AsthmaMD

Usability Test Plan

HCI 460 - Project 2

Group #4
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Purpose

AsthmaMD can be used not only by people who suffer with asthma, but by the overall medical community to help identify previously unknown correlations, causes, and triggers. The application has the potential to collect a breadth of new information, however users are choosing not to use it because it is difficult and confusing to use and maintain their data.

Performing a usability test on AsthmaMD will be beneficial because it will help us discover usability issues that users come across. We hope to create actionable recommendations with the information we discover.

Problem Statement and Test Objectives

Problem Statement

The ideal experience for the AsthmaMD application is for the user to easily understand the terminology and feel comfortable using it.

However, through our heuristic evaluations and cognitive walkthroughs, we believe that AsthmaMD falls short of providing a good experience. We found that AsthmaMD contains (1) a lack of interpretation of medical and application terminology, (2) no clear guidance for new users to learn how to use the app and (3) inconsistent labeling that makes the application difficult for both new and returning users to navigate.

In response to the problems we discovered, we are conducting a usability test to validate our findings and/or discover new ones.

We hope that with the information we collect, we will be able to create actionable recommendations. We hope that our recommendations will assist in creating a good experience for users using AsthmaMD.

Test Objectives

1. How easily can the user navigate to their intended tab?
2. Do users find the action plan helpful?
3. Can the user customize a schedule to take their medication?
4. Are users able to locate their weekly progress?
5. How easily can users understand and interpret the terminology within the app?

User Profile

The primary user we will be focusing on is **A Caretaker of Someone With Asthma**. The application can easily be used to track someone else's symptoms, like a child or an elderly person, if that person was not able to track on their own phone for whatever reason. This is also evident in the application's ability to have multiple accounts - For example, the application has he ability to track both a father's (the user) and his son's symptoms at once.

We will be specifically looking to test people who are currently the guardian of at least one minor. We can include both people whose children currently have asthma and those who currently do not.

Though this application can be used to track someone's own asthma, we are not specifically including people with asthma. We will exclude anyone who does not take care of a minor.

Test Design

This usability test will gather assessment data about how users understand the terminology and feel comfortable using AsthmaMD. We will conduct 35-minute usability test session, including a 25-minute interaction with AsthmaMD. During the interaction session, participants will use this app to perform three tasks after the moderator's instructions. The test will be recorded by camera for reference during evaluation. A Usability Testing/Observation Template Matrix has also been created to evaluate performance which we will fill out either during the test or after listening to the recording. Our team will collect data about error, success rates and qualitative feedback about their experiences using AsthmaMD. We plan to run pilot tests with five participants. The following is the procedure of the test.

Procedure

1. Introduction
    - Moderator should set up the facility and the equipment in the lab room.

- Moderator should prepare the Script, Screener Questions, Consent Form, Usability Testing/Observation Template Matrix and Post-Test Questionnaire*.

- Participant will be greeted and be asked to read the Consent Form* and sign it.

- Moderator should explain the rules to participant and answer his/her questions.

- Moderator will introduce AsthmaMD and the entire test procedure to participant.

2. Screener questions

   - Participant will be asked to complete the screening questions. Moderator should make sure participant is the targeted user for this test.

3. Tasks on the Mobile App

   - Moderator should explain the scenarios to participant.

   - Moderator should introduce each task individually to participant and participant will use the Mobile App to complete each task.

   - Moderator should distribute the Task Sheet* before task 1 and task 3.

   - Participant should try to think aloud during every step when using Mobile App.

   - Moderator should keep silence during the task session unless participant asks for help.

   - Moderator should interrupt participant and introduce the next task, if participant has trouble to complete the task and a maximum time timeout task time (5 minutes for each task) has been reached.

4. Post-test questionnaire

   - Participant will be asked to answer the relevant questions on the Post-test Questionnaire* after each task and complete the Post-test Questionnaire* after all the tasks.

- Moderator should ask if participant has any other questions and thank participant for the effort.

*Script, Screener, Consent Form, Usability Testing/Observation Template Matrix, Task sheet and Post Test Questionnaire can be found in the Appendix.

