Appendix A

Evaluation Plan for Rock Climbing Mobile Application

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1. TECHNIQUES AND ORDERING

We completed an analytical study in the form of a cognitive walkthrough as the first step of our evaluation process. Through the walkthrough, we were able to identify the usability of our application as it might be for a first-time user. We were able to identify some issues and make tweaks before testing with a user. Our analytical evaluation took place first, as planned. This was important for having our best version ready for the next step of evaluation.

Following the analytical evaluation, we completed our empirical evaluation. Having questions prepared before our user's actual walkthrough helped us conduct an organized user evaluation and to collect quality observations.

2. ANALYTICAL TECHNIQUE: Cognitive Walkthrough

2.1 Technique Reasoning

We decided to use a cognitive walkthrough because it gave us a clearer understanding of how it might feel to actually use our app to find a route. We did the walkthrough before the empirical analysis to try and catch any issues they might encounter. This way, we were able to use the cognitive walkthrough to make the user process clear as possible before testing on an actual user.

2.2 Task Evaluating

Overall task: Find a popular rock climbing route.

Our cognitive walkthrough consisted of a step by step navigation of the process to find a route via by most popular routes. We used this walkthrough to better understand flow, problem pages, and areas of high distraction. Finally, the walkthrough of this task helped us make changes before going into our empirical evaluation.

2.3 Goals

The goal of our cognitive walkthrough was to identify any potential issues with our prototype before moving to user testing. By beginning the next step of empirical evaluation with what we think is the best version of our prototype, we were able to gather the most useful responses. Additionally, having group members step through the prototype allowed us to better target questions for the empirical step. We were most focused on visibility, user-friendliness, recognizability, and intuitiveness for first-time users.

2.4 Adherence & Changes

We ended up adhering to our plan very closely for the analytical technique. We walked through the task with the mindset of a first time user and tried to pay close attention to the items that affect our specific goals.

2.5 Analysis

This cognitive walkthrough allowed for our usability group to fine tune the tasks for our rock climbing user. This detailed analysis for the task "Find a popular rock climbing route" is as follows:

1. Logging in
    a. Entered user information
    b. Clicked the submit button. Was also considered to press the "enter" button.
2. Filtering
    a. From the home page (post login), looked for things that would take us to the "Popular" page.
    b. Clicked on the "Popular" tab.
    c. Unsure about the dropdown menus so clicked on both dropdown menus to view their contents.
    d. After viewing contents, we found that the "Category" tab allowed us to choose the level of difficulty.
3. Selecting a route
    a. Based on the popular list, we selected a popular route.
    b. It was then easy to follow the information regarding the route and continued the tasks to view the images, history, and details for the route.

2.6 Results & Insights

Our analytical analysis gave our usability group potential ideas to modify components in our current application. One good example of this was learning that our application did not incorporate a uniform user interface across the whole application so adding essential elements including back buttons and home buttons on every page was necessary.

3. EMPIRICAL TECHNIQUE

3.1 Technique Reasoning

Since our application is still in the early prototype stages, we decided to let our test user run through a detailed storyboard containing all relevant screens to find a route via most popular. This allowed the user a basic understanding of navigation and searching for information utilizing our built in features. After completion of the analytical walkthroughs, we are now able to come up with solid ideas for changes moving forward with our prototype.It was vital to understand how a user interacts with our application considering they haven't been developing since day 1. We wanted to observe how the user will experience our interface and interact with different features. We can't design a user experience, only our UI.

3.2 Task Evaluating

We utilized the empirical "Think out Loud" strategy and let the user run through a detailed storyboard of finding a route via most popular to hear observations and recorded findings accordingly.

We collected observations as the user worked their way through the slide. They described any areas in the app that weren't descriptive or appeared troublesome to navigate. This gave us an idea of what areas need to be addressed and revised. We also observed the user as they stepped through the process to take note of their expressions and reactions as well as verbal feedback

3.3 Goals

The goal of the empirical analysis were to further hone our prototype and identify any pain points. By gathering user feedback, we can ensure our design is tailored to our target market. This helped us determine how a first-time user interacts with the app and how recognizable the app features are in subsequent uses.

