Dazzle by DASL – Low Fidelity Prototype Testing

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Introduction

"Declutter your Mind!"

Creativity is difficult to foster and creative blocks are frustrating to overcome. Such roadblocks can occur both when working alone or in a group. We believe that we can provide resources and exercises as outlets for your intrinsic ingenuity.

Our implementation will provide activities and exercises in various forms that include drawing, speaking and typing. In doing so, we aim to help users overcome creative blocks for tasks that include breaking the ice in the room, promoting a structured productive break, and providing the opportunity to crowdsource ideas.

Sketches
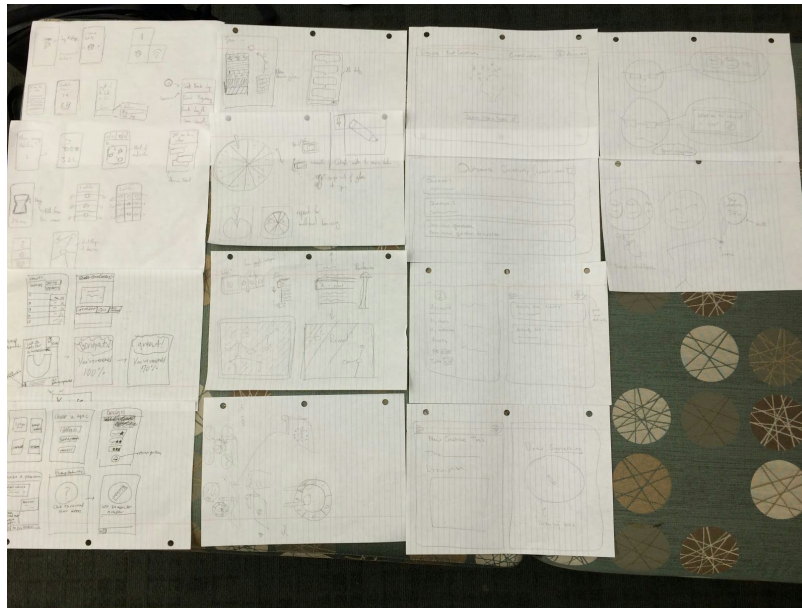
(Overview of the 15 - 20 quick sketches we made of UI components across various interfaces that include Web, Mobile, Tablet, and Wearable/VR. We took a drastically different approach for each of the devices, and emphasized how users would interact with the UI components and transition between screens.)
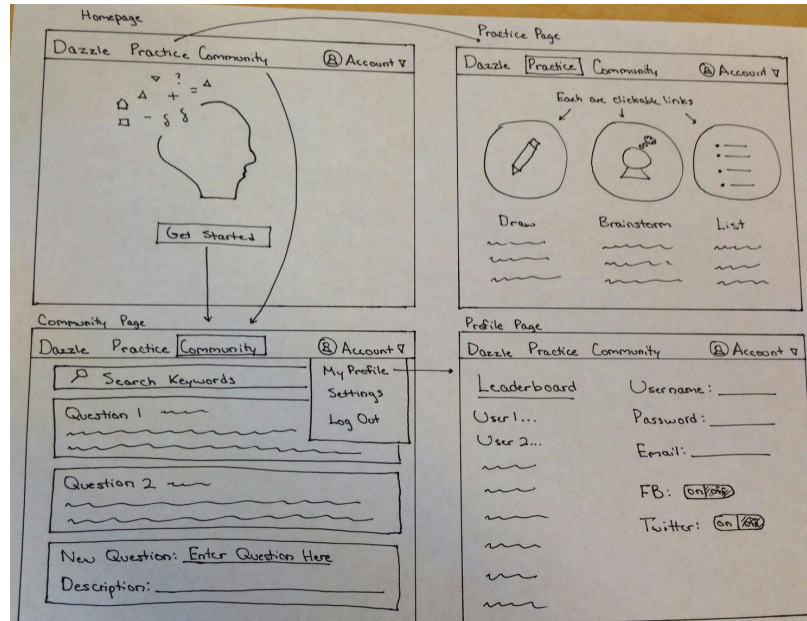
(Storyboard for web design. Shows the task where users can search for creative questions or ask their own. Users can also access and edit their profile and select among the three possible tasks that we will offer.)
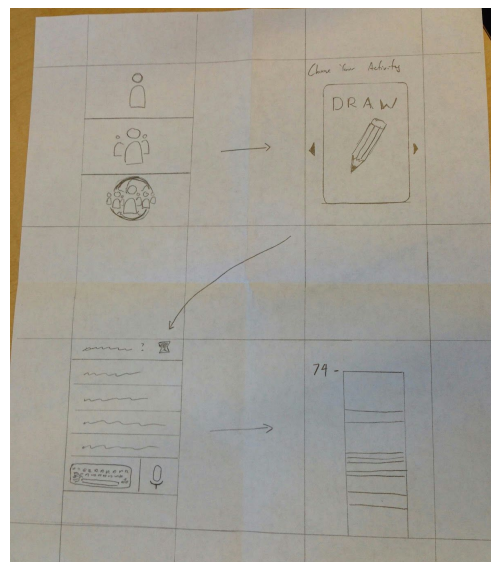
(Storyboard for mobile design. This storyboard specifically shows the task where users are asked to draw as a creative exercise. The screens direct the user to an area where they can draw and later receive feedback.)

