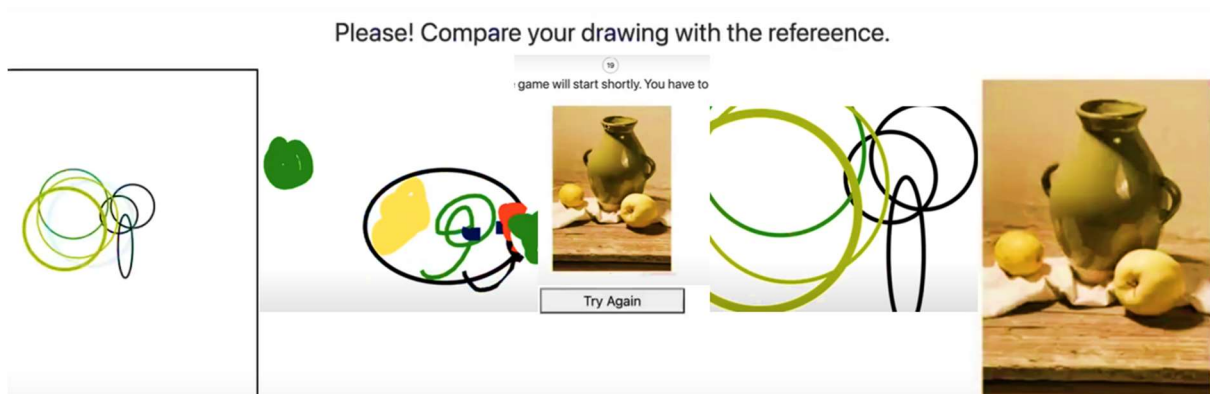


Project 2 Final Report

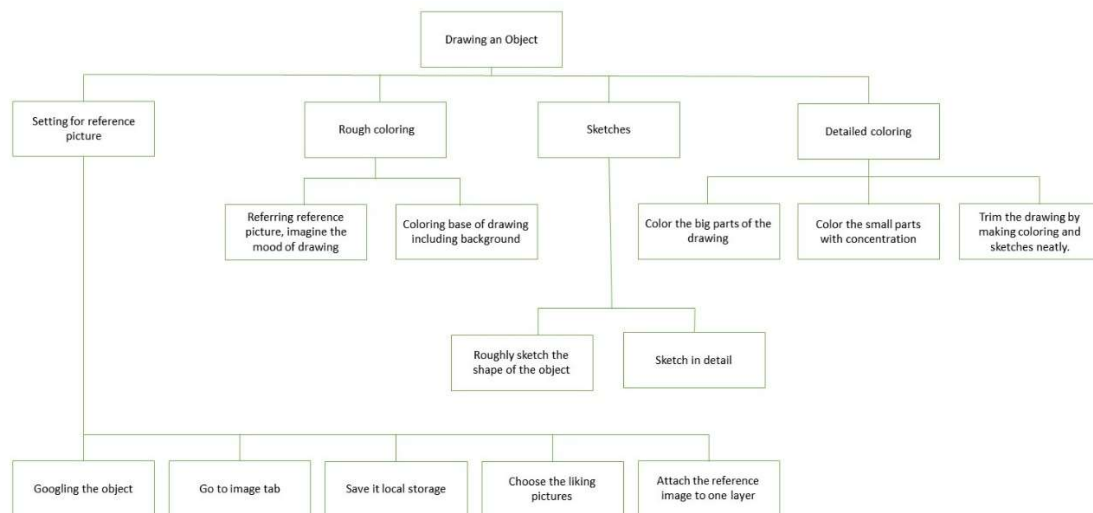
Inseon Hwang, Saifullah Jailani



This website is a canvas application of which the main function is "quick drawing" mode. In the mode of "Quick drawing", after a short analyzing the reference image, you can draw without the reference and compare the drawing and the original image. We give various colors, methods for drawing figures, change the thickness, and other elements for drawing.

