CMSC 434: Task List

“BugBytes” Mobile App

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Usability Testing

Introduction

Test Objective: To determine the usability flaws in the BugBytes mobile application.

Test Summary and Procedures: Participants were asked to fill out a pre-test questionnaire to establish their background. Questions asked ranged from age and gender to general knowledge of bugs and snakes. Participants were then asked to identify animals by using three methods; location and risk level, picture, animal name. Participants were timed during these tasks. After the test had been administered, the participants were instructed to complete a post-test survey and answer questions about their satisfaction and reaction to the application.

Participants and Results

Participant 1: 20 year old male student with hobbyist and professional outdoor experience.

Participant 1 works as a student trip leader at the UMD Outdoor Recreation Center. He describes himself as being proficient with technology but does not own a smart phone. His knowledge of bugs is modest, but he claims to have a decent knowledge of snakes. He has 20/20 vision and does not suffer from any colorblindness.

For the most part, participant 1 was able to navigate the interface quickly and effectively. He was able to complete the first and third tasks in roughly a minute (1:02 and 1:05 respectively), and still performed the second task quickly with a time of 1:27 (though as you’ll see in the next paragraph this may not be an accurate assessment). Overall he highly enjoyed the interface and design and found most of the app’s functions to be intuitive, navigating and digesting information with ease. He displayed interest in the applications of the project, and expressed that he would highly consider using a fully developed version.

The primary thing the participant struggled with was the use of the accordion panel in the second task. Instead of answering the questions in order to search for the creature in the picture, he simply clicked the search button and browsed through the unsorted results to find the right profile. Upon questioning he stated that he found the accordion layout confusing and pushed the button experimentally. He also found the initial layout for selecting a state to be inconsistent. The autocomplete text box and two buttons seemed to be three separate choices to him, and he recommended the actual button for searching by the state selected be in line with
the autocomplete box.

Participant 2: 20 year old female student with leisure and professional outdoor experience.

Participant 2 works as a student trip leader at the UMD Outdoor Recreation Center. She describes herself as being moderately proficient with technology and owns an Android phone. Her knowledge of both bugs and snakes is modest. She has 20/20 vision and does not suffer from any colorblindness.

Participant 2 was able to use our design with high speed and proficiency. She did not seem to stall or waiver in the tasks we asked of her. She appeared to be very familiar with the various Android touch screen widgets we used, with fast completion times for the tasks (0:30, 1:22, and 0:42 respectively). She seemed to think the design was good, but not anything spectacular. She admitted that she would enjoy having such an application on an outdoor trip.

Like participant 1, she disliked the inconsistency of the state selection menu. She also had trouble with the questions accordion, though she correctly answered the first question on creature color. Furthermore, it was not immediately apparent to her that the resulting set of creatures were organized so that the best match was on the left, and she immediately started scrolling through the rest without examining the first one. One unique thing she remarked that for an emergency application there may be too much information on the profile screen, though she praised the organization of the information and how the more important pieces were highlighted. She also had the idea of implementing an autocomplete search for the listing by name feature, instead of just a scrollable list.

Participant 3: 21 year old male student with hobbyist and professional outdoor experience. Works as a student trip leader at the UMD Outdoor Recreation Center.

Participant 3 works as a student trip leader at the UMD Outdoor Recreation Center. He describes himself as being proficient with technology, but does not own a smart phone. His knowledge of bugs is modest, but he claims to have a decent knowledge of snakes. He has 20/20 vision and does not suffer from any colorblindness.

Participant 3 found our interface easy to use and completed the tasks with great speed (0:39, 0:47, and 0:50). He did not struggle or stall at all, and described the interface as feeling natural. He seemed very enthusiastic about the idea of the application and was engaged in the tasks we presented him with. He found the information given was both appropriate in amount, well organized, and useful. He remarked that he would be eager to use a finished application in the field, and was enthusiastic about ideas for other features that could be implemented.