Selected Interface Design

Task 1: Icebreaker for Groups
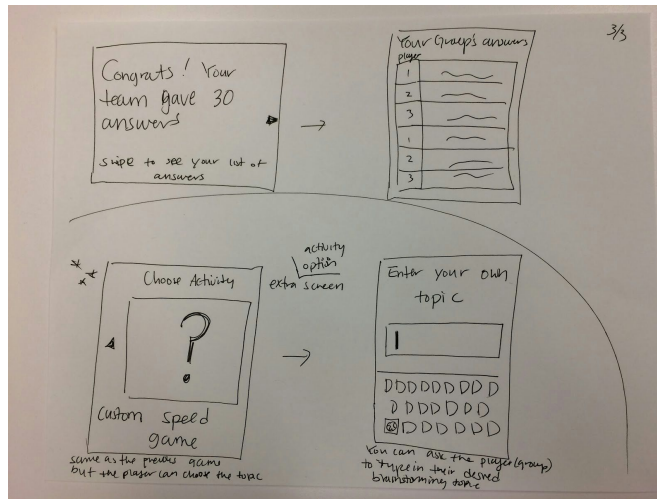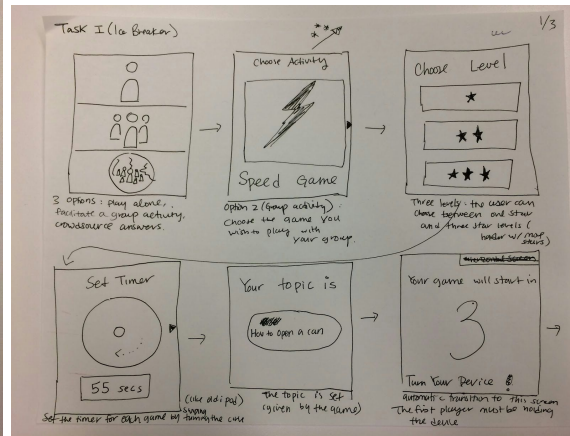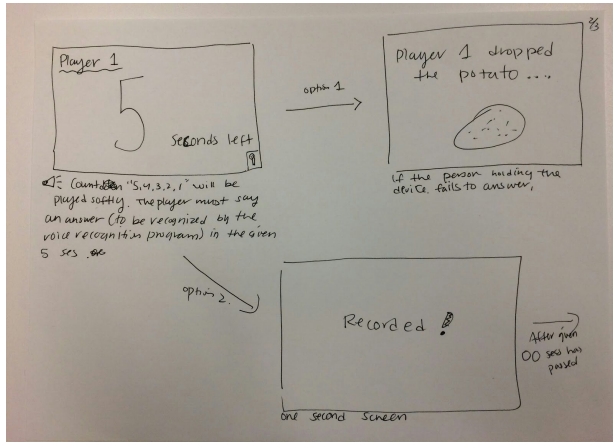
(Interface for ice-breaking within groups.)

Task 2: Foster a productive break to ease back to work/creative thinking

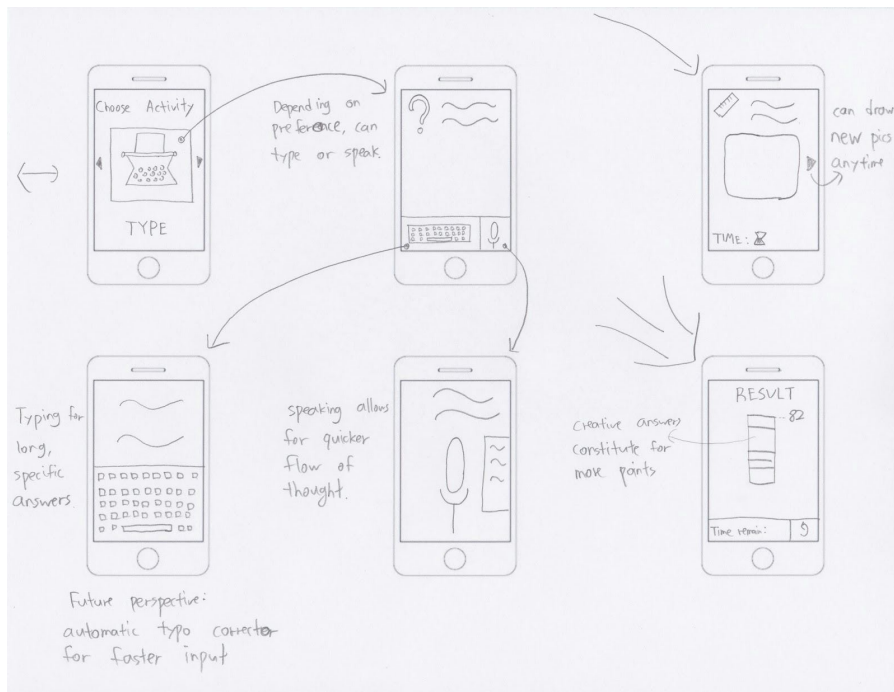Target

Purpose (example)

individual

group

crowd-sourcing

break   break

ice breaker/ brainstorm

brainstorm/ ask

Hot-rated topics/ questions

or

all topics

allows user to choose for how long to use the app.

choose your activity:
① Type
② Speak
③ Draw

purpose: keeping the app as- a creative "break"

Depending on preference, can type or speak

can draw new pics anytime

Typing for long, specific answers

speaking allows for quicker flow of thought.

Creative answers constitute for more points

Future perspective: automatic typo corrector for faster input

(Fostering a productive break.)

Task 3: Crowdsource creative answers to an open-ended question
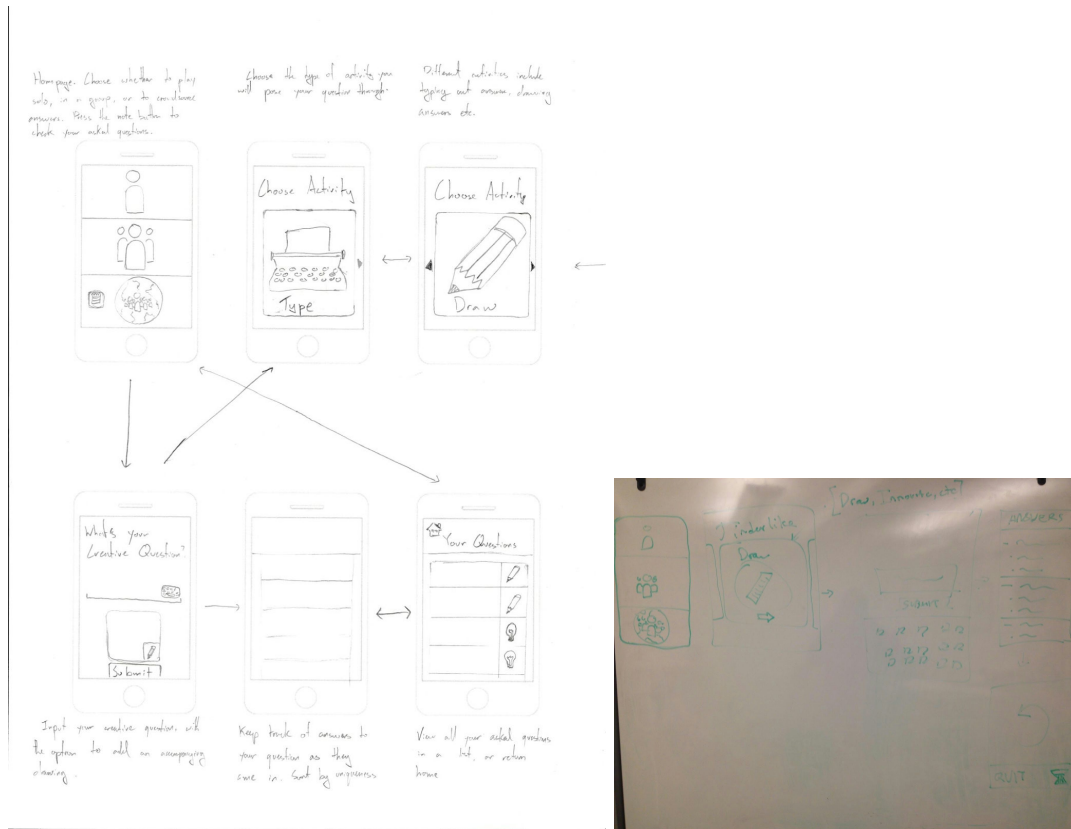
(Outsourcing creative answers.)