2.1 - Hierarchical Task Analysis tree

2.2 - Observational Study Protocol



1 Hierarchical Task Analysis tree

2.2 - Observational Study Protocol

1. (1 min) Introduce yourself

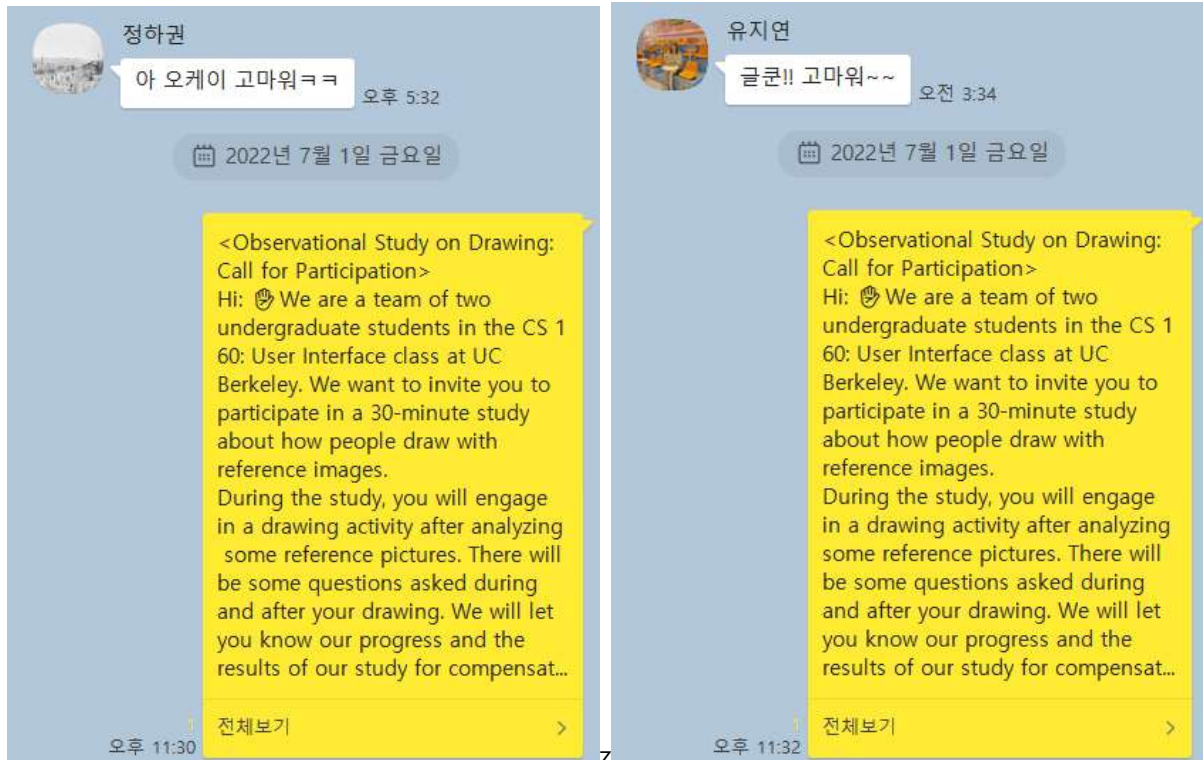
2. (1 min) Explain why this study is being conducted.
3. (1 min) Ask how proficient they consider themselves.
 - a. Ask about their experience with drawing.
 - b. Ask if they like comic books.
 - c. Ask if they like having a favorite superhero character.
4. (3 min) (Task) Ask them to draw the picture.
 - a. (1 min) (Task) Give them a reference picture and asked them to thoroughly analyze it.
 - b. (2 min) (Task) Take the picture from them and ask them to draw the picture.
 - i. (Question) How do they remember the reference picture? Which parts of the picture do they remember the most?
5. (3min) (Task) Ask them to draw a new picture.
 - a. (1 min) (Task) Give them a reference picture and asked them to thoroughly analyze it.
 - b. (2 min) (Task) Don't take the reference picture this time and ask them to draw it.
 - i. (Question) Do they memorize the picture or rely on the reference.
 - ii. (Observation) Observe how many times they look into the reference picture.
6. (1 min) (Question) Which drawing do you think looks better.

2.3 - Recruiting Message

Hi: 🙋 We are a team of two undergraduate students in the CS 160: User Interface class at UC Berkeley. We want to invite you to participate in a 30-minute study about how people draw with reference images.

During the study, you will engage in a drawing activity after analyzing some reference pictures. There will be some questions asked during and after your drawing. We will let you know our progress and the results of our study for compensation. 🙋

If you are interested in participating, please express your wish by replying or sending an email to inseon_ug@berkeley.edu. You will receive a zoom meeting link and further information after your response. 😊



2 Screenshot for sending the recruiting message

2.4 - Findings from the Observational Study

1. First Participant

- User description:

The first participant is a woman in her early twenties. She has experience of going art academy when she was young and likes drawing. But after graduating from elementary school, she does not have extra experience in the drawing except in the art classes in middle and high school.

