CS5760 - Human Computer Interaction & Usability Testing

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Application name: MI Herp Atlas Mobile App

Evaluation Assignment 11 – Usability Test Report

UX Consultant
Sanskriti Bokde
Blade Frisch

Development Team
Wade Canavan
Spencer Phillips
Katie Ulinski
Gabe Smit
Jake Wilkins
Ben Walby
Jane Sinclair

Link to Graduate Student Website

Link to Undergraduate Documents Website

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Usability Test of
MI Herp Atlas Mobile App

Introduction

MI Herp Atlas Mobile App is an application for recording observations of Amphibians (frogs, toads, and salamanders) and reptiles (turtles, snakes, and lizards) in Michigan to know the population change for conversation purposes. This will be used by citizens from all age groups to record observations and upload a photo directly from their phone even without the internet connection and the data will get synced when connected to the internet. One of the benefits of this application is it has real time accessibility which helps to keep the data up to date which helps to make conservation strategies and be used for educational purposes and to raise awareness about the endangered species to the local people.

UI Description

The Michigan Herp Atlas mobile app provides a user-friendly experience for citizen scientists to record observations of amphibians and reptiles in Michigan. The core functionality revolves around recording amphibian and reptile sightings. The recording page will likely display a prominent frog image, clearly indicating the app's purpose. Additionally, the user can add details for multiple animals within a single observation entry, providing flexibility in data collection. For consistency, the app utilizes icons throughout for various actions, mirroring what users might be familiar with from other mobile apps. Overall, the UI seems user-friendly and caters to both experienced and novice users.

Usability Tests

Test Scenario 1

1. **Name:** Recording a New Observation (Focus: Offline Functionality)

2. **Goals:**
   Evaluate user experience while recording a new observation without an internet connection.
   Assess user understanding of the offline recording functionality.

3. **Description:** Imagine you are outside somewhere in the wild and you see a frog/herptile. You want to record an observation and take a photo. After recording the observation, you realise that there is no internet connectivity and decide to upload it later when you get the connectivity back.

4. **Task List:**
   a. Launch the app and initiate recording a new observation.
   b. Select the frog species (if known) or choose "Unknown."
   c. Verify the app allows saving the observation without requiring an internet connection.
   d. Save the observation for later upload.

5. **Quantitative Measurement:**
   a. Time taken to complete the observation recording offline.
   b. Number of errors or hesitations encountered while recording offline.

6. **Qualitative Measurement:**
   a. User satisfaction with the ability to record observations offline.

b. User clarity on how the app handles offline data storage and syncing.
c. User perception of the ease of using the app in areas with limited internet access.

7. **Potential Observations of Participant:**
    a. Facial expressions -
    b. Body language -
    c. Overall -

User	Facial Expressions	Body Language	Overall
1	Engaged, curious	Navigated with some hesitation. Fumbled slightly while adding photos.	Enjoyed using the app. Suggested improving touch sensitivity and adding unknown option to diseased option and has good experience overall.
2	Confident, focused	Navigated smoothly. Completed tasks efficiently.	Liked the app's ease of use. Suggested easy terminology for DATUM and township and increase touch sensitivity.
3	Neutral, slightly confused	Struggled with the location feature at first. Took longer to complete tasks.	Found the app helpful but a bit confusing. Recommended improving the clarity of instructions.
4	Uncertain, hesitant	Needed assistance navigating the app. Took the longest time to complete tasks.	Appreciated the concept but found it challenging to use. Suggested larger text and simpler interface.
5	Enthusiastic, interested	Navigated confidently. Explored all app features.	Loved the app's functionality. Suggested adding the ability to add additional notes above the advanced options.
6	Happy, engaged	Navigated intuitively. Completed tasks quickly.	Enjoyed the app's ease of use and contribution to conservation. Suggested adding bigger button for “Help” option.
7	Focused, thoughtful	Navigated with some exploration. Completed tasks with minor pauses.	Difficulty with photo selection. Suggested improved accessibility features.
8	Professional, efficient	Navigated flawlessly. Completed tasks very quickly.	Appreciated the app's potential for data collection.