Testing Roles

During the test, we have one member as the moderator, who will follow the procedure to guide the entire test and interact with the participant. Other group members are observers. Their job is mainly to observe and record the performance of the participant by completing the Usability Testing/Observation Template Matrix.

Task List

1. Record the prescriptions your child used and symptoms he/she felt today.
    a. Date = current date
    b. Peak flow = 286
    c. Symptoms = cough, wheeze, chest tightness, shortness of breath, can do some, but not all usual activities.
    d. Triggers = Pollen and outdoor mold, exercise, pollution, weather
    e. Medication = no medications.
2. Go through your child's Yellow Action Plan.
3. Create daily notifications to remind yourself to have your child take any one (1) medication listed to once a day at eight in the morning.
4. Find your child's weekly progress.
5. Learn more about "Peak Flow".

Test Environment

For the test environment, we look to use Playtest Laboratory and User Group Space (PLUGS) Lab located in CDM 721, a room in the DePaul Loop Library or the DePaul Lincoln Park Library, or any quiet room, free of distractions. The environment will be a single-room setup. The room will contain one participant at a time, a moderator and multiple observers (when applicable). The equipment will consist of a laptop, a mobile

phone and note-taking materials. The usability test will take between 30 minutes to an hour.

Test Monitor Role

As the test monitors, we are primarily there to lead the study. We will read the task, and offer guidance if the participant needs it. We can help if the user truly gets stuck, but for the most part we will remain silent. We are not her to show the participant how to use the application or to give our commentary - Rather, we are simply there to make sure the study moves along and gets completed.

We will also ask the participant for a quick review on their thoughts and feelings after completing each task , and a quick review on user's thoughts and feelings after completing all tasks.

Evaluation Measures

We will measure data based on the expected path for each task. With this basis, we will keep track of task completion, number of errors or tries and their reactions going through each task(i.e. their user satisfaction). We will write notes and quotes on their satisfaction with AsthmaMD.

We developed tools to help us keep track of our observations during the usability test: Screener (Appendix B), Usability Testing/Observation Template Matrix (Appendix D) and a verbal Post-Task Questionnaire (Appendix E).

Report Contents

We anticipate to discuss in our conclusion the following:

Based on task completion and the number of tries or errors, we will be able to discuss whether or not AsthmaMD was easily navigable to the participant.

Based on the participant speaking out loud as they go through the task, we will be able to determine if their reactions were positive, neutral or negative.

Based on how many times the participant asks for help from the researcher, we will be able to discuss whether or not the participant understands how AsthmaMD functions.

Based on the data we receive from the verbal post-questionnaire, we will be able to discuss how the participant felt about AsthmaMD and if they felt accomplished when completing the task.

Based on the participants' ranking from a Likert scale on how easy the participant found the task to be, we will be able to determine what was easy or not easy about the app.

Appendix

A. Script

Usability Test Script

Find a Participant. 1 minute

"Hi, my name is [___], and I am a graduate student at DePaul University. I am working with a group of student researchers to better understand an asthma application. You do not need to have asthma to participate."

"Would you be interested in participating in a study with us today? It should take around 30 minutes if your time."

- *If NO*, "Ok! Thank you for your time."
- *If YES*, "Great! There are a couple screener questions I must ask you before we can proceed:"

"Are you over 18 years of age?"

- *If NO*, terminate.
- If YES, proceed to the next screener question:

"Are you a guardian/primary caretaker of a minor (0-13 years old) on a daily basis?"

- *If NO*, terminate.
- *If YES*, proceed to the next screener question:

"Do you have asthma or know someone that has asthma?

- If NO or YES, proceed to say:

“Great. Would you mind if you could come with us to [this quiet area/room] just for 30 minutes to participate in our study?”

- *If NO*, terminate.
- *If YES*, proceed to go to the [quiet area/room]

Brief the participant and give Consent Form. 2 minutes

“Thank you for agreeing to participate in this study. The way this study will go is that we will give you a scenario that we want you to imagine. We will ask you to do three tasks on this phone on an app called AsthmaMD. There are no right or wrong ways to do these tasks. We just want to learn how you use this application and hear what you have to say.

