting it across the paper opposite the direction in which the user moved.

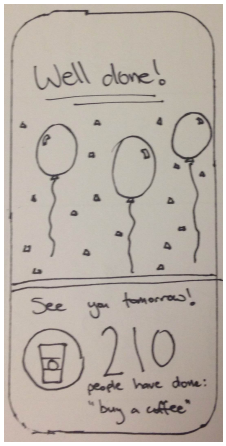

Figure 7
Congratulations

Successfully sending the challenge to a friend leads to a congratulatory screen (Figure 7), which automatically transitions after a touch or a few seconds of waiting to the next screen.

The final screen (Figure 8) informs the user of the most recent challenges they have completed, as well as how many people total have performed that particular challenge. This screen signifies the end of the prototype, and users were informed of that fact.

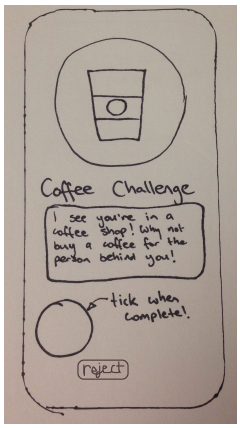

Figure 4
Challenge Details

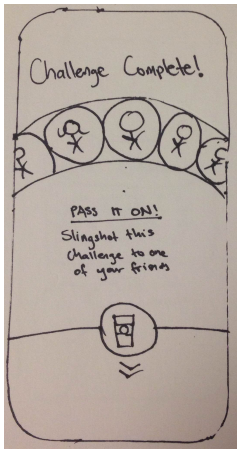

Figure 6
Slingshot

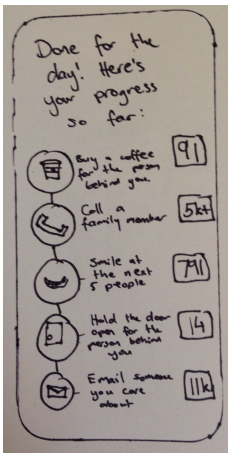

Figure 8
End Screen

Experimental Method

In order to obtain a diverse set of opinions, three participants were chosen. These participants were chosen from across campus, as our contextual analysis revealed that we would primarily target college campuses. Due to scheduling conflicts, not every team member could be present at each experiment, so some team members fulfilled multiple roles.

User 1 (Figure 9) was selected at random outside the Stanford Bookstore. She had her phone on a table, but was not actively engaged in any particular activity. We offered to buy her lunch in exchange for

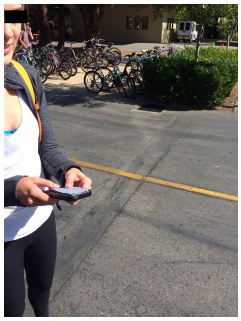

Figure 9
User 1

participating in this study. She declined the free lunch, but agreed to try out our prototype. The experiment was conducted outside the bookstore, and the tasks were completed in that general location. In this experiment, Haley played the role of facilitator, Alistair was the greeter and computer, and Thomas was the observer.

User 2 (Figure 10) was a housemate of one of the team members. He was tested at his fraternity house, at his desk where he normally does work. The tasks were completed around the house. Haley was the facilitator and observer, and Alistair was the greeter and computer.

Figure 10
User 2

User 3 (Figure 11) was a random individual in one of the team member's dorm. She was tested in her dorm room in the evening. Her task was to open the door for someone else, which she did at the stairwell of her hall floor. She did not accept any incentive offered, but requested that no pictures be taken of her face. Rebecca was the facilitator and computer, while Thomas was the greeter and observer.

The users were each given three tasks. In the order they were asked to perform them:

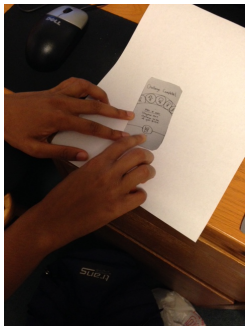

Figure 11
User 3

1. User receives a challenge that excites them and elevates their mood. They perform the challenge and mark it as "completed." (moderate)
2. User receives a challenge that they don't want to pursue, so they reject it. (simple)
3. User accomplishes a challenge that they think a friend might enjoy, so they pass challenge along to their friend. (complex)

The users were instructed of their task, but were otherwise not given any help. If they asked for directions, they were told to do whatever they felt was correct. The computer did not proceed onto the next screen until a valid action was made, or until the user made the same error twice (in which case, they were informed of the correct action).

The test measures collected consisted of both subjective and objective data. The subjective measures were any statements of frustration or confusion, as well as the apparent emotions evoked as they performed the task. The objective measures were the amount of time spent on each task, and the number of errors they made, as well as if they ever went down the wrong path.