Like participant 2, this participant only answered the first question of the questions activity, then went straight to browsing the matching creatures, indicating a flaw in the accordion design. He recommended giving more indication that the accordion panels expanded and increasing the size of their headers. He wasn’t completely pleased with the ordering of the screens, and felt that state selection should be able to done on the fly and not just initially. He was also unaware that the lists of creature images could be scrolled, requesting some kind of indicator. His suggestions included ordering the creature images from top to bottom instead of left to right for more clarity, and an ability to search for creatures based on keyword.
Participant 4: 22 year old male student with hobbyist and professional outdoor experience.

Participant 4 works as a student trip leader at the UMD Outdoor Recreation Center. He describes himself as being moderately proficient with technology, but does not own a smart phone. His knowledge of both bugs and snakes is modest. He does not have 20/20 vision and does not suffer from any colorblindness.

Participant 4 seemed to have little experience with touch screen phones, and as a result took longer on the tasks than most others (3:14, 1:57, 0:58). He liked the visual appeal of the app, but found it difficult to navigate at times. He thought the information provided about the creatures was interesting and useful, but questioned how useful the app would be as he would not personally take a smart phone in the backcountry.

Participant 4 immediately stumbled upon a glitch in the application. Despite being a selectable option in the autocomplete box, he could not proceed to the next screen with South Carolina chosen as the state (this was due to a spelling error in the coding). Navigating the interface, he found that it was not obvious whether or not a panel was scrollable and desired some form of indication. Like other participants he struggled with the accordion panel and only answered the first question when identifying by picture. He found it unintuitive that the listing of creatures by name ignored what state he had selected; additionally he felt it was odd that USA was treated as a state value and less of a special case. In order to reduce information overload, he suggested we use bullet points instead of paragraphs on the profile screen.

Participant 5: 21 year old female student with hobbyist and professional outdoor experience. Works as a student trip leader at the UMD Outdoor Recreation Center.

Participant 5 works as a student trip leader at the UMD Outdoor Recreation Center. She describes herself as being proficient with technology, but does not own a smart phone. She claims to be knowledgeable about bugs, but know little about snakes. She has 20/20 vision with glasses and does not suffer from any colorblindness.

Participant 5 show a high amount of proficiency when using our application. Not only were her task completion times high (1:15, 1:25, and 0:50), but she did not have any difficulty interpreting or using the various screens. She commented that she highly liked the design and information presented. She was the only participant that I personally tested that used the accordion menu correctly, and answered all questions to search for the creature in the picture. She was enthusiastic about the application and expressed she would use a fully functioning version.

This participant found a bug in the application which prevented her from selecting a state if she typed the complete name, without the help of the autocomplete. She found that neglecting to capitalize the first letter of the state would prevent her from choosing it. Though she was able to use the accordion panel during the questions activity adequately, she offered suggestions to make it more intuitive, such as by adding borders around the various components, increasing header font size, and using an arrow to indicate if a panel is open or not. Like participant 4, she agreed that treating the entire USA similarly to a state and not as an exemplary case was not good design.

Participant 6: 20 year old female student with leisure experience.
Participant 6 is an Electrical engineer for the A. James Clark school of Engineering, where she also works as a student worker for the Center of Minorities in Sciences and Engineering. She ranks herself very proficient with technology, however she doesn’t own a smart phone. When it comes to bugs or snakes the participant has very little knowledge. Health wise the participant can achieve 20/20 vision with her glasses and is not colorblind. During the tests, she was able to complete the tasks in less than a minute, however showed no interest or enthusiasm with the application.

Overall the user rated the application high to her overall reaction to the application, organization of the display, design of the display, and usefulness of information displayed. However the participant ranked low the amount of information displayed and said she had difficulty using the first screen, stating, “The main screen was a little confusing at first. I thought that inputting something into the text field was necessary to search by state and search in US.”

The participant also mentioned that she assumed that tapping the pictures of the snake or spider would enlarge the image and that there was an issue with speed (a short lag information). Overall the user found the application useful but only if she was a snake or spider enthusiast or was interested in the type of snakes or spiders in a particular state.