Reasoning for Selection

We selected the above interface design because we wanted an interface suitable for a mobile device. The whole spirit of the application is that it will be able to provide creative breaks on a whim, whenever a user requires it. A mobile app supports this spontaneity.

A huge factor is our app's ability to compete with other, potentially more immediately rewarding, types of breaks, such as browsing Facebook or Instagram on your phone. Past test users have said that they enjoy the app as a substitute for a less productive break. Introducing a barrier of having to access the app through a browser on a laptop will disincentivize users from choosing Dazzle over convenient time-wasters available on their mobile devices.

The form factor of mobile devices are also very necessary. A number of activities that our product fosters requires mobility. For instance, the group activity

requires the device to be passed around among group members. Touch screens, too, are required to allow users to draw, an integral game mode that we plan to include in our app.

Mobility aside, this design is superior to our other design in that it is simple and straightforward. Each screen gives minimal instructions and most of the transitions require a simple swipe left/right as indicated by the small arrows.

Functionality Table

Task	Description
Selecting parameters for the creative break	Values are adjusted via graphical interactions such as sliders and wheels
Inputting answers to creative question	Answers can be inputted through typing, drawing, or a voice recording through the on screen keyboard, the touch screen, and the microphone
Asking a creative question	Questions can be asked through typing and drawing
Choosing the type of activity to play	Swiping left or right to move between activity screens
Viewing a list of answers	Swiping up or down to scroll through the list

Prototype
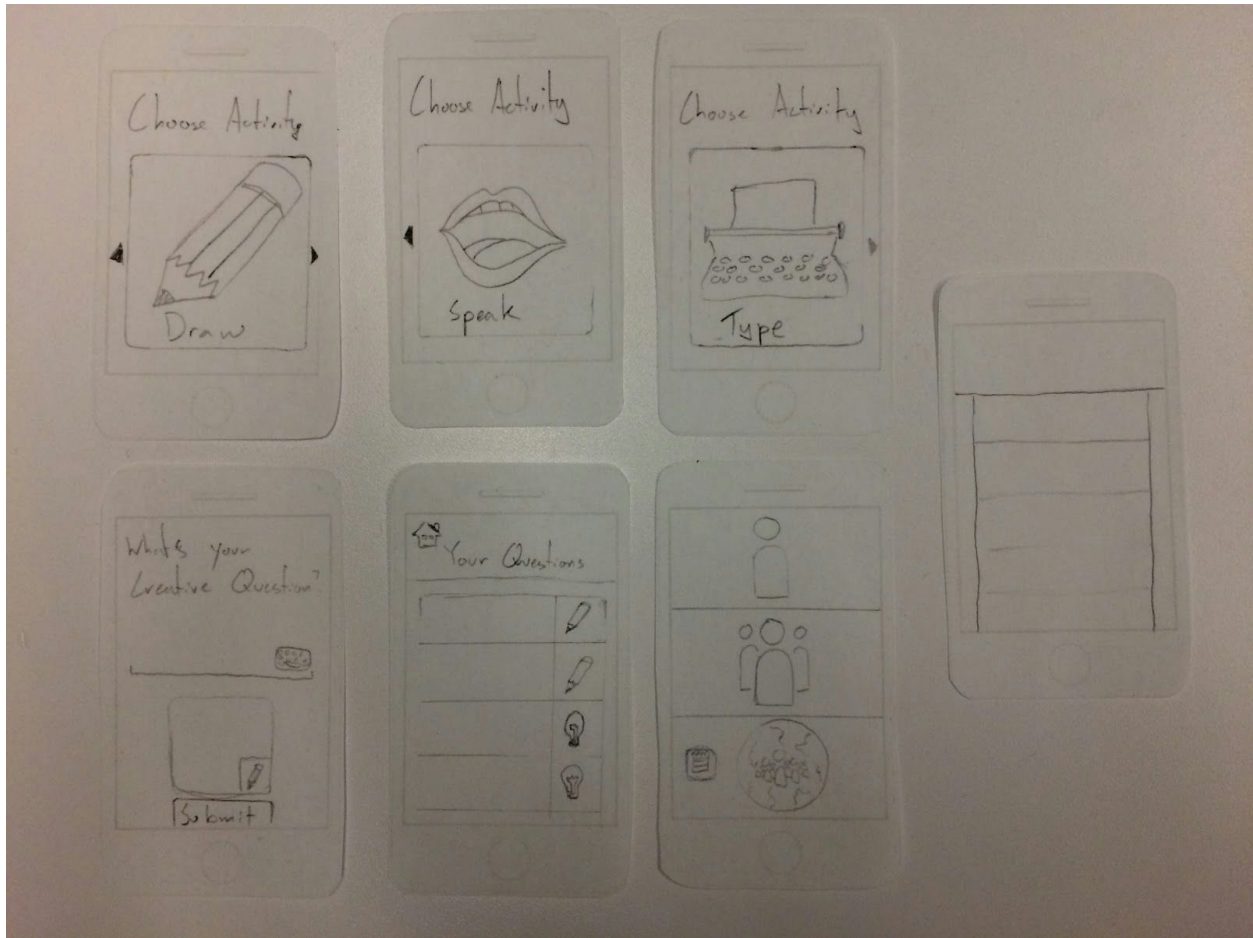
(Appendix 3-a. More Prototypes)

We designed our prototype around the three tasks mentioned earlier. We used paper cutouts around the same size of an iPhone screen to simulate the interface, and had users tap the paper as if it were a touchscreen, then swaped a different paper cutout in appropriately. When user input was required, we had transparent overlays and smaller pieces of paper for users to write on.