Results

All users expressed interest in the overall concept. They enjoyed actually performing the challenges, and felt happy after completing them. In addition, the scratch to reveal feature was universally understood and a particular point of delight. Users also liked that the challenges given were relevant to their current situation.

Two of the three users experienced issues with the slingshot element. User 1 attempted to tap the user avatars rather than manipulating the slingshot, while User 2 moved the slingshot icon toward the pictures in a drag-and-drop gesture, rather than a pull-and-release gesture. When the slingshot gesture was explained to them, User 2 expressed concern that they would miss their intended target. In addition, both users expressed concern that they were restricted to the users displayed and requested a search feature.

All users expressed a desire to be able to complete more than one task a day, or to exchange their given task with another. User 2 in particular was distressed that there was no time limit displayed, and was not sure if he had to immediately perform the challenge or not.

Finally, User 3 suggested that she would prefer a list of challenges available, rather than be required to perform a specific one. Similarly, User 1 stated that she would like a home screen of sorts, where she could have access to all the challenges sent to her.

Discussion

We have learned that people want to have more choice in which challenges they can do, and when they can do them. The one challenge a day system is too limiting, and users wanted to be able to swap challenges for another, to do multiple in a row, or to delay a challenge and do it later, instead of rejecting it outright. They also wanted to be able to send challenges to people not in their friend group, by search or a similar interface. A home screen would enable this functionality in a streamlined, easily accessible way.

People were confused at the slingshot interface. This may be because the paper prototype does not lend itself well to such an interaction, but we have decided on several changes. The slingshot should animate and be depicted in a manner that suggests the correct gesture. For example, an image of a finger dragging the slingshot down could play the first time a user encounters this element. Also, as the slingshot is dragged down, the target should be highlighted, to indicate which person will be selected when the slingshot is released.

Finally, different methods of selecting the recipient should be available. Search was a highly requested feature, as well as the ability to scroll the list. The selection UI should be forgiving as well; if a user taps on an icon, that should perform the same effect as shooting it, perhaps with an animation that suggests the proper gesture.

Since one user expressed discomfort at not having a visible deadline, adding an explicit cutoff may or may not alleviate that concern. That change requires more user testing to be certain of its benefits.

Though our experiment was conducted in authentic situations, and users actually performed their challenges, we cannot know if this is something that people will actually use in their daily lives without coercion. However, the feedback we received about the concept was positive, so it seems that people enjoy these kinds of challenges.

One user noted that the lack of a time limit made it unclear if there was one at all. Adding a time limit may prevent this kind of confusion, or it may cause further distress at having to meet a deadline. Further testing is needed to see which approach works best.

In conclusion, we have learned that users enjoy using Pass It On, but demand a less confusing interface and more flexibility in how they use the app.

Appendix

Script

Explain that this is a paper prototype experiment for a mobile application.
Explain that the user can act things out as if they were actually happening.
Tell them they need to sign a consent form, and use the example at link on handout
Demo the system by showing the testing task (tic-tac-toe screens). Speak out loud as you do it: "When I press this button, this new screen shows up." "I can tap and drag this 'X' into the right place".
Tell them it is now their turn to accomplish three tasks. "You will now complete three tasks. I will describe the task to you, and I want you to try to accomplish it using our paper prototype. Please say what you're thinking out loud as you do it. We want to know your thought process as you interact with our application. Feel free to act out anything that is requested of you by the application."
Start task 1: "You will now receive a challenge that excites you and makes you happy. Please accomplish the challenge and mark it as 'completed'."
Start task 2: "You will receive a challenge that you don't want to pursue, so please reject it."
Start task 3: "You will have accomplished a challenge that you think a friend might enjoy, so pass this challenge along to your friend."

Consent Form

This application is being produced as part of the coursework for Computer Science course CS 147 at Stanford University. Participants in experimental evaluation of the application provide data that is used to evaluate and modify the interface of Pass It On. Data will be collected by interview, observation and questionnaire.

Participation in this experiment is voluntary. Participants may withdraw themselves and their data at any time without fear of consequences. Concerns about the experiment may be discussed with the researchers (Haley Sayres, Alistair Inglis, Thomas Zhao, Rebecca Wang) or with Professor James Landay, the instructor of CS 147:

James A. Landay
CS Department
Stanford University
650-498-8215
landay at cs.stanford.edu

Participant anonymity will be provided by the separate storage of names from data. Data will only be identified by participant number. No identifying information about the participants

will be available to anyone except the student researchers and their supervisors/teaching staff.

I hereby acknowledge that I have been given an opportunity to ask questions about the nature of the experiment and my participation in it. I give my consent to have data collected on my behavior and opinions in relation to the Pass It On experiment. I also give permission for images/video of me using the application to be used in presentations or publications as long as I am not personally identifiable in the images/video. I understand I may withdraw my permission at any time.

