"How to Add a Plant on Planta" Usability Test

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** I assisted in developing this document for a course focusing on technical writing practices during the 2022-23 Winter Term.

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Introduction

The Planta app was developed by the Swedish company Strömming AB. The app was created to provide in-depth care information regarding household plants. To start, Planta gathers information about the environments the users' plants are in. We used the app as the focus for the instruction document we designed in Module 3. Our instructions displayed a step-by-step guide on how to **Add a plant** to Planta's database when you first open the app.

Upon completion of Module 3, we were tasked with creating a usability test intended to analyze the overall effectiveness of the instruction document we developed. The usability test allowed us to obtain unbiased feedback about our instructions. We tested and interviewed five participants; each team member spoke with at least one participant. Our group collected valuable accounts regarding the usability of our instructions. From these accounts, we found certain aspects of our design are somewhat lacking. Our findings are discussed in further detail in the following sections.

Executive Summary

Group Tres decided to use Google Forms as our testing medium; all testing was completed electronically. We constructed two tests: a **Demographic Survey** and an **Exit Survey**. The participants were **interviewed** following the completion of the tests; their answers will be expanded on in the Results section. The Demographic Survey was used to highlight possible trends in choices made in the Exit Survey. We recorded specific identifying information that will be further expanded on in the **Methodology** section. The Exit Survey served as our usability test. Group members asked participants questions about the overall effectiveness of the instruction document. The primary purpose of our usability test was to gather further opinions on problematic sections that were highlighted by prior peer reviews.

There were mixed responses regarding our instructions, with some viewing them as adequate and others feeling less confident using the provided material. All participants felt the document contained relevant information and was mostly easy to follow. 40% of our participants had slight issues reading the text, with one stating that "the font" was too "bright," which alludes to possible accessibility issues regarding visual coherence. Alternately, 100% of the participants appreciated the visual aids in the instructions, reaffirming that our visual additions *were* worthwhile to readers.

The usability test helped us address a few errors within our instruction document:
- Missing instructions for tasks that occur in the Apple version of Planta
- Missing troubleshooting information/links at the bottom of the document
- Missing instructions for the **Get Started** segment asking about prior plant knowledge
- Confusion around Step 9
- Similarity of images in Steps 1 and 4
- Confusion around "tap arrow" instruction in Step 1 and 4
- Overcomplexity of tip sections

In this report, we analyze the data collected through our tests. We will discuss participant input, individual sessions, trends within our collected data, data tables and graphics, errors, and recommendations for the revisions process. We will provide links for the surveys and interview answers.

Methodology

Sessions

In a professional setting, a team analyzing the usability of a document would pull from an outside and unbiased pool of participants. As this study was conducted under different circumstances, our results will likely be a little biased due to opposing constraints. The participants were recruited from the personal relationships of each member of ours. All of the participants were family members and friends of ours. Group members contacted the participants using mobile phones or face-to-face. Then, participants decided on a time and date for the interview. We held individual sessions with one hour for each participant. The participants may leave earlier when they finish the interview. Before the interview, the participants first filled out the Demographic Survey (**See Appendix A**), which is a background information-checking survey. After the demographic survey, we explained the task and showed instruction writing to participants. The participants followed the instructions in writing to complete this test; the task was to add a plant on the planta app. We recorded data while participants were doing their jobs.

When the participants completed all steps, we analyzed the data and put them in the data analysis form. The data analysis form (**See Appendix B**) included task scenario number, section data, start and end time for participants to complete the instructions, usability defect description, and evaluator's comments. Next, we asked the participants to complete the Exit survey (**See Appendix C**), a post-test survey. Exit Survey subjective measures included twelve questions. There are eight multiple-choice questions. The participants can explain their choice, which is optional according to their wishes.

- Is the request to download the Planta app necessary?
- Do you think there should be a troubleshooting (what to do if there is a problem) section at the end of the instructions?
- Do you feel the similarity of the images in Steps 1 and 4 makes it confusing to understand the difference between Steps 1 and 4?
- Do you believe the "tap the arrow" instruction in Step 4 could be confusing for Android users where there are multiple arrows on the screen?
- How do you feel about the page length used in the instructions?
- Are there too many pictures in the instructions?
- Do the tip sections need to be simplified?
- Is step 9 difficult to follow?

Most of the multiple-choice questions have choices: yes, no, and maybe. Only the page-length question has different choices: too long, too short, and just right.

There is one 5-point Likert Scale with very difficult to very easy measures. The question was, "On a scale from 1 to 5, 5 being very easy, how difficult is the text to read?"

And three short answer questions:

- Which concepts were difficult to grasp, and what made them challenging to understand?
- Which steps were easy to follow? Why were they easier?
- If you could change anything about our instructions, what would it be and why?

Quantifying data can be a difficult process, but it is an important thing to do when you want to analyze your data. We took the participants' answers to the extended response section and investigated each sentence, looking for specific keywords that utilized some form of emotion. We focused on words like "forced" and "simple" in order to unveil the intentions of the participants concerning our document. We further categorized each word according to what the term was used to discuss in each response. From there, we organized each answer according to the type of question that was asked, focusing on questions asking about the instruction steps, the design of the document, and the need for additional steps. After our data were collected, organized, and analyzed, we used said data to develop quantitative data, which we formatted as percentages within the multiple ranges of four (4). Our findings are depicted in the Results section underneath the Quantification of Data segment

Table 1: Quantitative Table

Participant	Word	Category	Area of Interest
Participant 1	Mixed up	Confusion	Design
Participant 1	forced	"Get Started"	Additional Steps
Participant 2	simple	To follow (Step 1/2)	Instruction Steps
Participant 3	simple	Step 10 and 13	Instruction Steps
Participant 3	Make another	Only	Additional Steps
Participant 4	Except (difficulty)	Step 9	Instruction Steps
Participant 4	Information . . . missing	Distance . . . from window	Additional Steps

In addition, we had a post-interview with the participants. They needed to answer interview questions. Post-interview scenario subjective measures included:

- Were there any elements that hindered the readability of the document? That is, were there any parts of the design that took too much attention away from the instructions?
- Do you believe the design of the document complements the instructions? How?

- Did you believe the side notes (Ex: "Why is Lighting so Important?") add relevant information to the document?
- Are there any concepts related to the app that you would like explained?
- Do you believe this document could be used by someone who is not very comfortable with technology?
- Did you use the captions beneath the screenshots? Were they informative? Is there anything you believe could be added to them?

See the Interview Questions (**See Appendix E**) document for the subjective and overall questionnaires.

Finally, we analyze data from the data analysis form to find the cause of the usability and discuss the severity rating of this problem.

Participants

We interviewed five participants in our usability test. We interviewed five participants on the same day, January 13th, 2023. One participant was interviewed in the morning, and others were interviewed in the afternoon, around 2 o'clock to 5 o'clock. Interviews were held with us in different places, and one participant was interviewed by one of us at a time.

Roles

The participants recruited for our study were all people from our personal lives and were subsequently not involved in Planta. Unfortunately, we had a limited test range – five test participants. As there was a small test group, we were not able to achieve a very diverse selection of variables. The greatest diversity in our study appeared in the categories of age, gender, and education. The information listed in Table 1 correlates to the listed participant, excluding individual names for tester privacy.