Before we give you these three tasks, we need you to sign this Consent Form.”

(Wait for participant to sign and date the Consent Form.)

“Thank you. Before we begin, do you have any questions?”

(Allow time for participant to ask questions and researcher to answer.)

“I will give you a scenario for each task. We would like for you to think aloud while you are doing the task. Is this something you can do?”

(Wait for participant to confirm)

Deliver the scenario and task 1 to the participant. 5 minutes

“Imagine that you and your child took a hike in an area that has as abundance of plant life, like trees, flowers and bushes. Your child felt difficulty breathing and needed to take his/her prescription to help them breathe and continue the hike. Your child takes the prescription of Proair HFA.

When you are done with the hike, you want to record the symptoms and prescriptions your child experienced and took today. Here is a little sheet of the information you want to enter. *(Give little sheet with info listed below)*

- Date = current date
- Peak flow = 286

- Symptoms = cough, wheeze, chest tightness, shortness of breath, can do some, but not all usual activities.
- Triggers = Pollen and outdoor mold, exercise, pollution, weather
- Medication = Proair HFA.

(Observe the participant doing the task. Use the Usability Testing/Observation Template Matrix for markdowns.)

Deliver the scenario and task 2 to the participant. 5 minutes

"The app is asking you if you want to take the action plan. You select "Yes". Go through the action plan."

Observe the participant doing the task. Use the Usability Testing/Observation Template Matrix for markdowns.)

Deliver the scenario and task 3 to the participant. 5 minutes

"You are sometimes forgetful about when to tell your child to take his/her new medication. You want to create daily notifications to remind yourself to take any one (1) medication once a day at 8 in the morning.

Here is a little sheet of the information you want to enter. *(Give little sheet with info listed below)*

- Choose any one (1) medication listed
- Frequency = Once a day
- Time = 8 o'clock in the morning

(Observe the participant doing the task. Use the Usability Testing/Observation Template for markdowns.)

Deliver the scenario and task 4 to the participant. 5 minutes

"You have been recording your child's peak flow, medications, symptoms, triggers for about a week now. You want to check his/her weekly progress."

(Observe the participant doing the task. Use the Usability Testing/Observation Template for markdowns.)

Deliver the scenario and task 5 to the participant. 5 minutes

"You come across the word "Peak Flow" and you want to know more about it."

(Observe the participant doing the task. Use the Usability Testing/Observation Template Matrix for markdowns.)

Post-task questionnaire 5 minutes

We would now like you to answer a few post-task questions.

(Refer to participant post-test questionnaire.)

Wrap up. 1 minute

"Do you have any questions or anything to share with me?"

(Allow time for the participant to ask questions and share thoughts.)

"Feel free to let me know if you have any other thoughts or any questions that come up about this research!

Thank you!!"

B. Screener

Note for researcher: Use this screener to find a potential participant. They must pass the following screener questions before you can proceed to the Consent Form.

Screener Questions In Order	Notes
1. Are you over 18 years of age?	If NO, terminate. If YES, proceed to the next screener question.

2. Are you a guardian/primary caretaker of a minor (0-13 years old) on a daily basis?	If NO, terminate. If YES, proceed to the next screener question.
3. Do you have asthma or know someone that has asthma?	If NO or YES, proceed to the Consent Form. (In this case, the participant does not need to have asthma or know someone with asthma. This data will be used to understand our participant.)

C. Consent Form

ADULT CONSENT TO PARTICIPATE IN RESEARCH

AsthmaMD

Principal Investigators: Fairen Baker, Camille Dihiansan, Gregory Haynes, Kayla Michelotti, Wanshu Wang, Brandon Welch

Institution: DePaul University, Chicago, Illinois, USA

Department (College): College of Computing and Digital Media

Faculty Advisor: Dr. Enid Montague

What is the purpose of this research?
We are asking you to be in a research study because we are trying to learn more about the AsthmaMD application.

What is involved in being in the research study?
If you agree to be in this study, being in the research involves using the application to perform various tasks as instructed by the moderator.

How much time will this take?
This study will take about 10-15 minutes to complete.