- Rough transcript:

Q. Explain your experience with art or drawing

A. Like other people, I was going to an art academy when I was an elementary school student. But after graduating the elementary school I don't have a distinct or special experience with art. (With little shyness)

A. Do you like comic books? Or something similar like webtoons.

Q. Yes, I like webtoons. I like all genres of webtoons, but I prefer kinds of cute drawing styles, for example, the drawing style of "Love Revolution". (With a smile)

Q. What is your favorite superhero character?

A. I like Iron-man most. Because he invents something cool and amazing based on his scientific knowledge. That seems realistic to me. (Give them a reference picture and asked them to thoroughly analyze it for a minute)

(Asking to draw the picture without the reference picture)

Q. What can you remember for the reference picture? Can you describe it?

A. I can remember the apples and the pottery... and something like a tablecloth. But I cannot remember the colors.

(Give them a reference picture again and asked them to thoroughly analyze it for a minute. Then Asking drawing the picture with the reference picture)

Q. In this second drawing, did you draw mostly based on your memory or the reference picture?

A. As the reference picture is shown in front of me, I mostly referred to this reference picture when drawing...

(Observation) Observe how many times they investigate the reference picture: The participant saw 1 time in 2 seconds when drawing with the reference picture.

Q. Which drawing do you think looks better.?

A. I think the second picture looks better than the first one. Because

it is more like the reference picture. But the first drawing was funnier than the second because, in the first drawing, the process of remembering and imagining the reference picture which stimulates me to feel good!

2. Second Participant

- User Description

The user is a male in his late twenties. He does not have any experience in drawing. The user does not like comic books, rather prefers to watch superhero movies.

- Rough Transcript

Q Explain your experience with art or drawing.

A. Basic coloring and drawing in middle school. To be honest I don't enjoy drawing. I do draw some figures and shapes to better understand them, but I never liked drawing.

Q. Do you like comic books?

A. I like comic books and usually go through them if available, especially while waiting for my doctor's appointment, but it is not something I would consider I am addicted to like many other youngsters.

Q. What is your favorite superhero character?

A. Yes, I like the Dead Pool and spiderman. They are not the perfect superheroes. They make mistakes and try to improve themselves.

(Give them a reference picture and asked them to thoroughly analyze it for a minute) (Asking to draw the picture without the reference picture)

Q. What can you remember from the reference picture? Can you

describe it?

A. I remember a pot or maybe two and a couple of Apples in front of it on the table.

Q. What else do you remember.

A. I remember that there was a green pot, and yellow apples.

(Give them a reference picture again and asked them to thoroughly analyze it for a minute. Then Asking drawing the picture with the reference picture)

Q. In this second drawing, did you draw mostly based on your memory or the reference picture?

A. I remembered the reference picture. Just wanted to make sure I am on the right track.

(Observation) The user was looking after each stroke of the picture.

Moreover, I noticed that the number of times the user used erase has drastically increased. The quality of the lines decreased. The strokes are not smooth as in the first picture.