Our home page allows the user to pick between three options demonstrated with symbols: a single figure representing the "individual" option, a small group representing the "group" option, and a large crowd in front of a globe representing the "crowdsource" option. Both the individual and group options can foster a creative break. The group option facilitates the ice breaker task. The last option, crowdsourcing, is used for the crowdsourcing task.

From the starting page, clicking on the individual or group option takes the user to a "choose activity" screen from which they can swipe between activities or tap the activity image to select. Next, a screen displaying two options, "Hot" questions and "Urgent" questions, is shown. "Hot" questions are questions known to be of a certain level of quality, while "Urgent" questions are just recent questions asked by other users. Next the user encounters a "Set a Timer" screen, in which dialing a circle will set the time limit of the activity - this is designed like the old iPod scroll wheel to enable intuitive user discovery.

Once past this setup, the activity will begin, in which users can submit answers to a creative question either by typing, drawing or speaking, depending on the type of activity chosen. If the user is playing a group activity, a timer will prompt the user to pass the device to answer quickly and pass the device to the next player, in a sort of "hot potato" fashion. When the activity's timer is up, the user is shown a list of all their answers, as well as their creativity score.

If the "crowdsource" option is selected from the starting page, then the user is shown a screen through which they can type their creative question, as well as draw an optional accompanying image. Next, they choose the activity their question will be presented through, through the same screens described in the "individual" and "group" options. They are then shown a screen displaying their question and a list of all answers given in response by other players, which is updated as more answers come in. From there they can navigate to a list of all the questions they have asked, and then back to the starting screen. The list of all the questions they have asked is accessible from the starting screen.

Method

1. Participants: demographics, how recruited/compensated

We recruited Jasmine, a senior majoring in Science Technology and Society who runs into creative blocks during writing, Aojia, a graduate focusing on designs in Computer Science, and Catherine, a sophomore having trouble working through the puzzles of CS103, to participate in prototype testing. All these participants had not been exposed to Dazzle before and were compensated by each team member with coffee, a promise of a returned favor, or friendship :)

2. Environment

We carried out all of our testing in the same environments we anticipated our final product to be used in - working environments. Hence, we carried out our testing on our subjects in study rooms or in their own bedrooms, wherever they prefer to study. Hence, the environment varied depending on each test subject, although all of them worked in a relatively cluttered environment, littered with notebooks, textbooks and laptops. We also made sure to test not only where our subjects studied, but also *when* they were studying, asking to prototype on them while they took a break from school work.

3. Tasks

The 3 tasks available to each user are as described in a previous section:

- Task 1: Icebreaker for Groups
- Task 2: Foster a productive break to ease back to work/creative thinking
- Task 3: Crowdsource creative answers to an open-ended question

4. Procedure

We begin by introducing the user to the purpose of the application, briefing them on the concepts of a creative break and crowdsourcing creativity, and telling them that the app enables these things. We then show ourselves interacting with the prototype, navigating aimlessly between screens, mostly just pressing buttons and swiping.

Alex took on the role of the computer, swapping out screens in response to user input. Lena was the facilitator, guiding the user along if they ever got stuck, and acknowledging their feedback. However, we wanted to run the participants through our interfaces with minimum vocal instructions from us. Unless the participant looked confused or asked questions, we would not interfere. Simon and Dan would help to record feedback, as well as participate in the event that the user chose the "group" option, which would then require multiple players.

After the test subject had finished completing a task and had decided that they are done, we then ask for general feedback.

5. Test Measures

Anything that sounds significant that is said by the test subjects is written down, as well as the context in which it is said, allowing us to later more qualitatively analyze their reactions.

Quantitatively, we observe the amount of time taken for each test subject to complete a subtask. If it is unusually high then it is a cause for concern - this will usually be coupled with feedback from the test user themselves. Additionally, we can keep track of how many questions the test subjects ask, which is proportional to the difficulty of using the interface. Lastly, we record how many rounds users choose to play. More rounds may indicate that the game is fun. Conversely, less rounds may indicate the effectiveness of using the app for just a short while.

Results

The screens leading up to the activity posed the biggest issues with our test subjects. The graphics used were not sufficient to convey the "individual", "group" and "crowdsource" options available. Additional challenges were presented in the "crowdsource" option, when choosing the type of activity. Catherine explicitly stated "that's kind of confusing" at this point in the process, not understanding whether she was choosing how she would input the question or how others would answer the question. By far, this was the screen users spent the most time on, and asked the most questions on.

Jasmine, upon starting the "group" option activity, let out a skeptical "hmmm". She later explained that she thought the app could be very enjoyable, but only if fostered well by the person holding the app.

The activities themselves were met with very positive results. Aojia laughed a lot at the questions, asking "Who comes up with these?". Catherine, upon viewing the drawings given back to her crowdsourcing question, exclaimed "These are so cute!". Users in general seemed intrigued and thoroughly engaged during the activities. In fact, when the user-set time restriction of 5 minutes passed and Jasmine had to "snap out of the creative break", she was sorry to see the screen go.

What was interesting was that each user seemed to gravitate towards a preferred activity. For example, Aojia enjoyed speaking his thoughts, although was slightly skeptical whether current technology could really catch every word he says. (Appendix 3-b. Log of Critical Incidents)

Discussion

Based on the reactions of our test subjects, it seems that the core of our app, the creative break, is both compelling and effective. All major issues that test subjects had with the app came from the flow of the set up getting into the activity. We were actually also looking to see if we could find suggestions for different types of questions and activities, but users were very content with what was given, and thus this testing did not reveal any further insights in this direction.

In trying to keep the app minimalist, we sacrificed explanatory text for aesthetics and simplicity, which made the app mode unclear, especially the starting page. Instead of having 3 icons, we may instead just have two buttons: "Answer" and "Ask". "Answer" will lead to individual and group options, while "Ask" will allow you to crowdsource answers. While this maintains the simplicity of before, it offers some explanation of what these buttons can do.

Other confusing pages, such as when choosing an activity in the "crowdsource" option, can be remedied through better headings. Instead of "Choose an Activity", which is what is shown to those answering questions, perhaps the heading can be "Choose how others will Answer your Question". Once again, we find a balance between simplicity and clarity.

In general, we will be looking to reduce confusion, either through more intuitive graphics or added explanatory text.