Are there any risks involved in participating in this study?
Being in this study does not involve any risks. You do not have to answer any questions or do anything that you would not like to do.

Can you decide not to participate?

Your participation is voluntary, which means you can choose not to participate. There will be no negative consequences, penalties, or loss of benefits if you decide not to participate or change your mind later and withdraw from the research after you begin participating.

Who will see my study information and how will the confidentiality of the information collected for the research be protected?

The research records will be kept and stored securely. Your information will be combined with information from other people taking part in the study. When we write about the study or publish a paper to share the research with other researchers, we will write about the combined information we have gathered. We will not include your name or any information that will directly identify you. We will make every effort to prevent anyone who is not on the research team from knowing that you gave us information, or what that information is. However, some people might review or copy our records that may identify you in order to make sure we are following the required rules, laws, and regulations. For example, the DePaul University Institutional Review Board may review your information. If they look at our records, they will keep your information confidential.

Who should be contacted for more information about the research?

Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind now. Later, if you have questions, suggestions, concerns, or complaints about the study or you want to get additional information or provide input about this research, you can contact the researchers Fairen Baker (f.baker91@gmail.com), Camille Dihiansan (camille.dihiansan@gmail.com), Gregory Haynes (ghaynes109@gmail.com), Kayla Michelotti (kaylamichelotti@gmail.com), Wanshu Wang(wanshu.wang@gmail.com) and Brandon Welch (xredrockerx@live.com).

You will be given a copy of this information to keep for your records.

Statement of Consent from the Subject:

I have read the above information. I have had all my questions and concerns answered. By signing below, I indicate my consent to be in the research.

Signature: _____

Printed Name: _____

Date: _____

D. Usability Testing/Observation Template Matrix

TASK 1: You want to record the prescriptions your child used and symptoms he/she felt today.

1. Date = current date
2. Peak flow = 286
3. Symptoms = cough, wheeze, chest tightness, shortness of breath, can do some, but not all usual activities.
4. Triggers = Pollen and outdoor mold, exercise, pollution, weather
5. Medication = Proair HFA.

Expected path

Check off if participant takes this path. "✔" for yes, "X" for no. Or write number of order.

Enter Data > Date > Peak Flow > Symptoms > Triggers > Medications > Save (Note to researcher: If app asks to start action plan, tell them "Yes".) Notes:

Observations

Circle the result from your observations.

What is their reaction to seeing the app?	Positive | Negative | Neutral Describe:
Number of Tries	1st Try | 2nd Try | 3rd Try | More | Fail

How easy was this task? (1= Very Difficult, 2= Difficult, 3= Neutral, 4= Easy, 5= Very Easy)

TASK 2: You want to go through your child's Yellow Action Plan.

Expected path

Check off if participant takes this path. "✔" for yes, "X" for no.

Select "Yes" > Mark through each task OR Action Plan > Yellow > Start > Mark through each task Notes:

Observations

Circle the result from your observations.

What is their reaction to seeing the app?	Positive | Negative | Neutral Describe:
Number of Tries	1st Try | 2nd Try | 3rd Try | More | Fail

How easy was this task? (1= Very Difficult, 2= Difficult, 3= Neutral, 4= Easy, 5= Very Easy)

TASK 3: You have a lot on your plate taking care of your family. You are forgetful about when your child should take their new medication. Create daily notifications to remind yourself to have your child take (name medication) to once a day at 8 in the morning.

- Frequency = Once a day
- Time = 8 o'clock in the morning

Expected path

Check off if participant takes this path. "✔" for yes, "X" for no.

Reminders > Once a day > Select Time > Save (Note to researcher: If app asks to start action plan, tell them "No".) Notes:

Observations

Circle the result from your observations.

What is their reaction to seeing the app?	Positive | Negative | Neutral Describe:
Number of Tries	1st Try | 2nd Try | 3rd Try | More | Fail

How easy was this task? (1= Very Difficult, 2= Difficult, 3= Neutral, 4= Easy, 5= Very Easy)

TASK 4: You want to find your weekly progress.

Expected path

Check off if participant takes this path. "✔" for yes, "X" for no.