Table 2: Participant Background Information

Participant	1	2	3	4	5
Age	10-19	40-59	20-39	20-39	80-99
Gender	Male	Male	Male	Female	Female
Disability	No	No	No	No	No
Primary Language	Chinese	English	Chinese	English	English
Race	Asian	White	Asian	White	White

Ethnicity	Chinese	Irish, English, Dutch	No Reply	English	Slovenian
Location	Ohio	Ohio	Ohio	Ohio	Ohio
Education Level	Middle School	Graduate Degree	Some College	Some College	High School Diploma
First-Gen College Student?	No	No	Yes	No	Prefer not to say
College Major	No Reply	Social Studies Education	Computer Science	Nursing	No Reply
Employment	Student	Retired	Student	Employed	Retired
Yearly Income	$0	$51,000 - $70,000	$0	$31,000 - $50,000	Prefer not to say
Marital Status	Single	Married	Single	Single	Widow/Widower
Children?	No	Yes	No	No	Yes
Political Affiliation	None	Democrat	Independent	Democrat	Prefer not to say
Religion	Atheist	Agnostic	None	Atheist	Christianity
Device	iPhone	iPhone	iPhone	iPhone	iPad

Table 2 depicts the answers obtained from the demographic survey. Our participants completed the survey before looking over our instructions or the exit survey. We wanted to gather identifying data in order to analyze any potential trends regarding the answers the participants gave in the exit survey and their interviews. We didn't find any particular trends, though we did discover something unexpected. Many might assume that the younger population would have little difficulty accessing Planta – an app – yet, the participants who were on the younger side had an equal chance of accessing Planta as members from the higher age groups.

Evaluation Tasks

Test participants followed tasks to complete our usability test. (See full tasks on [Instructions on How to Add a Plant in Planta](#) or Appendix D)

- Downloading App
1. Tap the home icon at the bottom left corner of your screen. While there, the app will ask you to **Add a site**.
2. On the Pick a site page, select the site that matches the **location** of your plant by tapping the room picture.
3. Choose the **light conditions** that best describe the sunlight conditions of your plant
4. Once you add a site, Planta will ask you to **Add a plant**.
5. Using the search bar, search for your plant using its common or scientific name. When you find your plant, select it by tapping its image.
6. After choosing your plant, you will go to your plant's information page. Once there, you can **Add your plant** to your Planta account.
7. First, Planta will ask you to indicate your **plant's location**. To do so, tap on the site you created.
8. Next, indicate if you have **repotted** your plant. If you did, tap the Yes, it's repotted button. If you did not, tap the No, it's not repotted button and skip step 9.
9. Describe the material of your **pot.**
10. Next, the app will ask when you **last watered** your plant. Choose the option that relates to your situation.
11. **Add a picture** using your phone's camera.
12. **Name** your plant. The app will use your plant's common name if you skip this step

Results

Task Completion Success Rate

Each team member recorded the ability of the participants to complete the given task by analyzing the responses provided in the Exit Survey. The success rate was devised by finding which steps were successfully completed and which were not. All participants were able to eventually complete their assigned tasks, allowing them to accomplish what the instructions intended. Steps 2, 3, 5, 6, 7, 8, 10, 11, and 12 had a success rate of 100%.

We defined success as when the participant did not need assistance from the interviewee to complete a task. The majority of steps were successfully completed by every participant. Steps 1, 4, and 9 were the only steps that didn't have a 100% success rate, with only four of the five participants completing the step successfully, resulting in an 80% success rate.

Table 3: Task Completion Success Rate

Task	1	2	3	4	5	Success	Completion Rates
Download App	X	✓	✓	✓	✓	4	80%
Step 1	✓	✓	✓	✓	✓	5	100%
Step 2	✓	✓	✓	✓	✓	5	100%
Step 3	✓	✓	✓	✓	✓	5	100%
Step 4	X	✓	✓	✓	✓	4	80%
Step 5	✓	✓	✓	✓	✓	5	100%
Step 6	✓	✓	✓	✓	✓	5	100%
Step 7	✓	✓	✓	✓	✓	5	100%
Step 8	✓	✓	✓	✓	✓	5	100%
Step 9	✓	✓	✓	X	✓	4	80%
Step 10	✓	✓	✓	✓	✓	5	100%
Step 11	✓	✓	✓	✓	✓	5	100%
Step 12	✓	✓	✓	✓	✓	5	100%

Overall Metrics

Overall Ratings

Three extended response questions were included at the end of the Exit Survey intended to collect qualitative data that could be quantified as shown in the next segment. The areas of interest include:

- Instruction Steps
- Additional Steps
- Design

Quantification of data

Table 4: Area of Interest Rating from Participants

Area of Interest	Rating	Percentage
Instruction Steps	1	50% of participants had some level of difficulty with understanding some of the steps
Additional Steps	2	100% of the participants stated at one point or another that we could provide further instruction on aspects that are missing in our document
Design	3	25% of participants were confused by the similarities of some of the images provided

Post-Task Overall

  We interviewed each participant once they completed their assigned tasks. The following discussion lists what each participant **liked most**, **liked least**, and individual **recommendations for improvement**.

Liked Most

  When asked if any elements hindered the document's readability, one of the participants said, "the design looks good, it didn't block my view of any of the instructions." They further complimented the design choices, stating that it "matches the theme of the app." The captions similarly had appreciative statements, with the participant saying, "they should be kept simple."

Liked Least

  Many participants disregarded our captions, with one saying that he "didn't use the captions." Another participant ignored the captions, insisting that he could "follow the instructions" as they were without the captions beneath our pictures. A participant mentioned that the tips could have "less words" to make them easier to read. Another participant said there should be a tip section about "troubleshooting" for people who are not "used to technology."

Recommendations for Improvement

  As previously mentioned, a participant recommended adding a "troubleshooting" section for our users. One participant suggested making "Step 9 . . . easier to read."

Interview Question Answers

   Each participant was asked the following questions after completing the post-test survey. These questions were used to gain extended answers and discussions regarding the instructions. To condense this data, we paraphrased and combined each participant's response into one summary answer for each question. Please review **Appendix E** for the original answers.

Table 5: Interview Questions Summary

Question	Summary of Answers
Were there any elements that hindered the readability of the document? That is, were there any parts of the design that took too much attention away from the instructions?	The design did not block any instructions, but Step 9 could be reformatted to lessen confusion.
Do you believe the design of the document compliments the instructions? How?	The design of instructions makes them easy to follow. Overall plant theme matches the focus of the app. Looks professional.
Did you believe the side notes (Ex: "Why is Lighting so Important?") add relevant information to the document?	They provided information that was not stated on the app. Could benefit from a better design or fewer words to increase the desire to read them. The side note by step 9 was hard to read.
Are there any concepts related to the app that you would like explained?	Add a troubleshooting guide. Could add something about the rest of the care information Planta provides.
Do you believe this document could be used by someone who is not very comfortable with technology?	Yes, but it could be easier if the steps were more connected and there were fewer words.
Did you use the captions beneath the screenshots? Were they informative? Is there anything you believe could be added to them?	Captions were rarely used or noticed. Looking back, one participant stated the captions could include more information about the picture, but not so much that they become their own steps/tips.

Errors

General Document Errors

The main error of our document is that we did not account for how the app looks and functions on different devices. In particular, the startup of Planta on an Android is different than on an iPhone. We also found possible differences in the Planta startup on iPhones versus iPads. Finally, one participant stated the text color is too light.

Step Errors

One out of four participants stated that Step 9 was difficult to follow due to its wording. (Figure 1.1) 40% of participants said the similarity of the graphics in Step 1 and Step 4 made it confusing to distinguish between Steps 1 and 4. (Figure 1.2) One participant commented that they mostly used the graphics/looked at the graphics first, which resulted in this confusion.

Is step 9 difficult to follow?