Name _____

Participant Number _____

Date _____

Signature_____

Witness name _____

Witness signature_____

Quantative Data

	# of errors	Time spent on Task 1	Time spent on Task 2	Time spent on Task 3
User 1	2 (on slingshot)	3 min	45 sec	5 min
User 2	2 (on slingshot)	3.5 min	1 min	8 min
User 3	None	3 min	30 sec	4 min

Notes

User 1

After rejecting a challenge, user wanted to be able to try a different challenge, but was instead told to wait a day.

User was confused with the slingshot, especially since the paper prototype is hard to model how it would actually work .

User didn't like how they were restricted to one challenge a day.

User wanted a home screen with easy access to manage their challenges.

User did not understand the numbers next to each completed challenge to mean the number of people who have completed the challenge.

Task 1: Only took a few seconds to open challenge. Immediately knew to scratch to reveal the challenge. The challenge, "smile at a stranger," only took them about 30 seconds to complete. The stranger smiled and waved back, a little uncomfortably but still laughed while he did it. Overall mood was positive. User had no problem ticking challenge off when completed. When finished she asked, "That's all?", in a way suggesting that she wanted to do another challenge.

Task 2: Only took a few seconds to open challenge. Knew how to scratch to reveal the challenge (especially since they had just done it in the last task). Found the reject button immediately. Ended on reject screen. Asked if they could immediately start a different challenge, but the screen said they had to wait a day.

Task 3: Took the same amount of time as previous tasks to open and reveal the challenges. This time, the challenge was "buy coffee for the person behind you," and was acted out. It took about a minute to act it out, but the delay was only because the user did not really know how in depth they should act out the scenario. The lag time did, however, reinforce the concept that the task needs to be relevant to the user's environment. Ther was a slight pause at the slingshot screen, and she tapped the name of the user rather than actually manipulating the slingshot. She also asked if they could scroll through a list of friends, but she restricted to the ones on the screen. She was a little confused how to make sure that they slingshotted the challenge to the friend they intended to.

User 2

Scratch screen: "Oooh I like this scratchy thing"

"Wait, how do I click next after I scratch it?" (this comment shouldn't be an issue because it will automatically change after X% is scratched off in the final version)

Challenge screen:

"Oh, do I have to do it (the challenge) now?"

"How long do I have to complete it?"

"Wait, how do I say, 'Yes…but later'"

"Can I do a different challenge?"

Slingshot screen:

User understood the concept immediately, but pushed the slingshot instead of pulling it.

User asked if he could search through his friends or was restricted to the ones on the screen

Task 1: User was really excited to see the scratchy thing. He understood how to use it immediately and it took about 5 seconds of pretend scratching before it appeared that he had revealed the entire challenge. User stalled for a bit then asked how long he had to complete it and if he needed to do it now. User took about 1 minute to contemplate challenge: "remind a family member you love them". User took about 20 seconds to send a text to his sister saying, "hey kelly. I hope you're having a good day in school! xoxo" He marked the challenge as complete, and correctly pressed the button to do so.

Task 2: User took a couple seconds to reveal challenge, and immediately clicked the reject button. User then was taken to rejection screen, where he asked "can I do a different challenge instead?"

Task 3: User was much quicker opening the challenge, and scratching to reveal. The task, smile at a stranger, was actually hard to do because he knew everyone in the house. He had to leave the house to find a stranger to smile at. This took about 3 minutes looking around the house for a stranger, then 2 minutes finding a stranger outside the house. The user struggled a little with the slingshot, pushing it instead of pulling it. He asked if he could search through his friends or was restricted to the ones on the screen. User asked what the numbers were next to final page showing challenges he had completed.

User 3

Overall found the interface to be very usable and she really liked the idea ("it's really cute!"). Would prefer to have options of different tasks she could do - for example, she was more willing to open the door for the next person; she might be in a hurry when she gets a task like buying coffee for someone and would want another option later.

Task 1: Found the scratch feature to be very exciting, she commented that it was like popping bubbles in bubble wrap, ended up taking ~5 seconds on this screen because she was contemplating the most fun way to scratch it, and wanted to make sure to scratch the whole screen. Wondered out loud how the app knew that she was in a coffee shop.

Task 2: Automatically rejected the task ~0.5 seconds. Was glad that rejecting the challenge did not have a very negative feedback screen

Task 3: Opening door task took about a minute (after finding someone that came along). Had no trouble with the slingshot screen because of the two downward arrows, she tried experimenting slingshotting the task at different angles (about 3 seconds). Had some questions about particular details - wasn't sure if list of people she could slingshot to included anonymous people, whether tasks would happen only if you got one from a friend or if you had a daily automated one, whether she could start her own. Really liked the list of

tasks that have already been completed (last screen) - she tried swiping it downward to see more of the past history.