8. **Potential Problems**
    a. Users finding the process of recording a new observation cumbersome or confusing with advanced options.
    b. Users unsure how to save data for later upload or encounter difficulties with offline functionality.
    c. Users have trouble identifying the specific species they encountered.

9. **Interview**
    a. Can you walk me through the steps you took to record a new observation?
    b. Did you find any parts of the process difficult or unclear?
    c. What information were you unsure about including?
    d. How easy was it to use the app to document your herp observations?
    e. Were there any features you felt were missing or could be improved?

Test Scenario 2

1. **Name:** Map/Location (Focus: User Interface & Information Architecture)

2. **Goals:**
   Evaluate the user's ability to navigate the app and locate the same on the map.
   Assess the clarity and test the map functionality.

3. **Description:**
   Yesterday you recorded an observation and want to modify the location from the map. I want you to go to the uploaded observation and change the location on the record and upload the observation with the new location.

4. **Task List:**
   Launch the app and go to the uploaded observation and click on edit.
   Click on the map and update it with the new location.

5. **Quantitative Measurements:**
   Time taken to locate the map feature.
   Number of clicks or actions needed to access the map.

6. **Qualitative Measurements:**
   User satisfaction with the ease of finding and navigating the species selection.
   User perception of the organization and clarity of the species list/selection method.
   Any difficulties encountered while browsing or searching for specific species.

7. **Potential Observations of Participant:**
   Facial expressions -
   Body language -
   Overall –

User	Facial Expressions	Body Language	Overall
1	Smiles occasionally, furrowed brow when looking for edit option.	Navigates with some hesitation, finds the edit button quickly but takes a moment to locate the map within the edit screen.	Asks for clarification on "uploaded observation" (understood recent observation). Successfully edits location but mentions a preference for a larger map view.
2	Neutral, focused expression.	Confidently navigates the app, locates the edit function and map feature immediately.	Offers positive feedback on the ease of editing location.
3	Appears slightly worried, bites lip when searching for the map.	Hesitates while navigating, asks for clarification on "edit" function. Takes longer to locate the map within the edit screen.	No issues navigating or understanding the task
4	Frowning slightly at the beginning, relaxes as they find the map.	Starts with some confusion but quickly recovers, locates edit and map features efficiently.	Successfully edits location Mentions the app feels slow at times.

8. **Potential Problems**
   a. Users struggle to edit the map feature within the "edit observation" section. This is due to the bug in the map.
   b. Users might have difficulty zooming, panning, or pinpointing the exact location.

9. **Interview**
    a. Did you encounter any difficulty while pinpointing the new location on the map?
    b. Do you have any suggestions for improvement regarding the map function or the location editing process?

Test Scenario 3

1. **Name:** Update new date (Focus: User Interface & Information Architecture)

2. **Goals:**
   Evaluate the user's ability to navigate the app and change the date.
   Assess the clarity and test the date functionality.

3. **Description:**
   Yesterday you recorded an observation and want to modify the date from the observation you made. I want you to go to the uploaded observation and modify the date on the record and upload the observation with the new date.

4. **Task List:**
   Launch the app and go to the uploaded observation and click on edit.
   Click on the date and update it with the new date.

5. **Quantitative Measurements:**
   Time taken to locate the date feature.
   Number of clicks or actions needed to access the date.

6. **Qualitative Measurements:**
   User satisfaction with the ease of finding and navigating the species selection.
   User perception of the organization and clarity of the species list/selection method.
   Any difficulties encountered while browsing or searching for specific species.