Some feedback given was more along the lines of added functionality. Catherine really enjoyed the drawn answers she received from crowdsourcing, emphasizing how much she liked them even after testing was over. It may be nice if users like her were able to save their favorite creative answers in some sort of gallery, but this will require further research. Aojia mentioned that it would be better if the questions could be more centered towards his interests, rather than randomly provided. He believed the activity would be more interesting if the users could set preferences as to what kind of questions they want to see, so this is definitely added functionality that we will be looking to explore.

Appendices

1. include all forms (consent forms, surveys, etc.) handed out to participants
- Consent Forms:

Consent Form

The "Dazzle" 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 "Dazzle". 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 (Dan Yu, Alex Wang, Simon Kim, Lena Hong), or with Professor James Landay, the instructor of CS 147:

> James A. Landay
> CS Department
> Stanford University
> 650-498-8215
> landay@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 "Dazzle" 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 — Jasmine Park
Participant Number — 1
Date — 10/21/2015
Signature — Jasmine
Witness Name — Lena Hong
Witness Signature — Lena Hong

Consent Form

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Name — Aojin Zhao
Participant Number — 2
Date — 10/21/15
Signature — Aojin
Witness Name — Simon Kim
Witness Signature — Simon Kim

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Name — Catherine Xu
Participant Number — 3
Date — 10-21-15
Signature — Catherine Xu
Witness Name — Alex Wang
Witness Signature — A Wang

- Survey Results

#1

Survey

Thank you for your time and interest! Your thoughts and opinion are really important to us!

It would be great if we could hear about what you thought about "Dazzle".
Please spare a few minutes to answer the following questions about your experience.

Following questions follow the Likert scale, where 5 means "Strongly Agree", 3 means "Neutral", and 1 means "Strongly Disagree".

Questions	5	4	3	2	1
I want to have Dazzle in my phone.	○				
I will use Dazzle in my study breaks.		○			
I will use Dazzle as icebreakers for group activities.	○				
I will ask Dazzle for answers when brainstorming.		○			
UI is clear to follow.		○			
Flow of structure is appropriate.	○				
There were enough ways to enter my answer.	○				
I liked the user experience.	○				
The given activities were intriguing and interesting.	○				
I liked to have Dazzle on the mobile platform.	○				
I would recommend Dazzle to my friends.	○				
I know where I need to go to find what I need in Dazzle.		○			
I believe Dazzle can still improve on.	○				
I like Dazzle.	○				

Thank you.

Team D A S L

#2

Survey

Thank you for your time and interest! Your thoughts and opinion are really important to us!

It would be great if we could hear about what you thought about "Dazzle".
Please spare a few minutes to answer the following questions about your experience.

Following questions follow the Likert scale, where 5 means "Strongly Agree", 3 means "Neutral", and 1 means "Strongly Disagree".

Questions	5	4	3	2	1
I want to have Dazzle in my phone.		✓			
I will use Dazzle in my study breaks.	✓				
I will use Dazzle as icebreakers for group activities.		✓			
I will ask Dazzle for answers when brainstorming.	✓				
UI is clear to follow.		✓			
Flow of structure is appropriate.		✓			
There were enough ways to enter my answer.	✓				
I liked the user experience.	✓				
The given activities were intriguing and interesting.			✓		
I liked to have Dazzle on the mobile platform.	✓				
I would recommend Dazzle to my friends.	✓				
I know where I need to go to find what I need in Dazzle.		✓			
I believe Dazzle can still improve on.	✓				
I like Dazzle.	✓				

Thank you.

Team D A S L

#3

Survey

Thank you for your time and interest! Your thoughts and opinion are really important to us!

It would be great if we could hear about what you thought about "Dazzle".
Please spare a few minutes to answer the following questions about your experience.

Following questions follow the Likert scale, where 5 means "Strongly Agree", 3 means "Neutral", and 1 means "Strongly Disagree".

| Questions	5	4	3	2	1
I want to have Dazzle in my phone.	✓				
I will use Dazzle in my study breaks.	✓				
I will use Dazzle as icebreakers for group activities.		✓			
I will ask Dazzle for answers when brainstorming.		✓			
UI is clear to follow.			✓		
Flow of structure is appropriate.			✓		
There were enough ways to enter my answer.	✓				
I liked the user experience.		✓			
The given activities were intriguing and interesting.	✓				
I liked to have Dazzle on the mobile platform.	✓				
I would recommend Dazzle to my friends.	✓				
I know where I need to go to find what I need in Dazzle.			✓		
I believe Dazzle can still improve on.	✓				
I like Dazzle.	✓				

Thank you.