Q. Which drawing do you think looks better.?

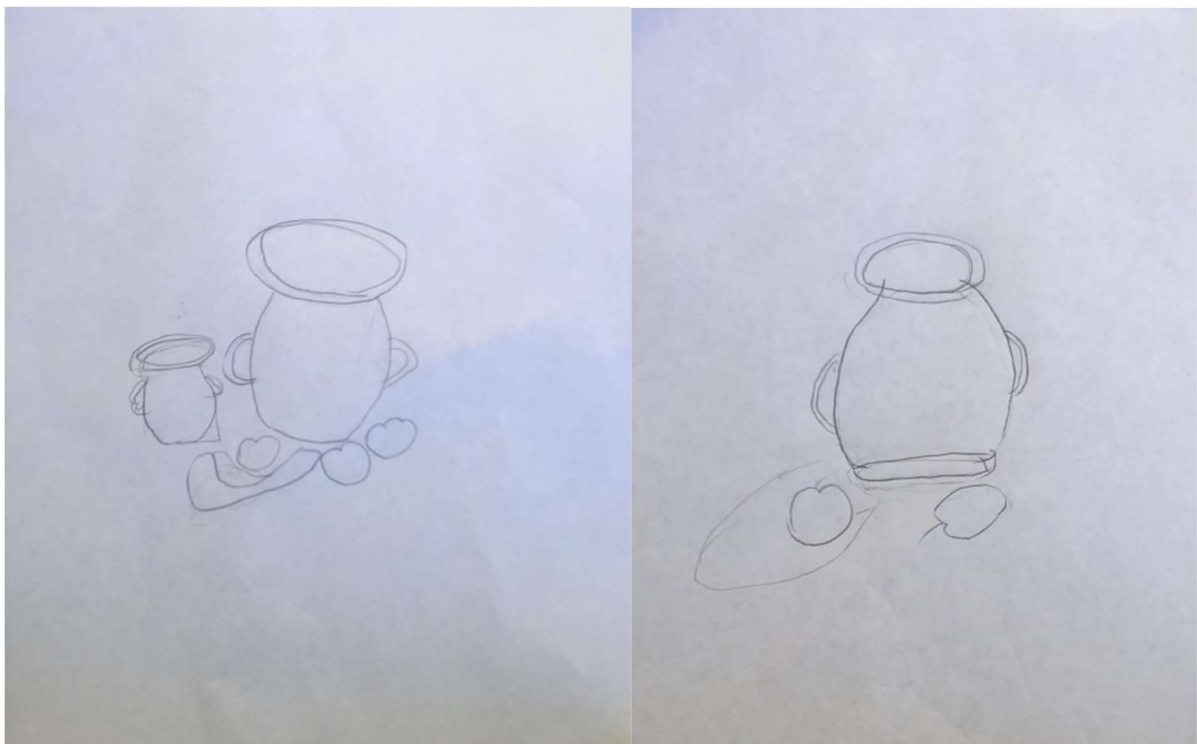
A. I think the first picture came out very good because I was only focused on the picture. Considering the limited time. The drawing from the memory option is very efficient. I liked the first drawing because it reflects my thoughts and feelings.

- Images of creative artifact

1. First Participant Images of Creative Artifacts



2 Second Participant Images of Creative Artifact



Findings From Observations

- 1) Users Enjoy Drawing from Memory**

It seems that the users could not remember all the details. However, it is interesting to know that both the participants liked the drawing from memory activity a lot. One of the participants said that drawing without a reference is more fun than drawing from a reference. They were very relaxed, therefore, the rate at which they used the eraser was a lot lower in this format.

2) Users Remember Different Parts of The Image

The second participant did not remember the count of each object in the reference picture. He was confused if there were one or two pots. Moreover, he got the count of apples wrong as well. There were two apples, and one pot in the reference picture. On the other hand, the first user remembered the counts of each object in the reference picture but did not remember the color.