7. **Potential Observations of Participant:**
   Facial expressions -
   Body language -
   Overall -

User	Facial Expressions	Body Language	Overall
1	Smiles occasionally, furrowed brow for a moment while locating the edit button.	Navigates the app with some ease, hesitates slightly before clicking "edit." Types in the new date confidently.	Seems satisfied overall. Mentions the app is user-friendly.
2	Focused but relaxed, no signs of frustration.	Quickly locates the observation and edit button. Edits the date efficiently.	Very positive experience. Finds the app intuitive and appreciates the real-time data recording feature. No suggestions for improvement.
3	Squints slightly while looking at the screen.	Navigates slowly and methodically. Asks for clarification on the meaning of "modify the date." Successfully updates the date after receiving a brief explanation.	Somewhat apprehensive at first but expresses relief after completing the task..
4	Tapping fingers and sighs softly while	Clicks around the screen somewhat erratically. Struggles to locate the	Frustrated with the process. Finds the app confusing and suggests a

	searching for the edit option.	date field and accidentally clicks on another observation. Needs prompting to return to the original observation.	more prominent "edit" button or a guided tutorial for beginners.

8. **Potential Problems**
    a. Some users were unsure if the date change is saved or requires additional confirmation steps.
    b. Even after the date was changes the invalid error remained.

9. **Interview**
    a. How easy was it to find the option to edit your observation?
    b. Did you have any difficulties finding or using the date picker?
    c. How satisfied were you with the overall experience of modifying the date?

Pre-test questions

Survey

1) Age: (Select one)
    a. 12-18
    b. 19-24
    c. 25-34
    d. 35-44
    e. 45-64
    f. 65+

2) How comfortable are you using mobile apps? (Select one)
    a. Beginner
    b. Intermediate
    c. Advanced

3) Have you ever used a mobile app to record wildlife observations? (Select one)
    a. Yes
    b. No

4) Are you interested in learning more about amphibians, reptiles, and their conservation in Michigan? (Select one)
    a. Yes
    b. No

Questions

1) I am interested in the testing of this application.
    a. Strongly Disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree

2) I understand the purpose of the application.
    a. Strongly Disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree

3) I understand where this application may be used.
    a. Strongly Disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree

Post-test questions

Questions

1) I believe that the application is easy to understand and use.
    a. Strongly Disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree

2) I feel like the application has a useful interface easy was it to use the MI Herp Atlas app to record an observation.
    a. Strongly Disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree

3) I believe that I could use the application to perform these tasks again without any further assistance.
    a. Strongly Disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree

4) I never felt confused, lost, or otherwise uncertain about how to perform a task.
    a. Strongly Disagree
    b. Disagree
    c. Neutral
    d. Agree

e. Strongly Agree

5) All of the functions of the website that I interacted with performed as expected, e.g., everything that I clicked on did what was expected and nothing that I clicked on did something unexpected.
   a. Strongly Disagree
   b. Disagree
   c. Neutral
   d. Agree
   e. Strongly Agree

Interview

1) Were you able to complete all the tasks that were assigned to you? If yes, describe your experience if no, list down the difficulties you encountered.

2) What particular task did you find most difficult?

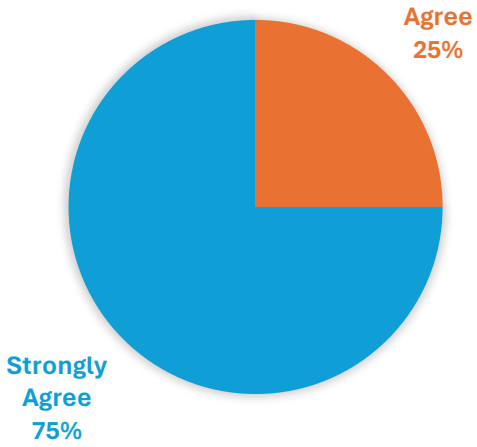
3) Based on your overall use of the application which is your favorite aspect/feature of the application?

4) Were you satisfied with the overall experience of the application? Please describe your experience briefly.