4 responses

75%   25%

Yes
No
Maybe
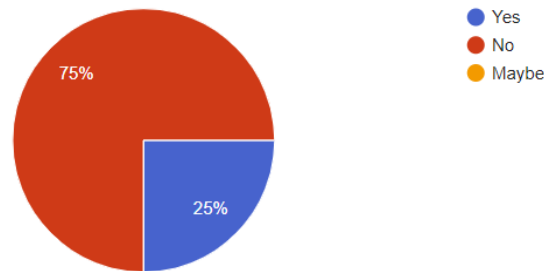
Figure C13 - Pie chart showing the opinions of four participants about the difficulty of Step 9

Do you feel the similarity of the images in Step 1 and 4 make it confusing to understand the difference between Step 1 and 4?
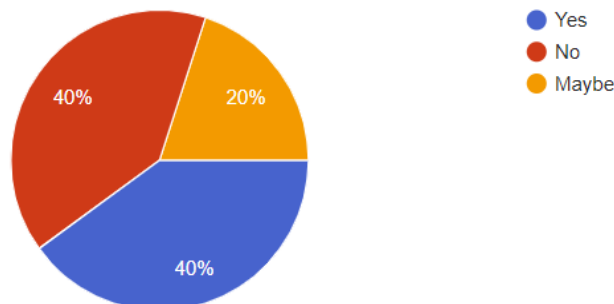
5 responses

40%   20%   40%

Yes
No
Maybe

Figure C6 - Pie chart showing the opinions of five participants on the similarities between Steps 1 and 4

Recommendations

After compiling data on the errors within our instruction document, we were able to visualize and address everything that needed to be altered while working through the revision process. Our choices are made as a result of participant input regarding the instruction document, specifically comments made in the Exit Survey and Interview. The recommendations listed in Table 5 (below) will be implemented in one way or another moving forward. Any problems our participants experience will be taken into consideration, and we will do all we can to improve the user experience.

Table 6: Recommendations from Participants

Change	Justification	Severity
Add a section of steps discussing alternate tasks required by Apple users.	60% of our test participants commented on the missing information. Apple users are given the additional task of measuring the distance of their plant to the window. We will need to include instructions for the missing step.	High
Make steps 1 and 4 look more unique.	20% of our test participants had difficulty differentiating between the images in steps 1 and 4. We will need to add to the graphics to make them more obvious.	Medium

Add a troubleshooting section to the end of our instruction document.	20% of our participants mentioned that a troubleshooting (help) section would be beneficial for potential users who are not as knowledgeable about technology. An additional 60% remained in the middle, though leaning towards its inclusion. We will find proper help tools for users who might be confused while using the app (Planta's website has a support portal).	High
We will rearrange step 9 so that users have an easier time reading the instruction.	20% of our test participants said that step 9 was a little difficult to follow along with. We could simply reorganize the content of step 9, or we could move the tip to be somewhere else. We will decide during a meeting	Medium

Conclusion

Most of our participants found the Planta app interesting, if a little confusing at times. The instructions we developed *did* help our users figure out what to do, but some parts could have been implemented better. The test participants provided numerous recommendations regarding our instructions, all of which will be considered moving forward. We will ensure that the final draft of our instruction document effectively explains the process of adding a plant to Planta's database. We appreciate all of the input from our participants, and we look forward to providing a revised edition of the instructions.

References

Planta. Strömming AB, 16 Jul. 2028, https://getplanta.com/.

Report Template: Usability Test. usability.gov, https://www.usability.gov/how-to-and-tools/resources/templates/report-template-usability-test.html.

Appendices
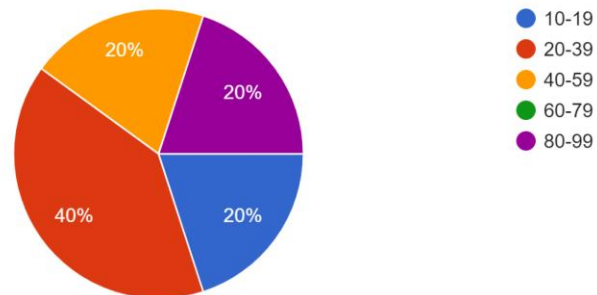Appendix A: Demographic Survey

How old are you?
5 responses

Figure A1: Pie chart showing the opinions of five participants about their age
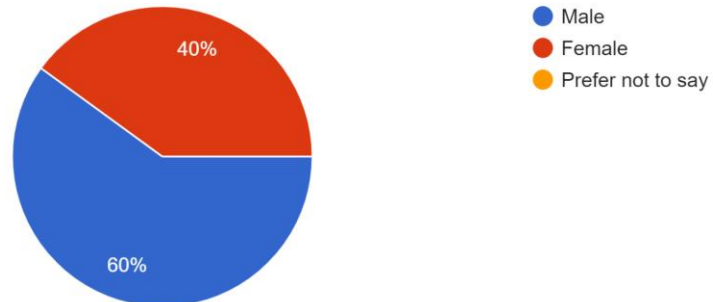
What is your gender?
5 responses

Figure A2: Pie chart showing the opinions of five participants about their gender
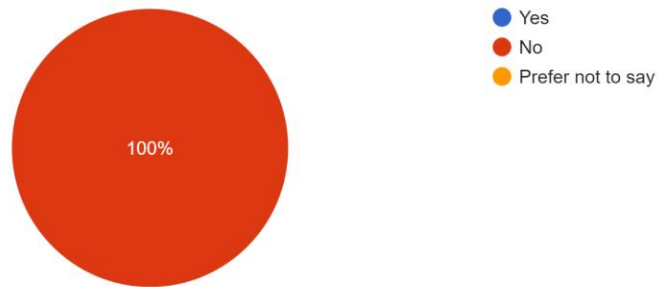
Do you have a disability?
5 responses

Figure A3: Pie chart showing the opinions of five participants about their disability status
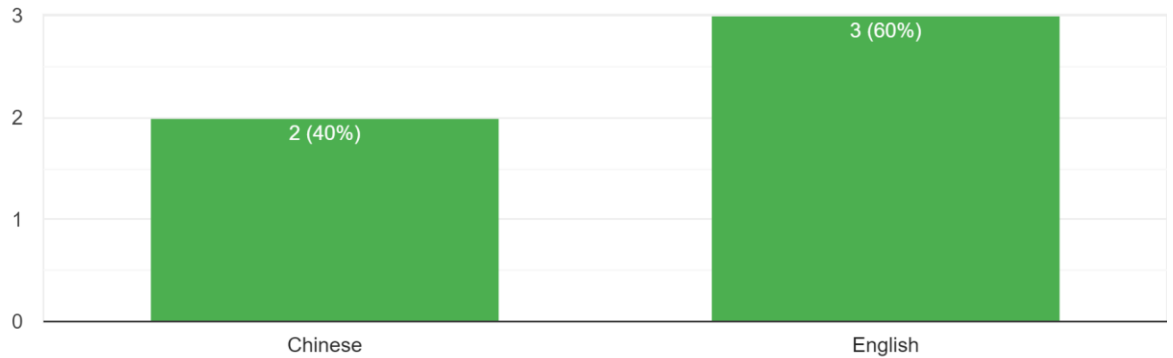
What is your primary language?
5 responses

Figure A4: Pie chart showing the opinions of five participants about their primary language
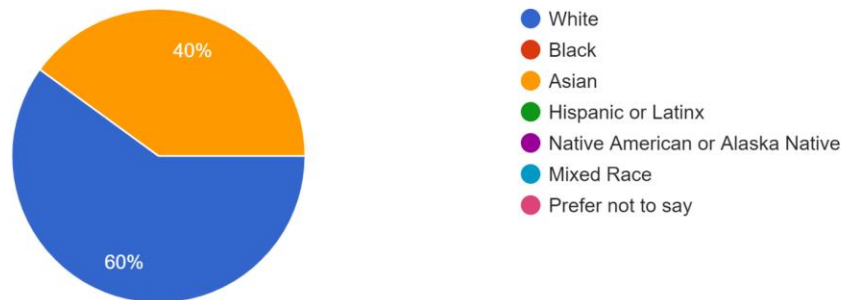
What is your race?
5 responses

Figure A5: Pie chart showing the opinions of five participants about their race

What is your ethnicity? You have free reign with this answer.