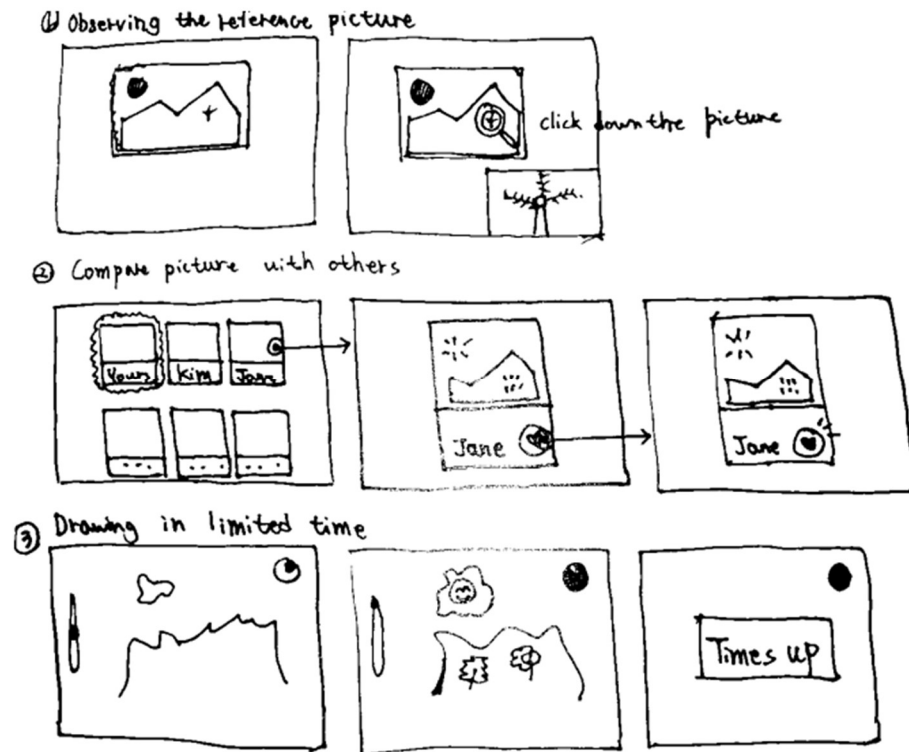
2.5 - Design Concept

Design Concept

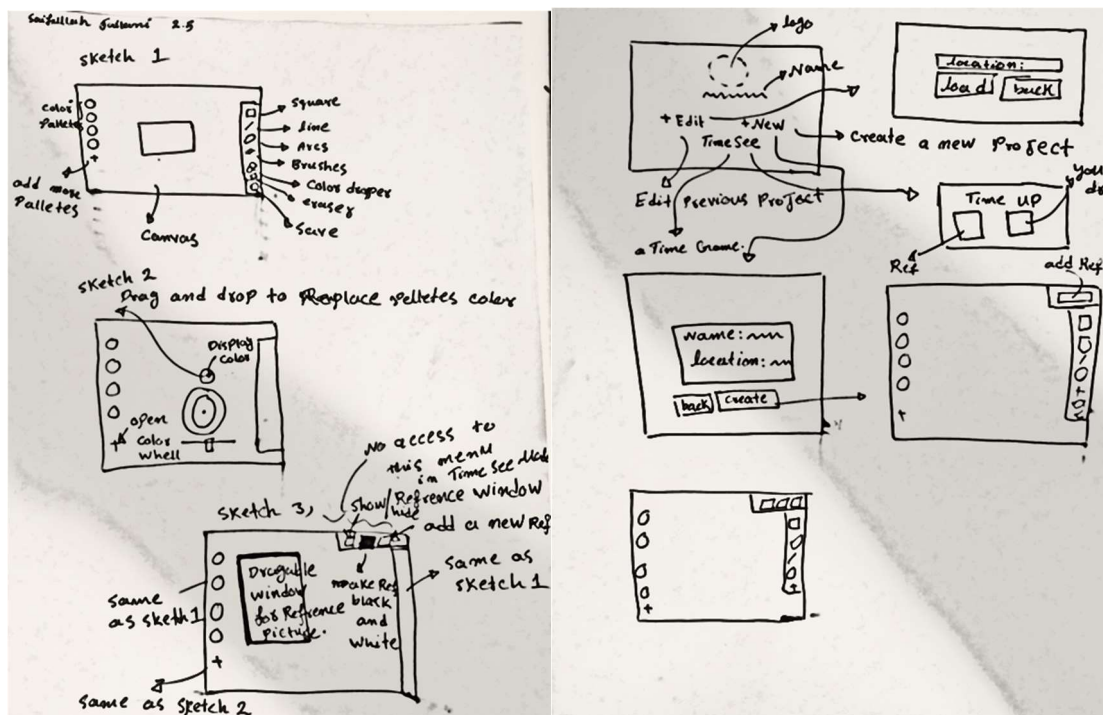
- The finding from the observation study which inspired the design is that the user should be allowed to choose if they want to sketch or play a game. In sketch mode users actively have access to a reference image in the main. Since we found in our finding that although drawing from memory is fun, the artist forgets the details. Primarily, we found in our findings that they forgot the count of the objects and the colors used in the reference picture. The second mode is for fun where the users will be given one minute to analyze a picture and then 3 minutes to draw. We found out in our studies that this was fun for the users.
- The goal is to build an application that allows the user to have the option if they want to see the reference picture or not. The reference picture will have two modes, first, the sketch mode will turn the reference picture into a black and white picture to make it easier for the user to observe the shapes. Second, the coloring mode will allow the user to see the colors as well. Moreover, the app will be able to save your work and work on it at a later time by loading it. Furthermore, the app will be able to draw primitive shapes such as polygons, arcs, ellipses, circles, and lines. The app will also support free-hand drawing with brushes. This app will be used as a sketching app by armature drawing enthusiasts and supports all basic functionalities. Moreover, the reference window of the app should be draggable so that users can shift it anywhere they want. There will be another mode in the app which will be called TimeSee. In this game, the user will have 1 minute to analyze a random reference picture in grayscale and will be asked to draw and color from memory in 3