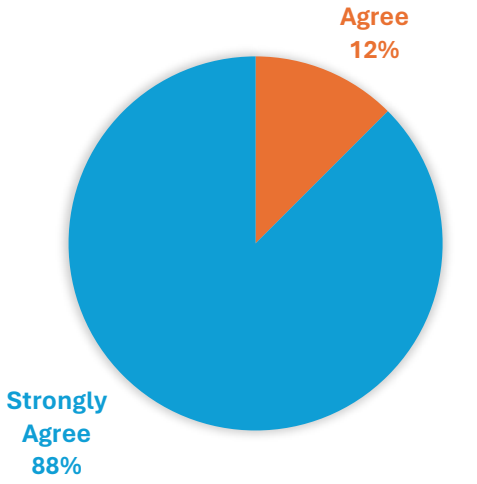
5) Please list down any suggestions and improvements for the application.

Results

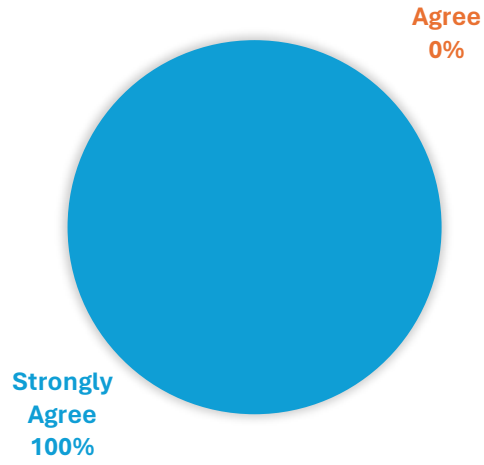
1) I believe that the application is easy to understand and use.



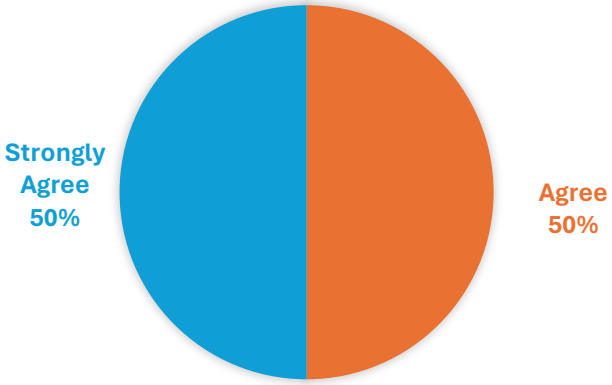
2) I feel like the application has a useful interface easy was it to use the MI Herp Atlas app to record an observation.



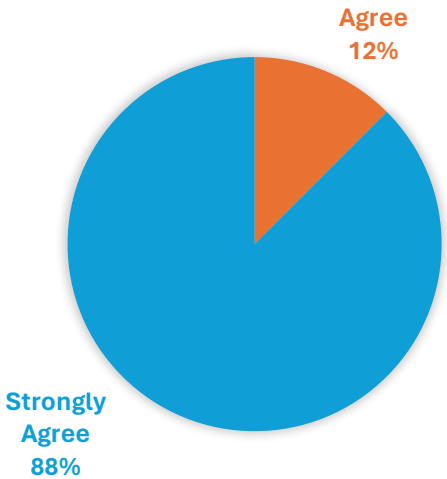
3) I believe that I could use the application to perform these tasks again without any further assistance.



4) I never felt confused, lost, or otherwise uncertain about how to perform a task.



5) All of the functions of the website that I interacted with performed as expected, e.g., everything that I clicked on did what was expected and nothing that I clicked on did something unexpected.



Analysis of Strength and Improvements

This section of the usability test report highlights the positive aspects of the mobile application and identifies areas where it could be improved. It will provide an overview of the application's strengths, as well as suggestions for making it more user-friendly and efficient.

Strengths

1. Favorite features of the application:
    a. Advanced Options – gives an overall detailed explanation of what all information is needed.
    b. Details about location, types, and advanced characteristics
    c. Calendar/Date pop up – Easy to select date instead of drop down menu
2. Form very well structured.
3. Application is easy to use.
4. The UI is simple to understand.