4 responses

Chinese

Irish English Dutch

English

Slovenian

Figure A6: Data showing the opinions of five participants about their ethnicity
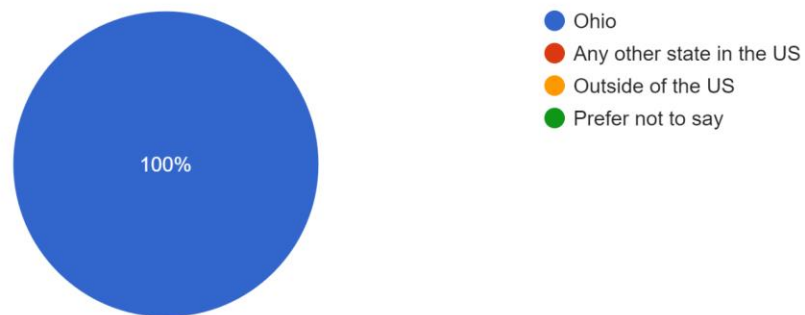
Where are you located?

5 responses

- Ohio
- Any other state in the US
- Outside of the US
- Prefer not to say

100%

Figure A7: Pie chart showing the opinions of five participants about their location

What level of education do you have?

5 responses

- Primary Education (Pre-School or Elementary School)
- Secondary Education (Middle School or High School)
- High School Diploma
- Some College (Not graduated yet or withdrew)
- College Degree (Associate's or Bache…
- Graduate Degree (Master's or Doctora…
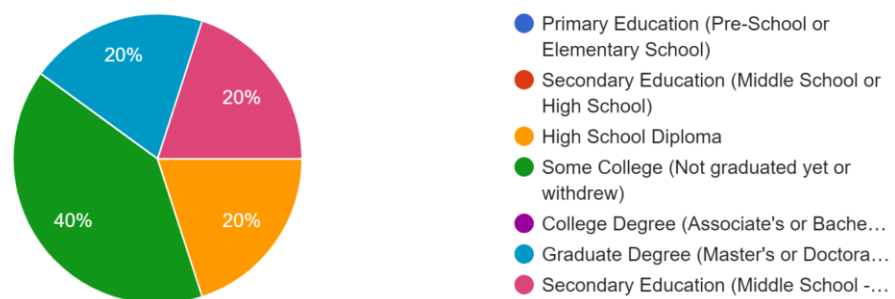- Secondary Education (Middle School -…

20% 20% 40% 20%

Figure A8: Pie chart showing the opinions of five participants about their education level

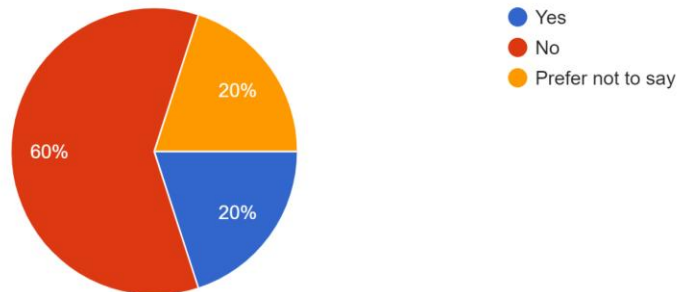If you went to college, are you a first-generation student?
5 responses

● Yes
● No
● Prefer not to say

20%
60%
20%

Figure A9: Pie chart showing the opinions of five participants about "first-generation student"

If you went to college, what did you study?
4 responses

I haven't gone to college yet.

Education Social Studies

Computer Science

Nursing

Figure A10: Data showing the opinions of five participants about their major in the college

What is your employment status?
5 responses

● Currently Unemployed
● Employed
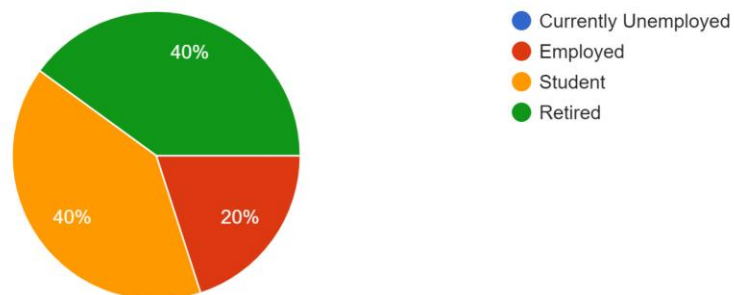● Student
● Retired

40%
40%
20%

Figure A11: Pie chart showing the opinions of five participants about their employment status

How much do you make in a year?
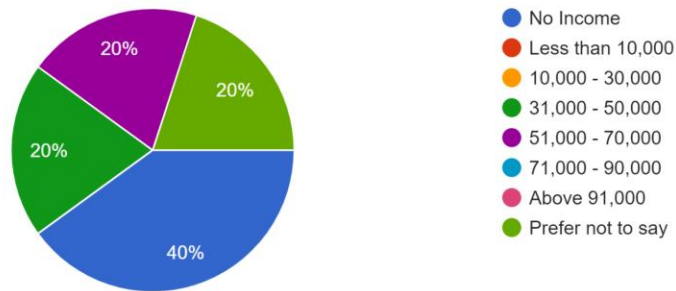5 responses

Figure A12: Pie chart showing the opinions of five participants about their income
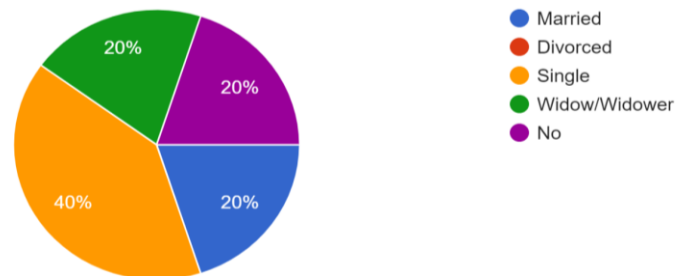
Please describe your marital status.
5 responses

Figure A13: Pie chart showing the opinions of five participants about their marital status

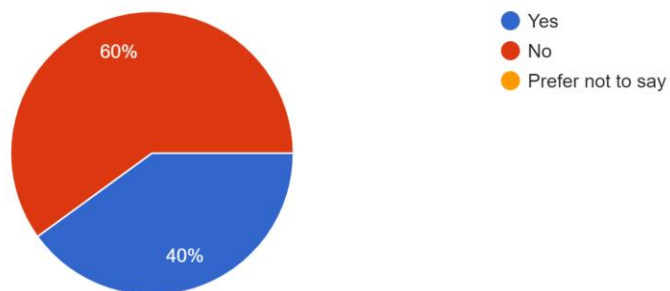Do you have children?
5 responses

Figure A14: Pie chart showing the opinions of five participants about "Do you have children?"

What is your political affiliation?