Team D A S L

2. include raw data (cleaned up and readable)
    a.   Initial design of the storyboard
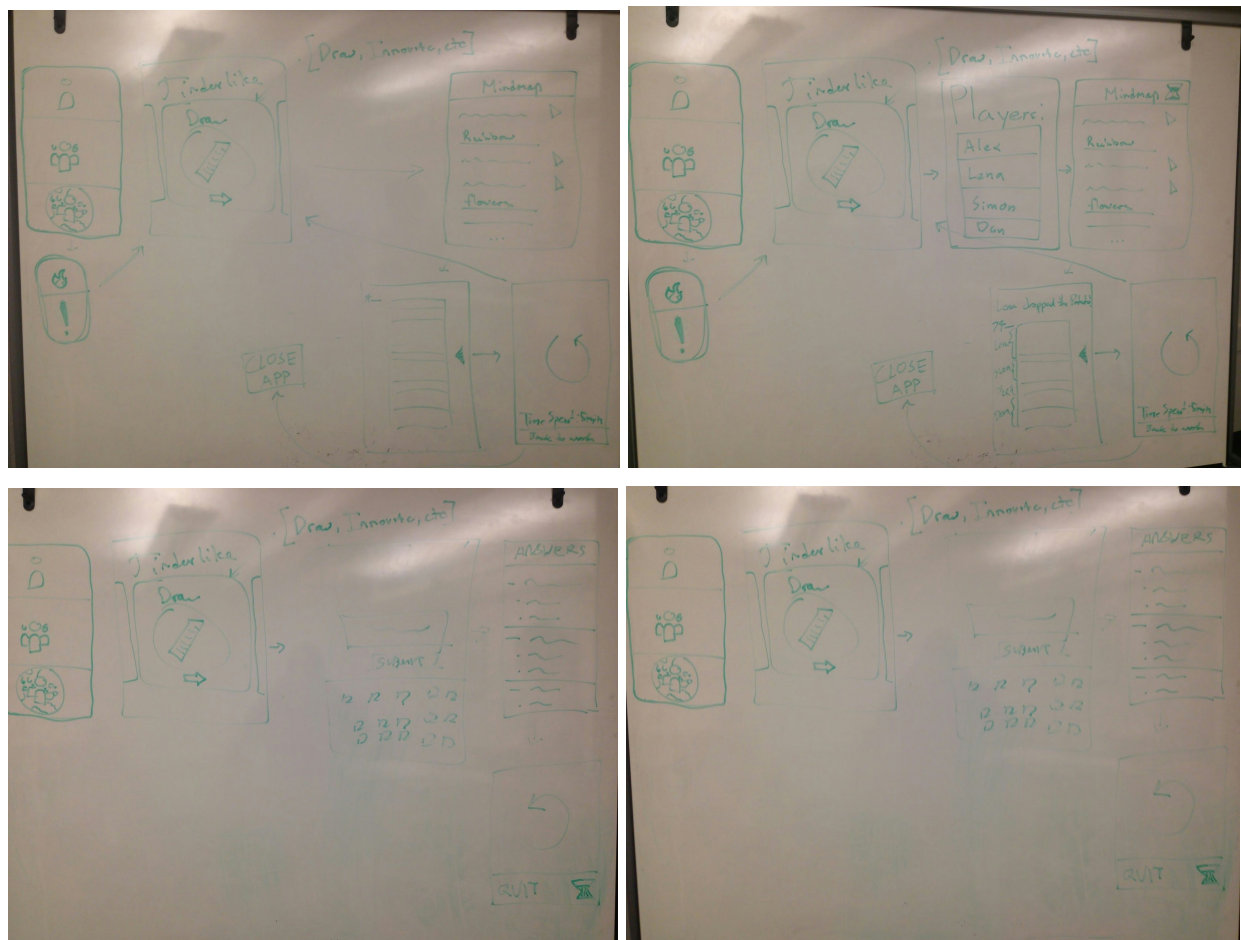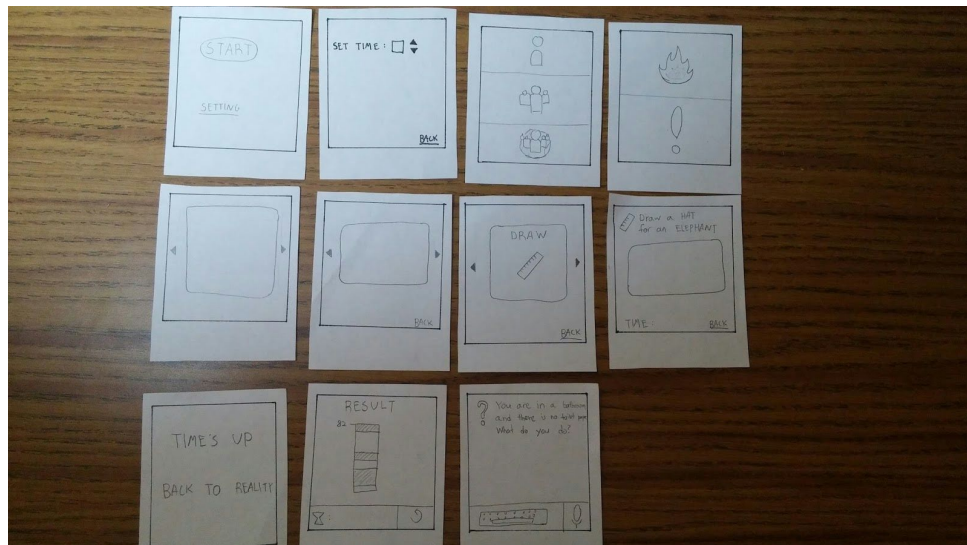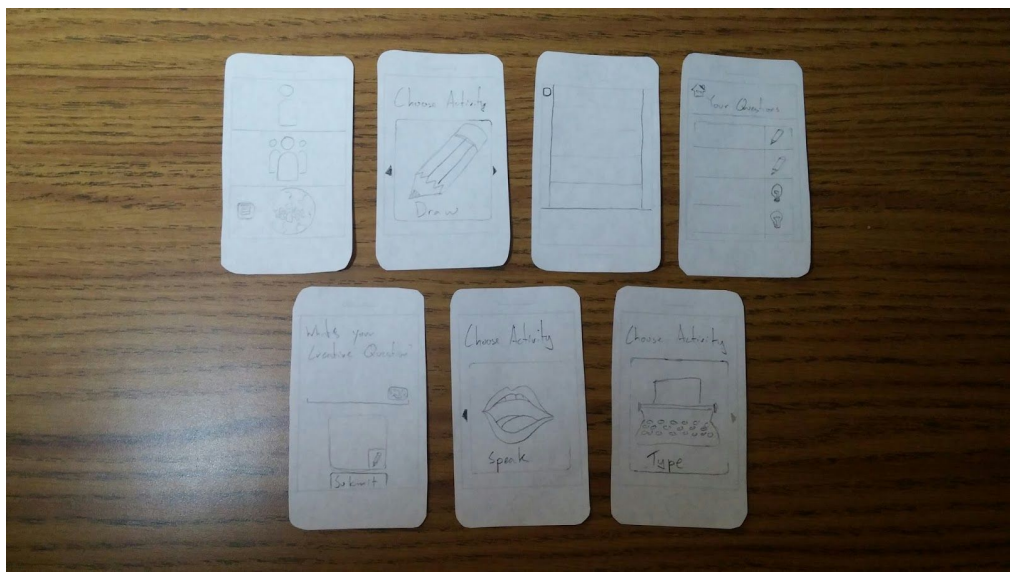
b. Prototype Testing
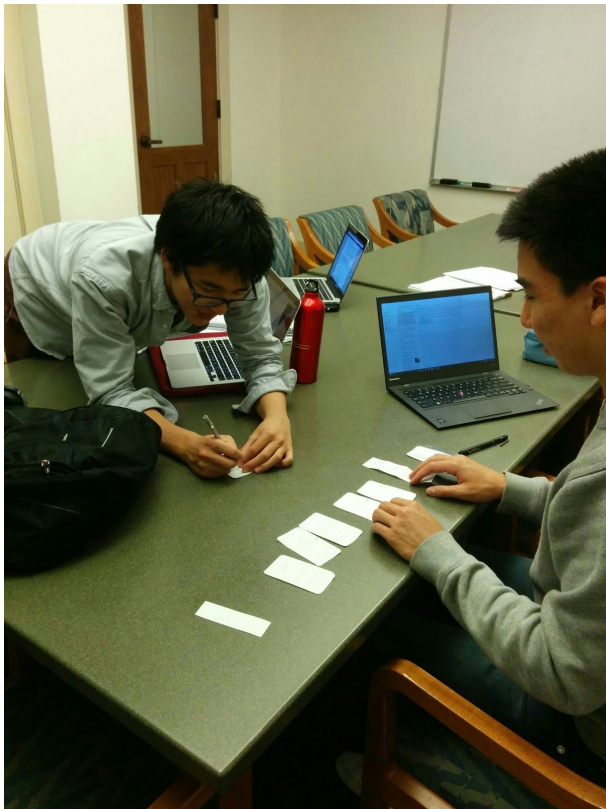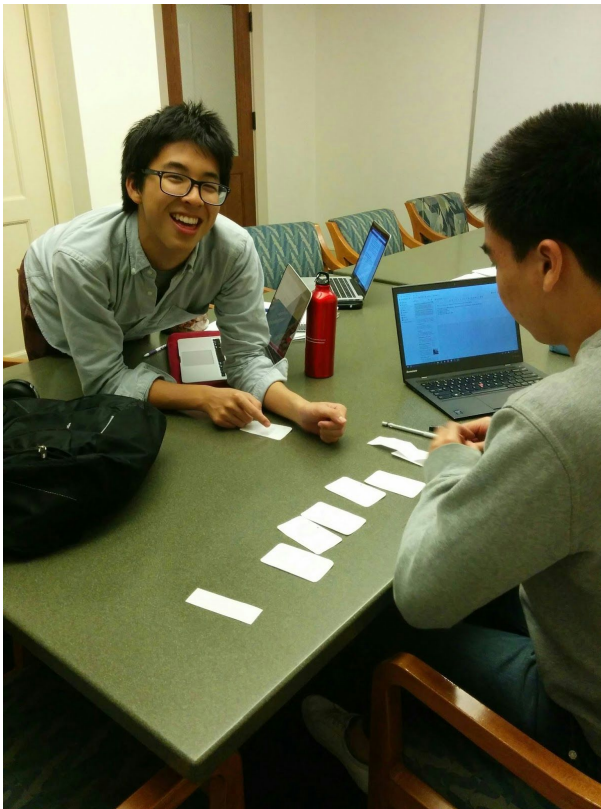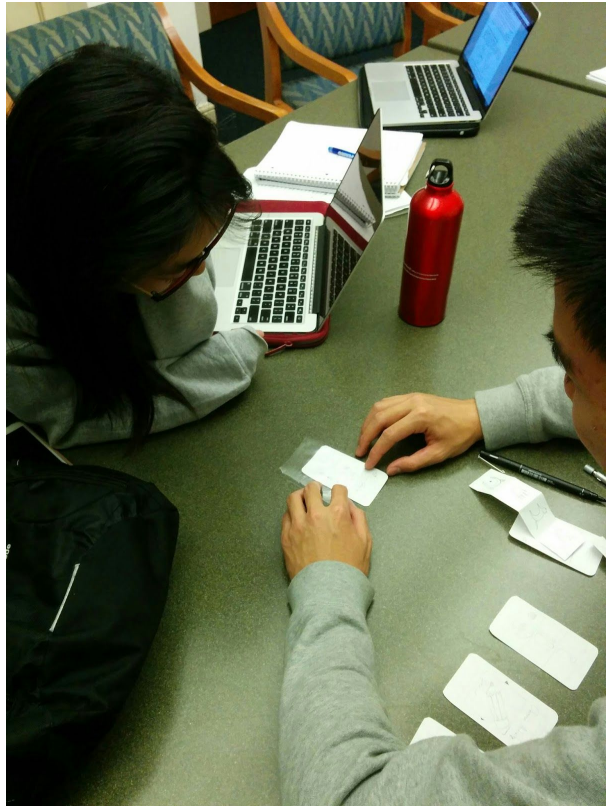