3.4 Tasks

Each of these tasks were aligned to test elements of our goals. For an example, the "change application settings" was an element to test the recognizability of settings options rather than the user having to remember where it was located.

1. Login to the application
2. Find a popular route
    a. Filter the popular routes by level of difficulty
    b. View information about this route
    c. View images of the route
    d. View the history of the route
3. Change the application settings

3.5 User

The user for empirical testing will be a local climber. They will be in a neutral setting, without distractions. This user is the target audience for our app and by eliminating distractions, it will make focusing on the tasks easier to complete. Testing on a climber is ideal since they have a set idea of what a good experience would look like and they have some expectations we need to meet for the app to be successful.

3.6 Adherence & Changes

We stuck closely to the plan for our empirical analysis. Our group spent a lot of time planning, and we had reasoning behind each decision. This made sticking to the plan easy and effective. The only changes made between the analytical evaluation and the empirical evaluation were small tweaks to the storyboard based on our insights from the cognitive walkthrough.

3.7 Analysis

After interviewing the local climber, we found that most of the app was fairly easy to navigate. The user could complete most of the tasks with ease. One thing to consider though is the layout of the popular screen. Two dropdowns alongside each other seemed to confuse the user, so having a filter dropdown in a different, more significant spot might get rid of the confusion. We also found that the user had trouble finding the settings button when tasked at doing so. We realize there is uncertainty when finding the settings button when in the menu for a specific route. Possibly putting a settings button in the header of the app would get rid of the confusion.

3.8 Results & Insights

Our empirical results of the "Think Aloud" activity provided insights to where our application is clear and where our user became confused. Some examples of this were provided in Appendix A but it is important to note a few experiences in particular in the following:

- Task #2 Filtering route by level of difficulty: When the user was given *Task #2,* they showed some confusion on which dropdown menu to click. Although the dropdown menu was intuitive to the user, the vocabulary was a bit troublesome to find the right information. **Conclusion:** Implement vocabulary that is familiar to the user.
- Task #3 Change application settings: The user demonstrated some confusion by reaching a conflict in the application. During this task, the user was to change their application settings but could not decide to click the "back" button or the "home" button to start the task. **Conclusion:** Implement clear global program features (e.g. home button, back, etc.)

4. MATERIALS & PROCESS

4.1 Cognitive Walkthrough Materials

- Working prototype/storyboard
- Data form to record observations

4.2 Cognitive Walkthrough Performance

The cognitive walkthrough was completed by our usability group members. This walkthrough was completed simultaneously using our storyboard and verbal details to elude insight to one another's thought process. These findings were discussed actively during the walkthrough and noted when we came across things that were easy or difficult to use. We took additional notes about we we thought might cause problems or distractions and what we thought the solutions might be.

4.3 Empirical Evaluation Materials

- Working prototype/storyboard
- Data form to record observations
    - Observations include body language, user expressions, reactions, etc.
    - Overall time the user spent completing the task
    - Any other general observation
    - Time and setting where the evaluation took place
- Data form to record any questions the user has about application
    - Additional questions the user may have
    - Suggestions or critiques

4.4 Empirical Evaluation Performance

The empirical analysis was performed with one Oregon State University Rock Climbing student and our usability group. One person was taking notes, one asking questions, and others were monitoring observations.

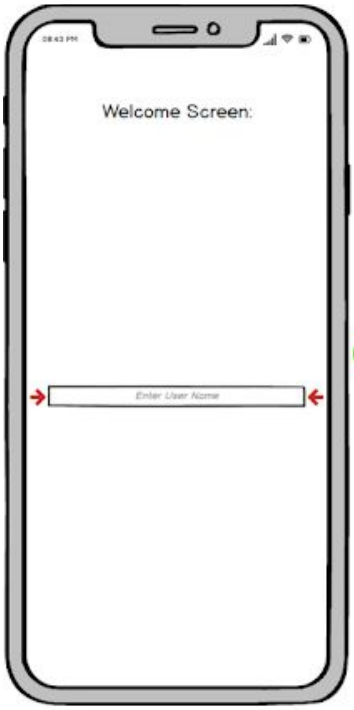
4.5 Follow Up Questions for Evaluation Process

- Were there any features that you struggled with?
- What do you remember from the application?
- Was it user friendly and easy to navigate?
- How likely are you to recommend this application to a friend?
- Was the system easy to use and understand?