5 responses

- Democrat
- Republican
- Independent
- Prefer not to say
- None
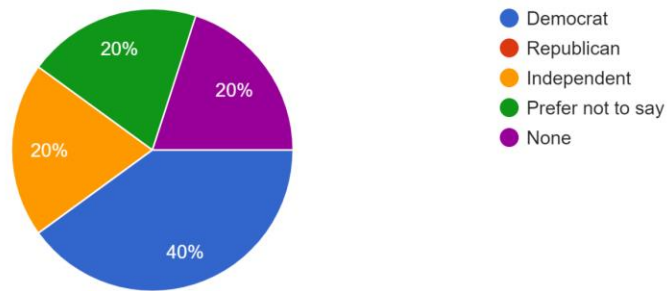
Figure A15: Pie chart showing the opinions of five participants about their political affiliation

What is your religion?

5 responses

- Christianity
- Judaism
- Islam
- Hinduism
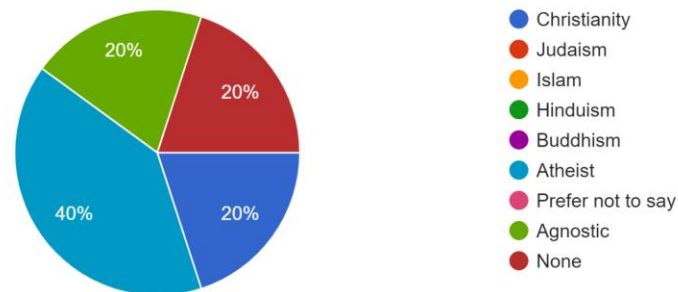- Buddhism
- Atheist
- Prefer not to say
- Agnostic
- None

Figure A16: Pie chart showing the opinions of five participants about their religion

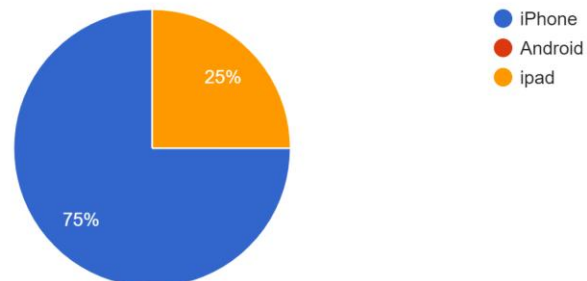On which device will you be downloading Planta?

4 responses

- iPhone
- Android
- ipad

Figure A17: Pie chart showing the opinions of five participants about their device using

Appendix B: Data Analysis Form for Interview

Task Scenario No: 1 Evaluator's Name: Sarah Lin Participant: Chengchen Lin	Session Date: 1/13/2023 Session Start Time: 7:21 AM Session End Time: 7:28 AM (not include the download time)	
Source of evaluation data (video Usability defect description Evaluator's comments clips, audio clips, participant's verbal protocols, observer's notes, retrospective protocols, etc.)	Usability defect description	Evaluator's comments
participant's verbal protocols	The user asked about where is the add a plant button the first time because the user messed up with the add a site page. There is no distance from the window instruction.	There is a step that asks about the distance of the window, but the instruction doesn't have this step.

Table B1: Table showing usability defect interview description of Task Scenario 1

Task Scenario No: 1 Evaluator's Name: Sarah Lin Participant: Chengchen Lin	Session Date: 1/13/2023 Session Start Time: 7:21 AM Session End Time: 7:28 AM (not including the download time)		
Usability defect description	Evaluator's comments	Cause of the usability Severity rating defect, if there is one	Severity rating
The user messed up add a plant step and add a site step because they look similar.	There is a step that asks about the distance of the window, but the instruction doesn't have this step.	We used an Android mobile phone to write the instruction, but the user used IOS.	High

Table B2: Table showing the usability severity of Task Scenario 1

Task Scenario No: 2 Evaluator's Name: Kara Reedy Participant: Don Carter Reedy	Session Date: 1/13/2023 Session Start Time: 1:20 PM Session End Time: 1:27 PM	
Source of evaluation data (video Usability defect description Evaluator's comments clips, audio clips, participant's verbal protocols, observer's notes, retrospective protocols, etc.)	Usability defect description	Evaluator's comments
User didn't want to be recorded, though completed all assigned tasks verbally and electronically	User had no difficulty with the usability tests	User recommended adding a troubleshooting page

Table B3: Table showing usability defect interview description of Task Scenario 2

Task Scenario No: 2 Evaluator's Name: Kara Reedy Participant: Don Carter Reedy	Session Date: 1/13/2023 Session Start Time: 1:20 PM Session End Time: 1:27 PM		
Usability defect description	Evaluator's comments	Cause of the usability Severity rating defect if there is one	Severity rating
User said he had no problems with the usability	User recommended adding a troubleshooting section for others who might not have a lot of technical experience	User used an Apple phone that involved an additional step that is not referred to in the instructions	High - We will need to address the missing segment and troubleshooting options

Table B4: Table showing the usability severity of Task Scenario 2

Task Scenario No: 3		Session Date: 1/13/2023
Evaluator's Name: Sarah Lin		Session Start Time: 2:40 PM
Participant: Yixiao Ye		Session End Time: 2:44 PM

Source of evaluation data (video Usability defect description Evaluator's comments clips, audio clips, participant's verbal protocols, observer's notes, retrospective protocols, etc.)	Usability defect description	Evaluator's comments
participant's verbal protocols	The app interface does not look as same as the instruction writing in some steps.	This instruction writing is for Android users, not for IOS. It's kind of hard to follow. I need to sign up first, then do the instructions. Maybe mention that in the writing.

Table B5: Table showing usability defect interview description of Task Scenario 3

Task Scenario No: 3		Session Date: 1/13/2023
Evaluator's Name: Sarah Lin		Session Start Time: 2:40 PM
Participant: Yixiao Ye		Session End Time: 2:44 PM

Usability defect description	Evaluator's comments	Cause of the usability Severity rating defect, if there is one	Severity rating
The app interface does not look as same as the instruction writing in some steps.	This instruction writing is for Android users, not for IOS. It's kind of hard to follow.	Our instruction is for Audoird, not IOS	High

Table B6: Table showing the usability severity of Task Scenario 3

Task Scenario No: 4		
Evaluator's Name: Kara Reedy		
Participant: Taylor Lyndsay Reedy		
Session Date: 1/13/2023		
Session Start Time: 3:13		
Session End Time: 3:21		
Source of evaluation data (video Usability defect description Evaluator's comments clips, audio clips, participant's verbal protocols, observer's notes, retrospective protocols, etc.)	Usability defect description	Evaluator's comments
Participant's verbal protocols	Some of the steps are hard to read, but most are fine	User had difficulty with step 9 and how it was structured

Table B7: Table showing usability defect interview description of Task Scenario 4

Task Scenario No: 4			
Evaluator's Name: Kara Reedy			
Participant: Taylor Lyndsay Reedy			
Session Date: 1/13/2023			
Session Start Time: 3:13			
Session End Time: 3:21			
Usability defect description	Evaluator's comments	Cause of the usability Severity rating defect, if there is one	Severity rating
User said she had no issues accessing the instructions or the app, but that there is missing information	User was referring to the missing instruction in the Apple version of the app	Our instructions need to include additional support for Apple users	High

Table B8: Table showing the usability severity of Task Scenario 4

Task Scenario No: 5	Session Date: 1/13/2023
Evaluator's Name: Avery Hendl	Session Start Time: 2:55
Participant: Virginia Nemunaitis	Session End Time: 3:45

Source of evaluation data (video Usability defect description Evaluator's comments clips, audio clips, participant's verbal protocols, observer's notes, retrospective protocols, etc.)	Usability defect description	Evaluator's comments
verbal	Planta was very different when first downloaded on an iPad in comparison with a phone	*Several complaints around surveys