Improvements

Information Architecture

1. Users suggested placing notes about advanced options above the actual features for better visibility.
2. The current three-dot menu icon for help and support was misinterpreted as an Android system setting. Participants recommended a dedicated Help & Support button for easier access.

Visual Design

1. Text sometimes overlapped data after upload, creating readability issues.
2. Upload buttons lacked visual cues for their functionality. Implementing icons or progress bars could improve clarity.
3. The advanced options section appeared cluttered. Streamlining the layout and presentation of these features would be beneficial.
4. Text size for the species help option was considered too small. Increasing the font size would enhance readability.
5. Users requested improved contrast and outlining for the "Manage Records" section to enhance visual distinction.

Functionality

1. Participants expressed a need for a "species unknown" option when recording observations to account for unidentified amphibians or reptiles.
2. A similar "unknown" option was suggested for the "diseased" field to provide flexibility in data entry.

Appendix A: Undergraduate Team Attendance

Grad Student	Location	Day/Time	Undergraduate Students	Participants
Sanskriti Bokde	In-person (Library)	04/08/2024 2:00 PM	Jake Wilkins, Katie Ulinski	Vikramaditya Gurrapu
Sanskriti Bokde	In-person (Library)	04/09/2024 3:30 PM	Spencer Phillips, Gabe Smit	Aishwarya Mahima
Sanskriti Bokde	In-person (Library)	04/10/2024 2:00 PM	Spencer Phillips	Alisa Teige
Sanskriti Bokde	In-person (Library)	04/11/2024 3:30 PM	Jake Wilkins Spencer Phillips	Avery Doherty
Sanskriti Bokde	In-person (Library)	04/08/2024 3:00 PM	Katie Ulinski, Spencer Phillips	Nehal Sheware
Sanskriti Bokde	In-person (Library)	04/09/2024 4:15 PM	Gabe Smit, Jake Wilkins	Mitchell Warner
Sanskriti Bokde	In-person (Library)	04/10/2024 3:00 PM	Katie Ulinski	Dustin Krontz
Sanskriti Bokde	In-person (Library)	04/11/2024 4:15 PM	Jake Wilkins, Gabe Smit, Spencer Phillips	Mason Fuchs

Appendix B: Bug Report

1. Application Bug 1

Bug Name: Date Selection Difficulty
Bug Location: Observation Recording Form (Date Pop up)
Bug Description: In the initial version of the app, selecting a date for an observation required two clicks. Users had to tap the date field and then tap again to access the date selection menu.
Bug Expected Behavior: Selecting the date field should directly open the calendar.

2. Application Bug 2

Bug Name: App Slowness
Bug Location: Various App Screens (Reports are user-based)
Bug Description: Users reported that the app felt slow to respond during testing.
Bug Expected Behavior: The app should respond promptly to user interactions, regardless of location within the app. This ensures a smooth and efficient data recording experience.

3. Application Bug 3

Bug Name: Persistent Form Errors
Bug Location: Observation Recording Form (After incorrect data entry)
Bug Description: When users entered incorrect data in a form field, an error message appeared. However, even after correcting the input, the error message remained visible. This could lead to user confusion and impede data entry completion.
Bug Expected Behavior: The error message should disappear once the user corrects the input, and the data becomes valid.

Appendix C: Testing Challenges

1. Technical Challenge 1

Challenge Name: Unfamiliarity with DATUM and Township
Challenge Description: Users reported difficulty understanding the concepts of "DATUM" and "Township" within the app. These terms used may not be familiar to the general public, particularly those less comfortable with technology.

2. Technical Challenge 2

Challenge Name: Limited Map Functionality

Challenge Description: The current map functionality appears to only allow vertical movement. Users expressed a desire for more advanced map manipulation, such as panning left and right to explore different areas.

Acknowledgements

I would like to express my gratitude to all the participants who took part in the usability testing of the Programming Analogies application. I would also like to thank our development team for their hard work and dedication in creating the app and for providing invaluable support and feedback throughout the development and testing process.