minutes

1. Inseon Hwang



2. Saifullah Jailani



Synthesis

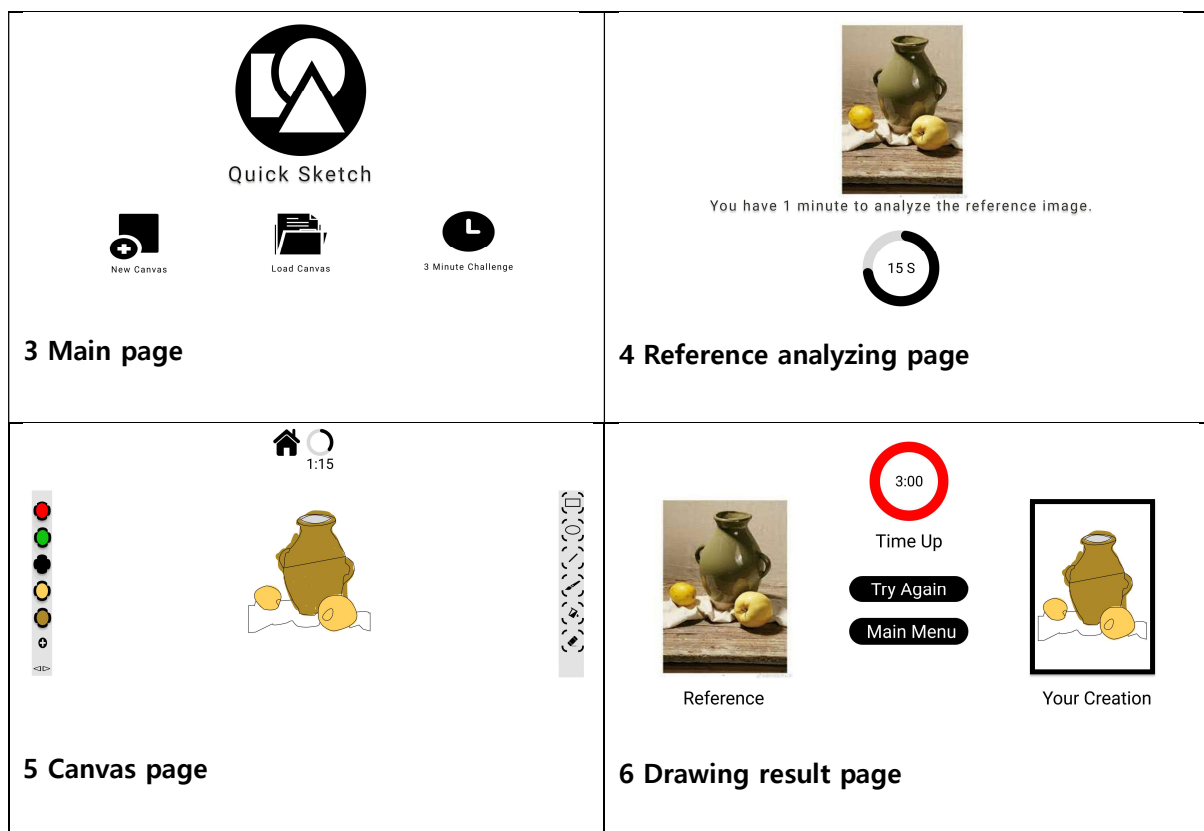
The Time Up menu conveys a similar concept in both sketches. Overall, the sketches look very different since the sketches done by Inseon cover the TimeSee game, and the sketches done by Saifullah cover how the actual drawing environment of the application should look like. The drawing environment sketches done by Saifullah are effective and we decided to keep them. However, the TimeSee game mode sketches of Inseon are very effective, especially the circular visual that shows the time elapsed so far. In future iterations, we decided to work on the visual look and placement of color pallets and the mechanism to add colors to the pallet. Moreover, we decided to drop the comparing menu idea since it takes time to implement. We would show the reference picture at the end to the user so they could compare it for themselves

2.6 - Figma Prototype

Link to Figma file:

<https://www.figma.com/file/oLTwsGJKu43D3WD3nb7Rga/Project-2?node-id=0%3A1>

Main Images:



2.7 - Findings from Usability Study

Note for studying:

Do you have any experience with drawing?