Table B9: Table showing usability defect interview description of Task Scenario 5

Task Scenario No: 5	Session Date: 1/13/2023
Evaluator's Name: Avery Hendl	Session Start Time: 2:55
Participant: Virginia Nemunaitis	Session End Time: 3:45

Usability defect description	Evaluator's comments	Cause of the usability Severity rating defect, if there is one	Severity rating
Instructions were not very helpful to user due to different device	Planta on iPad is different than Planta on iPhone or Android	We need to edit our instructions so they can be useful on all devices	High

Table B10: Table showing the usability severity of Task Scenario 5

Is the request to download the Planta app necessary?
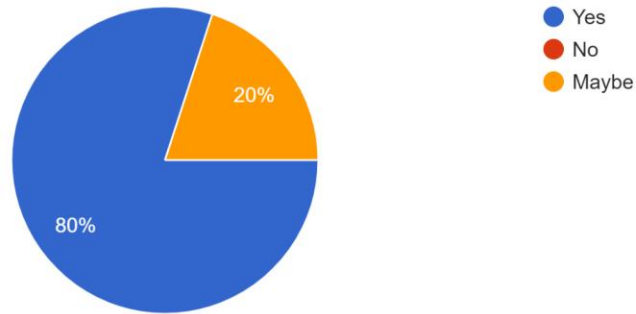5 responses

● Yes
● No
● Maybe

20%

80%

Figure C1: Pie chart showing the opinions of five participants on request to download the Planta app necessary for

On a scale from 1 to 5, how difficult is the text to read?
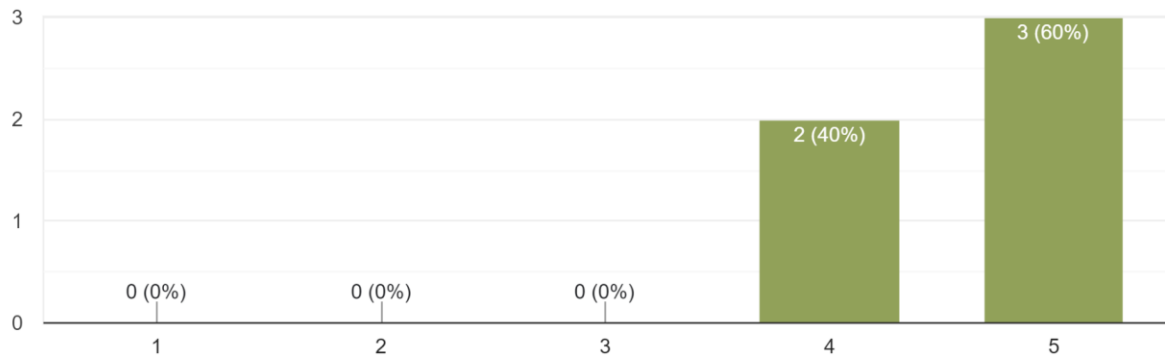5 responses

Figure C2: Chart showing the opinions of five participants on the difficulty of reading text

Please explain your selection (Optional).

1 response

The font is a kind of bright

Figure C3: Explanation the participants given for "How difficult is the text to read" question

Do you think there should be a troubleshooting (what to do if there is a problem) section at the end of the instructions?
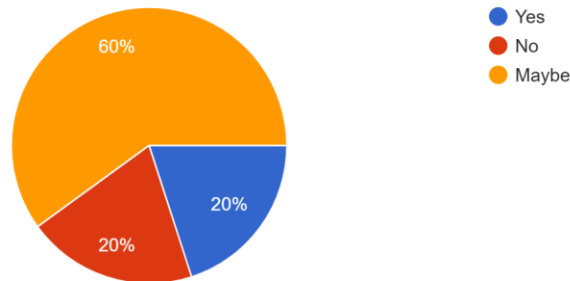
5 responses

Figure C4: Pie chart showing the opinions of five participants on the troubleshooting section

Please explain your selection (Optional).

2 responses

Some people have less experience than others when it comes to technology.

Having a help link would be good

Figure C5: Explanation of the participants given for the add a troubleshooting section or not question

Do you feel the similarity of the images in Step 1 and 4 make it confusing to understand the difference between Step 1 and 4?
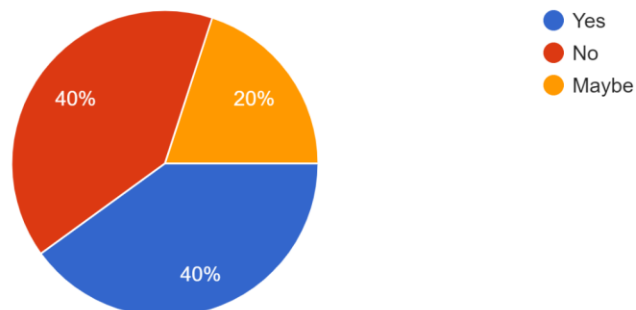
5 responses

Figure C6: Pie chart showing the opinions of five participants on the similarities between Steps 1 and 4

Please explain your selection (Optional).

1 response

If you're looking at them too fast it might get confusing

Figure C7: Explanation of the participants given for similarities between the Steps 1 and 4
question

How do you feel about the page length used in the instructions?

5 responses

- Too Long
- Too Short
- Just Right
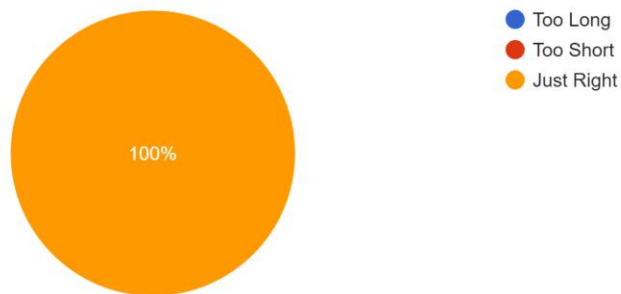
100%

Figure C8: Pie chart showing the opinions of five participants on page length of the instructions

Do you believe the "tap the arrow" instruction in Step 4 could be confusing for Android users where there are multiple arrows on the screen?

5 responses

- Yes
- No
- Maybe

40%   20%

40%
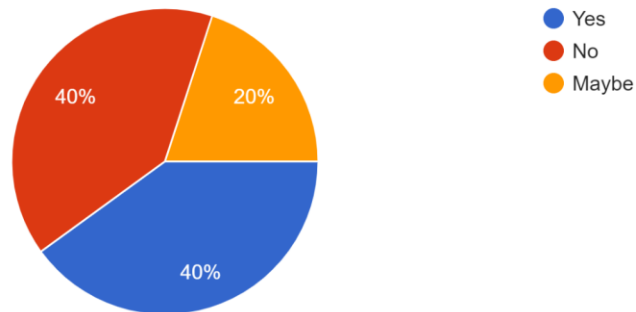
Figure C9: Pie chart showing the opinions of five participants on "tap the arrow" instruction

Are there too many pictures in the instructions?

5 responses

100%

● Yes
● No
● Maybe

Figure C10: Pie chart showing the opinions of five participants on pictures in the instructions

Please explain your selection (Optional).

1 response

I think it looks nice

Figure C11: Explanation of the participants given for pictures in the instructions questionnaire

Do the tip sections need to be simplified?