**Participant 7: 22 year old female student with leisure outdoor experience.**

Participant 7 is a Computer Science student in the College of Computer, Mathematical, and Natural Sciences and a student technician for the Department of Resident Life- Information Technology. This user has been an android user for 1-2 years and ranks herself very proficient with technology. She has very low knowledge of bugs and snakes and health wise does not achieve 20/20 vision. However the participant is not colorblind. During the test the user was extremely enthusiastic about the application, performed every tasks approximately between 40 to 90 seconds, and wanted to know more about the android programming behind it.

Overall the participant ranked the application high, scoring high marks in her overall reaction to the application, organization of the display, design of the display, order of screens, and usefulness of information displayed. She also indicated in her ranking that the amount of information displayed was somewhat moderate (with a ranking of 4). When asked, “Would you personally find an application like this to be useful?”, participant mentions, “I WOULD! Travelling around the nation is a hobby I plan to continue doing after I graduate. I despise bugs and would want to know what creatures I’m going to run into.”

Aside from the positives, the user expected the application to have been populated with more creatures and mentions that right now all you need to do is scroll, after realizing that there would be 100s of bugs and snakes and scrolling would be as efficient. She also comments that it was would a good idea to expand to other countries.

**Participant 8: 22 year old male student with hobbyist outdoor experience.**

Participant 8 is a Mathematics student in the College of Computer, Mathematical, and Natural Sciences and a student Technician for the Office of Information Technology on campus. The participant also mentioned that he was an Eagle Scout. This user is an owner of an android phone and overall ranks himself proficient in technology. In regards to bugs and snakes, this participant knows a fair amount of information on bugs but a little information on snakes. Heath wise the user can achieve 20/20 vision and is not colorblind. During the
tests, it took the user 1:37:73 (minutes) to complete task one. However, it took < 1 minute to complete the following. This suggests that user needed the extra time to become familiar with the application.

Overall the participant, seemed interested in the application and said it would be of personal use to him. He gave high ratings for overall reaction to the application, organization of the display, design of display, order of screens, and usefulness of information displayed and also said that it was a good amount of information displayed.

However the user mentioned, when ranking the bite severity, he would have liked to know that three stars was the maximum number and that he would normally assume the maximum number was five stars. He suggest writing “3/3” stars to indicate high severity. Another suggestion provided by the participant dealt with the “search by USA” option. He stated, “If you search by USA the information will say the bug/spider can be ‘found in your state.’” On feedback form that was all the user mentioned, however in person the user indicated that searching by USA should indicate being in the USA as a whole, not state on the bug’s or snake’s profile screen.

**Post Test Statistics:**

- 5 / 8 participants did not own smartphones. These users did not seem to have more trouble than the others at using the application.
- 8 / 8 participants self identified themselves as having professional outdoor experience.
- 2 / 8 participants self identified themselves as not having 20/20 vision. These users did not have significantly different reaction scores than other participants.
- 8 / 8 participants were between the ages of 20 and 22. This limits our usability testing to a very specific age group and does not tell us if older users might have trouble with certain aspects of the user interface.
- Most participants self identified as having an average amount of knowledge about bugs and snakes.
**Identified Problems:**

<table>
<thead>
<tr>
<th>Problem</th>
<th>Importance</th>
<th>Effort to Repair</th>
</tr>
</thead>
<tbody>
<tr>
<td>There was consistent trouble with the participants not recognizing and using the accordion layout properly</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>There is a lack of consistency when selecting by state vs the entire country, especially in the loading screen</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>It is not immediately obvious that scrolling panels are scrollable</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Participants had difficulty understanding that returned results are ordered</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>The search by name feature is not aesthetically pleasing to users and does not actually have a “search” function</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>The white on black color scheme is not suitable for outdoor use - a primary environment our application is intended to be used in</td>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>
Sample Screenshots of Prototype:

The main menu after selecting a state

The questions activity / accordion panel

The creature profile page