From my mom's recommendation, I studied how to use the "PPT" more effectively, "Photoshop" read some design books, and was going to the design academy.

Yes, so I used "PowerPoint", and "Photoshop".



What do you expect from clicking this icon?

It seems a new canvas will appear.

(After clicking) Is your expectation, right?

(With satisfy) Yes, as I imagined it worked.



What do you expect from clicking this icon?

I think we can bring the pictures owned by the expected users, from their computers. Yep, maybe I should pick a file from the computer?

(After clicking) Was your expectation the same as the output?

Yes, as I imagined it worked.



What do you expect from clicking this icon?

I think if I use a picture for reference, it would appear.

(After clicking)

(Frown) Ah? What is this? It's lame.

From clicking that, I expect that many images will appear those I can choose for my reference image... I think this design is sloppy.

From the perspective of the user, in the case of "Photoshop", the screen and the output for pdf or something can be different. So, I thought it is kind of the function that let the users see the difference.



What do you expect from clicking this icon?

(Looks like being confused) I don't know. What is that mean "Sketch Mode"?

I cannot catch it up...

You said this icon seems confusing. How can we improve this?

Maybe clarify the mode is changing the color to black/white.



What do you expect from clicking this icon?

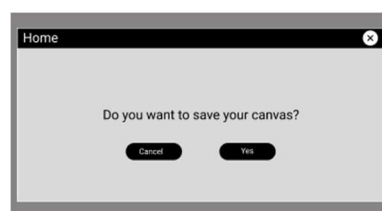
Saving?

Yes, as I imagined it worked.



What do you expect from clicking this icon?

Hmm? Maybe the first screen of this app?



(After clicking, the request page of saving appears)

Good. I should save this drawing file.

Yes, it works as I expected.



Load Canvas

What do you expect from clicking this icon?

Maybe the saved files?

(After clicking) Was your expectation the same as the output?

Yes, it works as I expected. But I'm familiar with "Photoshop" or "PowerPoint". Maybe, someone who does not familiar with those kinds of programs might be confused.

I expect that there would be a more kind explanation, such as "Drag and drop" or "Chooses your file from your directory".



3 Minute Challenge

What do you expect from clicking this icon?

"3 Minute Challenge"? I don't know what this challenge means. Maybe something like sketching fast?

(After clicking) Was your expectation the same as the output?

Cool. It seems like a game. But there is no saving function or some functions for comparing with other drawings from other people.

Try Again

Main Menu

(Without asking he immediately understood these buttons)

Are there more things you want to say about the app design or something?

I didn't catch up with the meaning of the app name "Quick Sketch". Because I thought the icons on the main screen, it seemed that the left icon looks more important, but in fact, the most important thing was on the right. It confused me.

I hope to change the order of icons and make clear what is the main function. Just drawing with a reference image or drawing fast. Just focusing on one function would be better, I think. For example, adding some mode for practicing the fast drawing...

Or not the 3 minutes challenge but... We can draw with the reference in infinite time?

Thank you for your time. The study is done. Have a nice day!

Reflection & Synthesis

We learned that the concept of our app is vague for users yet. Almost icons are understandable for example, the "Try Again", the "Main Menu" buttons, and the saving icon. And the function of drawing with reference in a limited time was especially fun for the users and it helped to achieve the goal of feeling the fun of drawing. The user didn't say or do something unexpected. But the user requested the functions of the drawing app, and the name of the drawing app was mismatched. So, the user wanted the drawing mode of 3 minutes challenge as the main function and the rest of the drawing functions to be the practice or something like the deformed mode of the 3 minutes challenge. And the user also requested adding the function of saving and comparing the drawing with each other after 3 minutes challenge. In the next iteration, we will reflect the user's opinion by reordering the icons in the main function and changing the description "Sketch mode" and the description in the saving and loading pop-up screen.