5 responses

40%

40%   20%

● Yes
● No
● Maybe
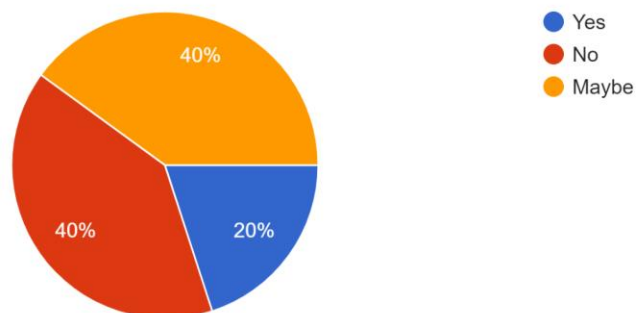
Figure C12: Pie chart showing the opinions of five participants on tip sections

Is step 9 difficult to follow?
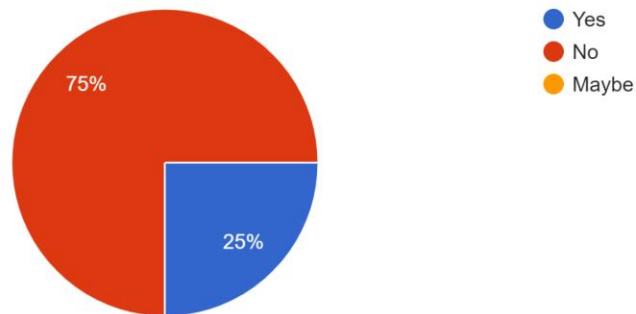
4 responses

Figure C13: Pie chart showing the opinions of five participants on step 9

Please explain your selection (Optional).

1 response

It's kind of back and forth from step to information and back to step
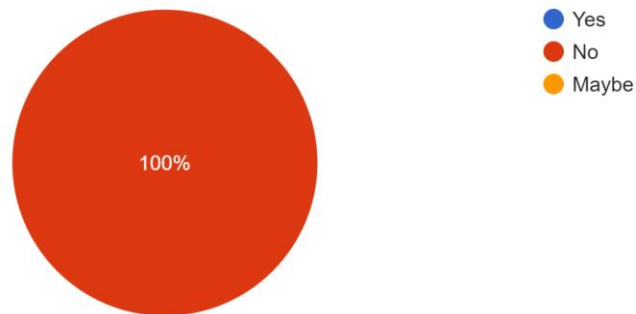
Figure C14: Explanation of the participants given for "Is step 9 difficult to follow" question

Which steps were easy to follow? Why were they easier?

5 responses

Steps other than 1 and 4 were easy to follow, it helped that the pictures matched the screen on my APP.

Step 1 and 2 pictures along with instructions were simple to follow. Pretty straight forward.

10 to 13, they are simple choices.

Most of the steps were pretty easy to follow, except for step 9. I liked how the steps were organized

n/a

Figure C15: Data showing the answers that five participants given on easy steps

Which concepts were difficult to grasp, and what made them challenging to understand?

5 responses

None

On step one, I clicked "Add a plant" instead of "Add a site". The two screens looked very similar, and for people that don't like reading very much and would rather look at the picture, they might get the two mixed up.

Some of the information about the app is missing. I was asked about the distance of my plant from my window, but that isn't in the instructions. It probably should be.

n/a

Figure C16: Data showing the answers that five participants gave on challenging to understanding

If you could change anything about our instructions, what would it be and why?

5 responses

When I first opened the APP, it forced me to do the "Get started". It asked me about my experience on plants and stuff, I forgot exactly what it was, so maybe add that before step 1 and say to fill the "Get started" first.

Pretty easy.

Make another page only for Apple users.

Adding something about the missing info and spacing things out could be good

n/a

Figure C17: Data showing the answers that five participants gave on changes to our instructions

Instructions on How to Add a Plant in Planta

Planta

HOW TO ADD A PLANT ON PLANTA

Before continuing, please download the Planta app from your phone's app store.

Planta is an app built around managing the care of your plants.
The app will guide you to provide your plants with the optimal conditions to keep them alive. Follow the instructions below to learn how to add a plant when you first open the app.

----

1 Tap the **home** icon at the bottom left corner of your screen. While there, the app will ask you to **Add a site**. Tap the arrow pointing right to begin entering information about your plant.
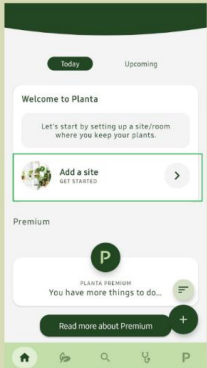
*Figure 1: **Add a site** on the home page*

2 On the **Pick a site** page, select the site that matches the location of your plant by tapping the room picture.

*Figure 2: **Pick a site** page*

3 Choose the **light conditions** that best describe the sunlight conditions of your plant

Light
For Living Room

We need to know more about the light conditions for this site

Dark
• 0 hours of sunlight
• For example a bathroom without windows

Shade
• A dark room with little light
• Like a dark bedroom or a spot far away from a window
• North-facing window

Part sun, part shade
• A common light for many rooms
• Dappled sun or a spot in the middle of a room
• West or east facing window

*Figure 3: The **Light** page after choosing a site*

WHY IS LIGHTING SO IMPORTANT?

Besides the fact that different plants thrive on different levels of light, the degree of sunlight that reaches your plant will help Planta determine your watering schedule. If a plant is closer to a window, it may dry out faster than a plant several feet away because of the heat emitted by sunlight.

4 Once you add a site, Planta will ask you to **Add a plant**. Tap the arrow icon to begin the process.

*Figure 4: **Add a plant** on the home page*

5 Using the search bar, search for your plant using its common or scientific name. When you find your plant, select it by tapping its image.

Find plant

*Figure 5: **Find plant** search bar*

6 After choosing your plant, you will go to your plant's information page. Once there, you can **Add your plant** to your Planta account.

Thyme
German thyme, Garden thyme, *Thymus vulgaris*

Figure 6: Plant information page

7 First, Planta will ask you to indicate your plant's **location**. To do so, tap on the site you created.

Where is the plant placed?
Pick a site to add your plant

Living Room
0 plants

Figure 7: Location page

8 Next, indicate if you have repotted your plant. If you did, tap the **Yes, it's repotted** button. If you did not, tap the **No, it's not repotted** button and skip step 9.

Has the plant been repotted?
To give you correct care advice we need to know if the plant has been repotted after you bought it.

Yes, it's repotted

No, it's not repotted

Figure 8: Repotted page

9 If you chose yes in the previous step, tap on the option that describes the material of your pot.

WHAT IS THE SIGNIFICANCE OF THE POT MATERIAL?

When you reach the page titled "What material is the pot in?" you will see several options for pot materials with descriptions below each one. These descriptions can be used to determine which pot your plant should be in for optimal survival. The most significant quality of a pot to co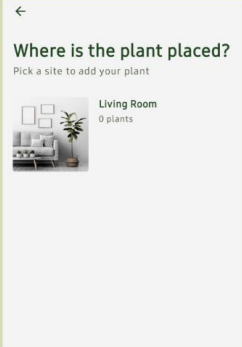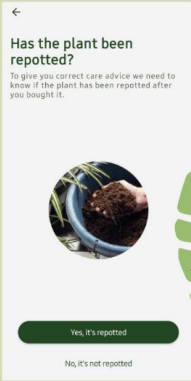nsider is its porosity. The soil in more porous pots will dry out faster in comparison to non-porous pots due to the ability of water and air to move through the porous pot walls. Porous pots are ideal for a plant that prefers the soil to dry out between waterings. Check the "Water" box in the Care tab to determine the moisture levels your plant prefers

← How is it planted?