Diary chart > Turn phone landscape position. Notes:

Observations

Circle the result from your observations.

What is their reaction to seeing the app?	Positive | Negative | Neutral Describe:
Number of Tries	1st Try | 2nd Try | 3rd Try | More | Fail

How easy was this task? (1= Very Difficult, 2= Difficult, 3= Neutral, 4= Easy, 5= Very Easy)

TASK 5: You want to learn more about Peak Flow.

Expected path

Check off if participant takes this path. "✔" for yes, "X" for no.

Settings > AsthmaMD FAQs Notes:

Observations

Circle the result from your observations.

What is their reaction to seeing the app?	Positive | Negative | Neutral Describe:
Number of Tries	1st Try | 2nd Try | 3rd Try | More | Fail

How easy was this task? (1= Very Difficult, 2= Difficult, 3= Neutral, 4= Easy, 5= Very Easy)

E. Post-Task Questionnaire

Task 1

- When recording the prescriptions and symptoms your child felt today what difficulties did you run into?
- What symptoms and triggers did you not understand or were unfamiliar to you?
- On a scale from 1 to 5, with 1 being very difficult, 3 being neutral and 5 very easy, how would you rate the easiness of this task?

Task 2

- When going through the yellow action plan what difficulties did you run into?
- What steps were unclear or confusing when going through the yellow action plan?
- On a scale from 1 to 5, with 1 being very difficult, 3 being neutral and 5 very easy, how would you rate the easiness of this task?

Task 3

- When creating your daily notifications for your child to take medication what difficulties did you run into?
- When creating your notifications what steps were unclear or confusing?
- On a scale from 1 to 5, with 1 being very difficult, 3 being neutral and 5 very easy, how would you rate the easiness of this task?

Task 4

- When checking your child's weekly progress in the app what difficulties did you run into?
- What steps were unclear or confusing when checking your child's weekly progress schedule?
- On a scale from 1 to 5, with 1 being very difficult, 3 being neutral and 5 very easy, how would you rate the easiness of this task?

Task 5

- What does the word Peak Flow mean to you?
- What difficulties did you run into when trying to obtain information on Peak Flow?
- On a scale from 1 to 5, with 1 being very difficult, 3 being neutral and 5 very easy, how would you rate the easiness of this task?

Overall Post-Task Questions

- What wording and terminology used in the app was difficult to understand or confusing?
- What terminology was easy to understand?
- Did you feel it was easy to find help in the app if you didn't know how to do something? Why or Why Not?
- What changes would you make to the app to make it a good experience for you?

- Do you currently use an app to track and manage an asthma condition? If yes, what app and why that particular app? If no, why not?
- Do you use an app to track any medical condition? If yes, why and what app? If no, why not?

Task Sheets for Participant

TASK 1
When you are done with the hike, you want to record the symptoms and prescriptions your child took today. Here is a little sheet of the information you want to enter. *(Give little sheet with info listed below)*

- Date = current date
- Peak flow = 286
- Symptoms = Cough, wheeze, chest tightness, shortness of breath, can do some, but not all usual activities.
- Triggers = Pollen and outdoor mold, exercise, pollution, weather
- Medication = Proair HFA

TASK 3:
You are having a difficult time remembering when to give your child this new medication. Create daily notifications to remind yourself to take one (1) medication once a day at 8 in the morning.

- Choose any one (1) medication listed
- Frequency = Once a day
- Time = 8 o'clock in the morning

Contributions

Name	Contributions
Fairen Baker	Test Environment, assisted with task and test objectives, purpose.
Camille Dihiansan	Purpose, Problem Statement and Test Objectives, Task List, Evaluation Measures, Report Contents, Script, Usability Testing/Observation Matrix, Screener, Task Sheets for Participant, Pilot Test.
Gregory Haynes	Purpose, Evaluation Measures, Report Contents.
Kayla Michelotti	Purpose, user profile, problem statement, test environment, test monitor role, helped think of some tasks, put together the informed consent, helped think of some evaluation measures, was present for pilot test.
Wanshu Wang	Test Design, assisted with tasks and evaluation measures.
Brandon Welch	Post-task Questionnaire.