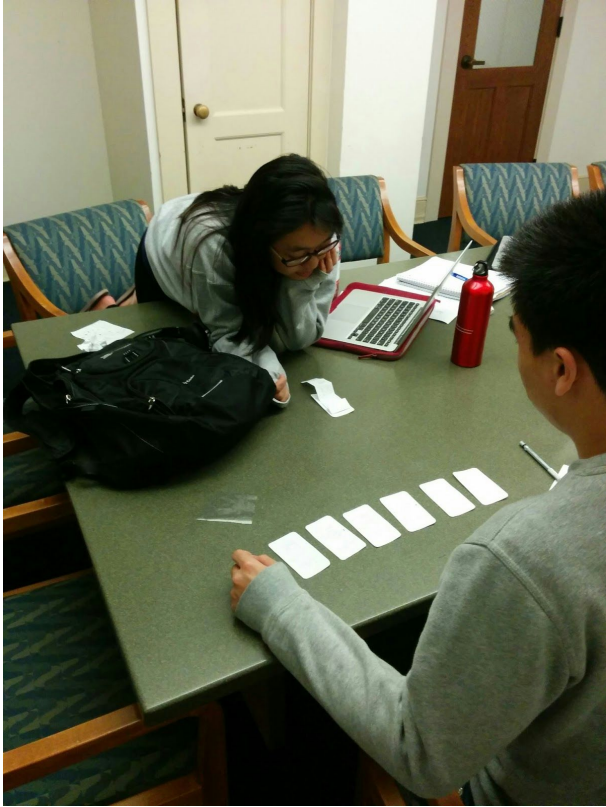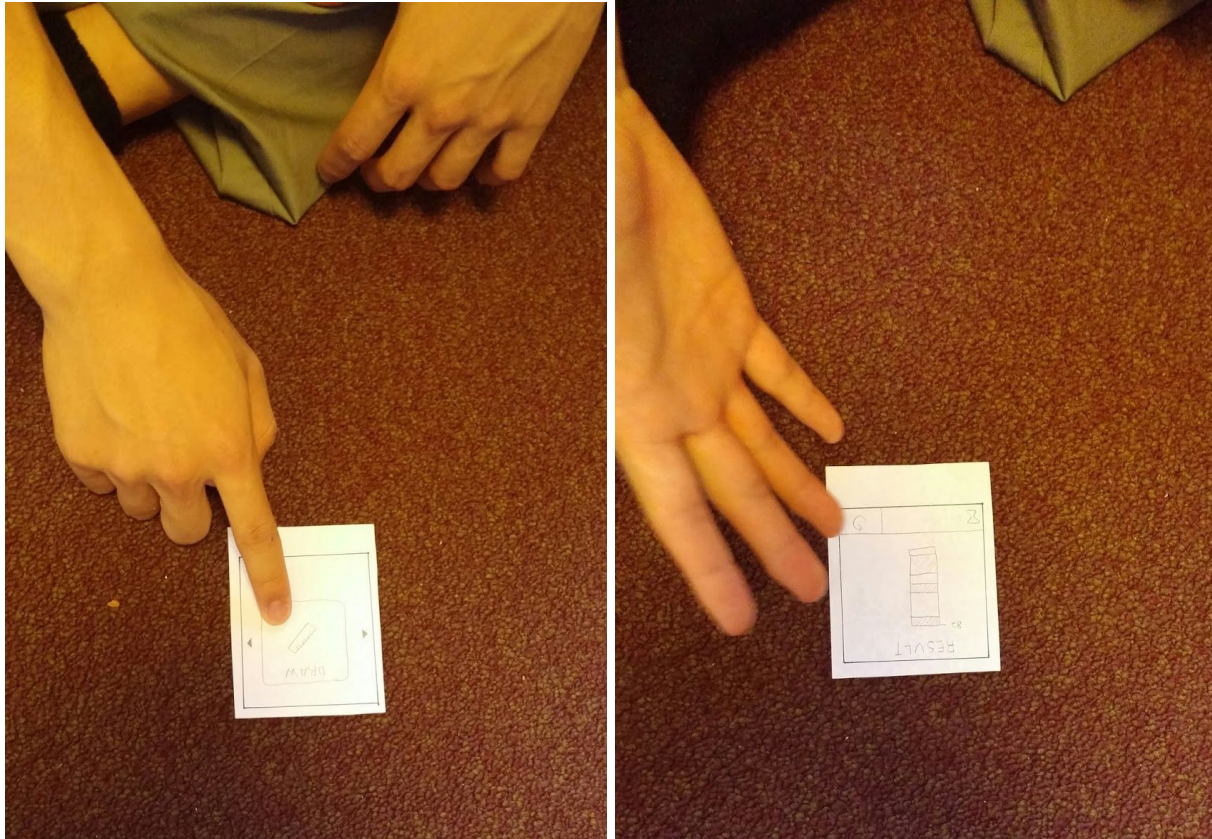
3. include any extra figures that don't fit in the body Hint: put images inline (i.e., where they belong in the text) along with a caption and figure number.
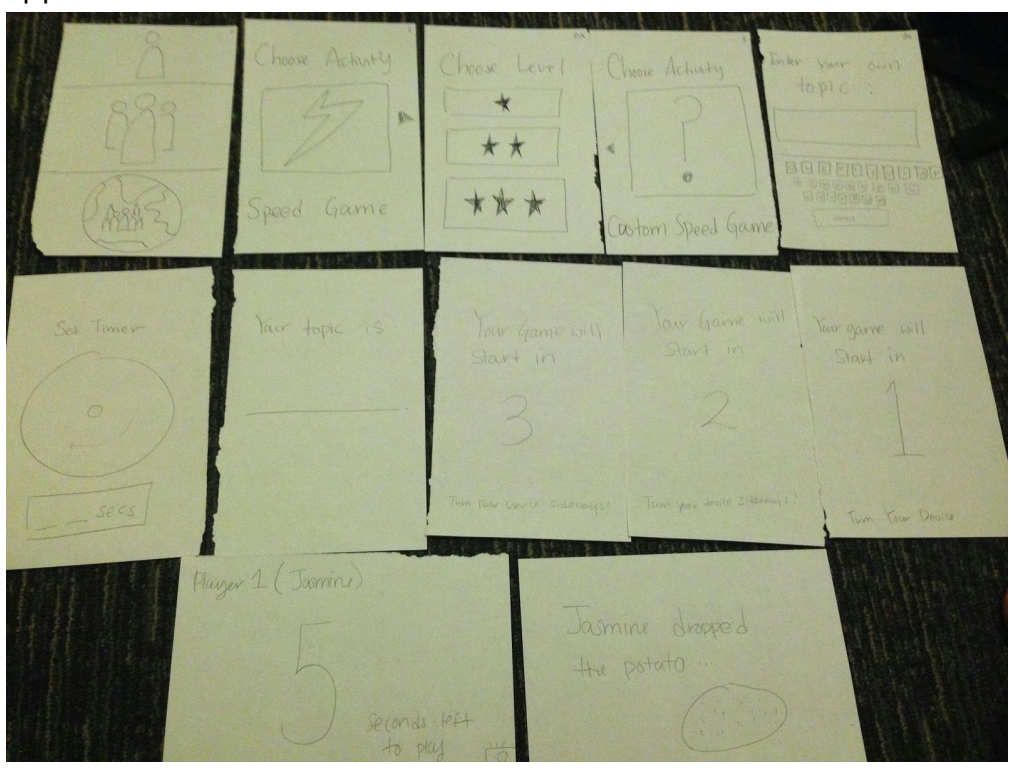   a. Prototypes used
      i. Appendix 3-a-1