To give you correct care advice we need to know what type of pot you are using

Plastic pot
Nonpourous - moisture and oxygen can't move freely through the material, decreasing the watering need

Figure 9: Pot material page

Water

10 Water every 10th day
IN JANUARY

Top layer should be dry
MEDIUM DEMAND

TAP TO LEARN MORE

*Figure 10: **Water** section in Care tab*

10 Next, the app will ask when you **last watered** your plant. Choose the option that relates to your situation.

11 If you wish, add a **picture** using your phone's camera.

← When did you last water this plant?

To create a correct watering schedule for this plant we need to know when you last watered it.

Today

Yesterday

About 1 week ago

About 2 weeks ago

Not sure / never watered

Figure 11: Watering history page

← Add a picture of your plant?

Add a picture of the plant to make your account more personal.

Take a picture

Skip

*Figure 12: **Add a picture** page*

12 Lastly, you have the option to name your plant. The app will use your plant's common name if you skip this step.

← Name your plant?

Optional, give your plant a name, or use the common one.

Type name here

Use my name
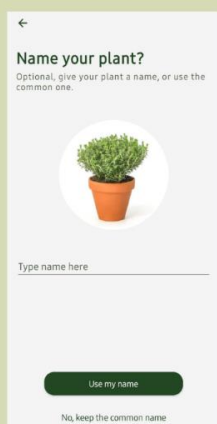
No, keep the common name

*Figure 13: **Name your plant** page*

☑ Now that your plant is added to your Planta account, you are ready to explore the app and take advantage of your personalized care schedule.

1

has been added and a smart care schedule has been created

Appendix E: Interview Questions and Answers

Name:Anonymous One   Interviewer: Sarah Lin   Consent to Record? No

Question	Answer
Were there any elements that hindered the readability of the document? That is, were there any parts of the design that took too much attention away from the instructions?	The design looks good, it didn't block my view of any of the instructions.
Do you believe the design of the document complements the instructions? How?	The design does compliment the instructions very well. It's simple and pleasing to the eye, it's got a light green background with plants and people with plants, which matches the theme of the APP.
Did you believe the side notes (Ex: "Why is Lighting so Important?") add relevant information to the document?	The side note does add relevant information about the lighting that was otherwise not stated when selecting the light option.
Are there any concepts related to the app that you would like explained?	I think the instructions explain the main concepts that would need to be explained, like the light side notes, I don't have any questions with the rest of the steps.
Do you believe this document could be used by someone who is not very comfortable with technology?	Someone who is not very comfortable with technology could definitely use this. The steps are simple and easy to follow, especially with added pictures.
Did you use the captions beneath the screenshots? Were they informative? Is there anything you believe could be added to them?	I mainly just looked at the pictures at first, I didn't see the captions until a few steps after. I think the captions are fine, they should be kept simple, and the main instructions above the pictures should only be the more detailed ones.

Figure E1: Table showing interview answers of participant 1

Name:_Anonymous Two__ Interviewer:__Kara Reedy____ Consent to Record?_No_____

Question	Answer
Were there any elements that hindered the readability of the document? That is, were there any parts of the design that took too much attention away from the instructions?	No
Do you believe the design of the document compliments the instructions? How?	Yeah, it was fine, thought it was pretty easy.
Did you believe the side notes (Ex: "Why is Lighting so Important?") add relevant information to the document?	Yes, well, yes, but there could be a section included on troubleshooting like I said on the exit test. It was easy for me but it might not be for someone who isn't used to technology.
Are there any concepts related to the app that you would like explained?	Nope.
Do you believe this document could be used by someone who is not very comfortable with technology?	Yeah.
Did you use the captions beneath the screenshots? Were they informative? Is there anything you believe could be added to them?	I looked at them, but I could pretty much follow the instructions. I don't think there's an issue with them.

Figure E2: Table showing interview answers of participant 2

Observations: The user's interview was less in-depth than desired.

Name:Anonymous Three___ Interviewer:Sarah Lin____Consent to Record?_No_____

Question	Answer
Were there any elements that hindered the readability of the document? That is, were there any parts of the design that took too much attention away from the instructions?	No.
Do you believe the design of the document compliments the instructions? How?	Yes
Did you believe the side notes (Ex: "Why is Lighting so Important?") add relevant information to the document?	Yes. But need better design and less words because it will make people want to read
Are there any concepts related to the app that you would like explained?	No
Do you believe this document could be used by someone who is not very comfortable with technology?	Yes. But too many words
Did you use the captions beneath the screenshots? Were they informative? Is there anything you believe could be added to them?	I didn't use the captions beneath the screenshots. I think it's useless. I think users will just read the instructions above and not pay attention to the small text below. I think figure is only used when you need to point to a previous picture.

Figure E3: Table showing interview answers of participant 3

Name:_Anonymous Four_ Interviewer:__Kara Reedy____ Consent to Record?__no_____

Question	Answer
Were there any elements that hindered the readability of the document? That is, were there any parts of the design that took too much attention away from the instructions?	Step 9 was a little hard to follow. It could be respaced to look better, or easier to read.
Do you believe the design of the document compliments the instructions? How?	Yes, it looks very professional. I think the pictures work since your thing is about plants and the app.
Did you believe the side notes (Ex: "Why is Lighting so Important?") add relevant information to the document?	Yeah, those were really nice. They made sense with the steps where they were, except for the one in 9 but that's just because it was hard to read.
Are there any concepts related to the app that you would like explained?	Maybe you could explain more about the actual care stuff? The app is for plant care so it might be good to add to that. I saw a care section when I was looking in the app, it had a lot of information. That could overwhelm someone though. I don't know.
Do you believe this document could be used by someone who is not very comfortable with technology?	Oh, yeah, it's really informative. I would just make the steps connect a little more.
Did you use the captions beneath the screenshots? Were they informative? Is there anything you believe could be added to them?	I didn't really look at the captions, but looking at them now you could definitely add to them if you wanted to. You could put more information about what's in the picture. That might add too much though. It might start looking like the tips if you add more, unless that's what you want.

Figure E4: Table showing interview answers of participant 4

Observations: Second interview was more helpful and provided insight into the possible issues of our instructions.

Name:__Anonymous Five_ Interviewer:__Avery Hendl__ Consent to Record?____no____

Question	Answer
Were there any elements that hindered the readability of the document? That is, were there any parts of the design that took too much attention away from the instructions?	no
Do you believe the design of the document compliments the instructions? How?	Yes she likes it
Did you believe the side notes (Ex: "Why is Lighting so Important?") add relevant information to the document?	yes
Are there any concepts related to the app that you would like explained?	no
Do you believe this document could be used by someone who is not very comfortable with technology?	yes
Did you use the captions beneath the screenshots? Were they informative? Is there anything you believe could be added to them?	Yes helpful

Figure E5: Table showing interview answers of participant 5

Observations:
- She didn't use the instructions much but they weren't too helpful for her anyway because the app on her iPad looked a lot different
- Had some trouble with the google forms

Appendix F: Completion Times

Demographic Test	
Participant	**Time**
Anonymous One	03:00
Anonymous Two	02:29
Anonymous Three	07:00
Anonymous Four	01:52
Anonymous Five	10:00

Table F1: Table showing demographic test completion time of five participants

Usability Test	
Participant	**Time**
Anonymous One	05:00
Anonymous Two	06:23
Anonymous Three	05:01
Anonymous Four	09:11
Anonymous Five	10:00

Table F2: Table showing usability test completion time of five participants

Interview	
Participant	**Time**
Anonymous One	10:00
Anonymous Two	05:42
Anonymous Three	09:55
Anonymous Four	08:24
Anonymous Five	10:00

Table F3: Table showing interview questions completion time of five participants