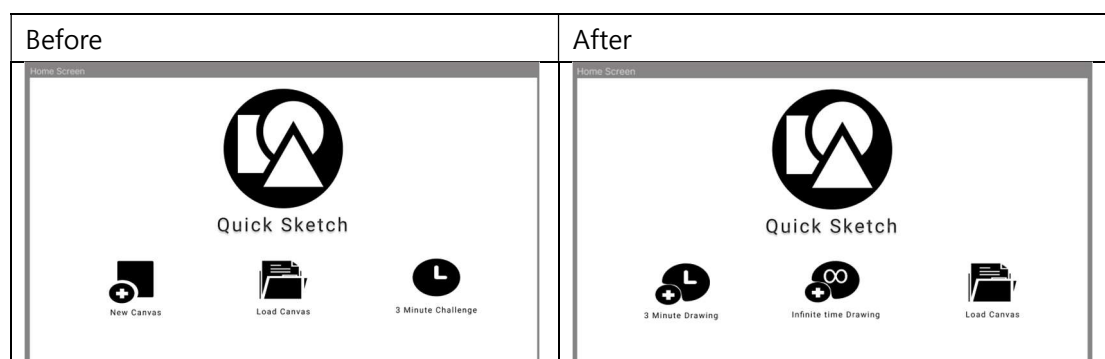
2.8 - Revised Figma Prototype

Link to Figma:

<https://www.figma.com/file/oLTwsGJKu43D3WD3nb7Rga/Project-2?node-id=73%3A277>

Three changes:

1. The order of icons on the main screen



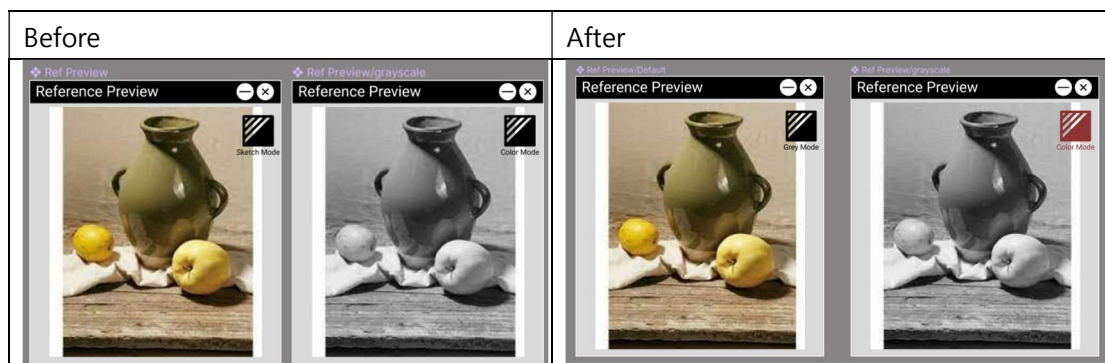
- The user said that the "3-minute drawing" function seems the most important and the funniest function. And the user gave feedback that the left side icon looks more important than the right one. So, in this design step, we changed the "3-minute drawing" icon on the left side and changed the name "new-canvas" into the "Infinite time Drawing" and the icon.

2. The icon which is for viewing the reference image



- The user is confused about the previous icon of "Seeing the reference image". So, we changed into more understandable that just the icon of the eye changed into the icon of a person looking at a picture.

3. The buttons for changing the color/grey mode of a reference image



- The user said that it is hard to catch up with the meaning of "Sketch Mode". So, we changed the "Sketch Mode" into "Grey Mode". Additionally, to match the function and the appearance of the button, we made the "Color Mode" button red.

2.9 - Documentation of the Interactive Prototype

Documentation

App name: Quick Sketch

Tagline: Don't make effort to draw the same image. It's enough just remembering it and drawing what is in your mind!

Description of the interface and interactions we designed: Our main function is quick drawing. On the main screen, the icon is ordered by how it is important to the concept of our app. And the most important function "3 minutes drawing" is on the left. After clicking it, the user can analyze the reference image in 1 minute. Then, the page is automatically changed to the canvas page. On this page, users can draw. We highly encourage the users to draw whatever is in their mind without any worries that they would make mistakes.

Specific pain points our website addresses: We found that drawing while analyzing the reference image is less fun than drawing while remembering the reference image. From that finding, we designed our app to help people to feel fun with drawing without any pressure of thinking that they must draw the same with the reference image.

Reflection

In the interactive prototype, we could capture the "3 minutes drawing" function in high fidelity, in which users analyze the reference image in 1 minute and draw without the reference image for 3 minutes. The "3 minutes drawing" is the main idea of our interaction. Because it is the most unique, funniest, and is mostly focused on helping the users to be creative. And unfortunately, we couldn't implement other functions such as "Infinite drawing" mode, and "Load image".

Links to our...

- **GitHub repository:**
<https://github.com/CS160-Summer2022/p2-creativity-canvas-Saifullahjailani>
- **Video:**
<https://youtu.be/a4eexqQWtSA>