5. PARTICIPATION

5.1 Contributions

All group members played an active role in evaluations. Kira, Jacob, and Marji each did a cognitive walkthrough and we all shared observations to decide on any changes. Irish did the empirical analysis with a local climber after the walkthroughs. As a team, we made decisions, analyzed results, and wrote up the report.

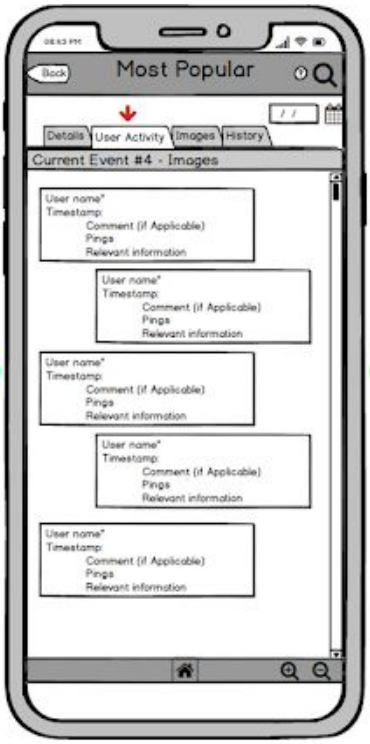


1. User will login then be redirected to home index page

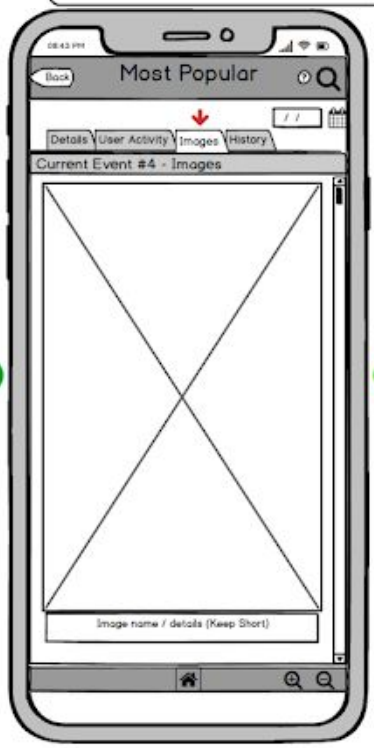
2. To find most popular:
User will direct to the Popular button at bottom left of home index

3. Selection of Post:
Each individual link will be viewable/interactable
Clicking will redirect to a sub page including relevant information

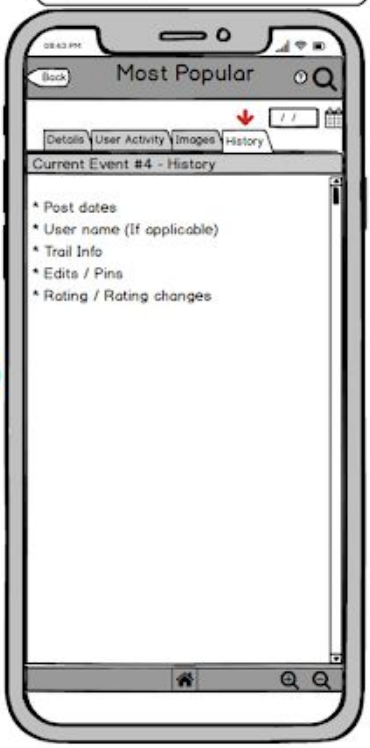
4. Subpage will contain panels with respective info on the category
Default is set to details



4. Subpage will contain panels with respective info on the category
Default is set to details



5. Images page:
Will display all images related



5. History:
All other relevant post information:
Including user name, edits, pins, favorites, etc.

Appendix A

Local Climber
Projet 7 - Empirical Analysis
First time user

Time & Setting: Afternoon in the rock gym
Observations throughout task:

- User sees welcome, types name because it says to type
- Choose route - user seemed unsure of what to do at this step
    - Sees the main screen
    - Sees map
    - “Oh! Popular tab/button.” Clicks tab.
- Takes page to most popular - sees events and page - user looks around the page for a little bit, but seems to be taking it in without much confusion.
    - Dabs with most activity tab
    - Sees category tab -> clicks it
    - Down drops menu
    - Sees a bunch of routes; wasn’t sure what to do first
- View pictures - The user finds the next step easily, looks engaged.
    - Images tab
    - Clicks it
    - Pops image; shows details
    - Scroll bar for images
- View route details - user seems to have a sense of what information they want for the route. Positive/happy expression when reading information.
    - Sees details tab
    - Clicks it
    - Data about the route that you expect
- History
    - Sees the history tab
    - The person who established the route and first descent
- Change settings - user considered using the back button instead of the home button to navigate back home. The user seemed a bit unsure but ultimately found the home button.
    - No settings button
    - Thinks about the back button but then clicks the home button
    - Sees settings button to click settings button

Time to complete the task: 6 minutes

Goals

Intuitiveness for the first-time user

- Were there any features that you struggled with?
    - The user didn't necessarily struggle but had trouble telling the purpose of two dropdowns apart when asked to filter routes by difficulty. It was a simple trial and error. Not much time or energy was wasted for the user when completing the task.
- Was the system easy to use and understand?
    - The user said that it was fairly easy to understand. There wasn't much confusion when it came to tasks. In comparison to other phone applications, this design was fairly similar so past experiences made navigation fairly simple

User-friendliness

- Was it user-friendly and easy to navigate?
    - The user felt that most of the app was easy to navigate. The interface was simple and not too over complicated. On the task where they had to sort by the difficulty of routes, the user had trouble at first distinguishing which dropdown would show the sorting options. The user also wasn't sure where the settings button was after looking at a specific route, so they just chose to hit the home button to gain access to the settings screen. Otherwise, they navigated the app seamlessly.
- How likely are you to recommend this application to a friend?
    - The user is a rock climber and likes the idea of this app since there's not much access to information on local routes. They said that they would definitely recommend this to friends since it makes finding climbs they might like easier to find.

Recognizability

- What do you remember from the application?
    - The user remembers the simplicity of the home screen. They also remember that there is a history tab for routes and more than enough info regarding past completions and user images.

Additional user comments or critiques:

Well put together, not hard to navigate. Fairly simple but engaging design

Appendix B

Local Climber
Projet 7 - Empirical Analysis
Second use the next day

Time & Setting: Morning in the rock gym

Observations throughout task:

- Welcome page - The user recognizes the home page and moves quickly to the next screen.
- Choose route - The user remembered the location of the Popular Routes tab and seemed pleased and at ease.
    - Clicks Popular Routes tab
- Takes page to most popular - user seems relaxed and moves along quickly
    - Sees category tab -> clicks it
    - Down drops menu
    - Sees a bunch of routes
- View pictures
    - Images tab
    - Clicks it
    - Pops image; shows details
    - Scroll bar for images
- View route details - user cruises right along and appears happy
    - Sees details tab
    - Clicks it
    - Data about the route that you expect
- History
    - Sees the history tab
    - The person who established the route and first descent
- Change settings - user immediately finds and selects the home button on this run
    - Sees settings button to click settings button

Time to complete the task: 3 minutes

Goals

Intuitiveness for second-time user

- Were there any features that you struggled with?
    - The user didn't struggle at all the second time around. They were able to complete each task fairly quickly without trial and error.
- Was the system easy to use and understand?
    - The user said that it was fairly easy to understand and most of the confusion from the first time they used the app was gone.

User-friendliness

- Was it user-friendly and easy to navigate?
    - The user still felt that the app was easy to navigate.
- How likely are you to recommend this application to a friend?
    - The user still would recommend the app to others.

Recognizability

- What do you remember from the application?
    - The user remembers both the main screen and also the recognition within the history tab of a route. They liked that it recognized the person that established the route and was the first to climb it.

Additional user comments or critiques:

No additional comments