ii. Appendix 3-a-2

iii. Appendix 3-a-3

b. Log of Critical Incidents

Participant	Critical Incident	Location	Reason	Rating
1	small "hmmm…"	Group activity option	Group activity may depend significantly on how the holder makes the activity enjoyable	1
	"aww…"	End of the prototype testing	Sorry to "close" the app after the user-set time of 5 minutes	0
2	slight laughter, "who comes up with these questions?"	Creative question	Amazed and intrigued by the questions	0
	slightly tilts his head, looks slightly skeptical	Voice recognition in answers	Slightly skeptical about the current voice recognition technology	1
3	"that's kind of confusing"	Crowdsource option	Process of deciding the input is confusing, longest time spent on this single screen	2
	"these are so cute!"	Drawing the answers	Amazed by drawing the answer	0

i. Actual log of critical incidents

Critical Incidents

Participant #1.

- "hmmn"
    at: group option activity.

    why?

        ↳ activity really depends on the
        group   holder to make it
        enjoyable

- "aww"
    at: end of 5 min

        ↳ sorry to see the app go
        after the user-set time

Critical Incidents

Participant #2.

- laughter
    at: looking at creative questions.
        "Who comes up with these?"

- answer in words
        ↳ slight skeptical
        reason? =) voice recognition
                    might not be good
                    enough.

Critical Incidents

Participant #3.

- "that's kinda confusing"
    at: crowdsource option.
    why? input process confusion
    time spent here ↑ → bottleneck

- "these are so cute!"
    at: drawing answers.