Evaluation Assignment 4
Swept Away - Team 5

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App Idea: WEPP Model

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Contents

1 Introduction

This is a detailed usability test plan for the Water Erosion Prediction Project Application (the WEPP app) developed by Swept Away (team 5). This report outlines the procedure followed by the administrator, Sandeep Battula, along with the forms given in the appendices, which include the test scenarios, instructions followed, questions asked, consent forms, and bug reports.

1.1 Design Description

Swept Away have created an app with that will be an user friendly application that interfaces the WEPP model to help citizen scientists and high school students for predicting hill-slope scale erosion. There is a single page, the user first arrives to the data entry page, where there are input boxes for climate file, soil type, slope and cover percentage, and GPS location, which is a page part that gives a location to the app. Once the user presses calculate, the result part of the page displays below the inputs, with a back button.

2 The Usability Test

In each session the procedure is as below

1. Pre-experiment
   (a) Instructions to participants
   (b) Signing consent form and pre-experiment questionnaire
2. The experiment
3. Post-experiment
   (a) Post-experiment questionnaire
   (b) Bug report interview

There will be total of 6 testing sessions, each session being an hour. All the sessions will be in Library Room 233, which is a large study room, with a table and plenty of room to conduct a test. To setup the participant will get use their phone to navigate to the website, or if they do not have a phone, they will use the one provided by the experimenter.

- 4/15/19
  - 12:00 PM
  - 1:00 PM
- 4/18/19
  - 10:00 AM
  - 11:00 AM
- 4/18/19
  - 4:00 PM
  - 5:00 PM

2.1 Instructions to participants

Before starting the experiment, a team member, will explain the goals and objectives of the app, then the tasks that they have to perform will be explained briefly. The experimenter, a member of the team or me, will mention that the confidentiality of the participants will be maintained. Then the participants will be asked if they have any questions regarding the usability tasks.

2.2 Consent forms

The tester will hand out the consent form to the participant. The participant will read the consent form and return it to the experimenter. The consent form is included in the Appendix.

2.3 Pre-experiment questionnaires

Before the usability testing, the participant will fill out a Pre-experiment questionnaire. A pre-experiment questionnaire has been included in the Appendix.

2.4 Post-experiment questionnaires

After the usability testing, the participant will fill out a Post-experiment questionnaire. A post-experiment questionnaire has been included in the Appendix.

2.5 Bug reports

Bugs are errors in the program. A bug report form is included in Appendix. Every time a user encounters a bug, unique bug number is given and the bug name. When a bug is first encountered, an asterisk (*) is put by the bug. For multiple occurrences of the same bug, no description is written except the bug name and number.

3 Scenarios

3.1 Scenario 1 - Normal Student

3.1.1 Test Goals: Understanding the app

- To check if the language of the app is understandable

- To check if the app feedback is appropriate

3.1.2 Description

The setup for this scenario is the participant in Library room 233. The participant is given the consent forms, operation instructions, and pre-experiment questionnaire. Then the experiment is done, and after there is an post-experiment questionnaire, and bug report interview. Lastly the participant can leave.
The participant will start the app and by the text box fields such as *Slope Length*, *Slope Gradient* and *Cover Percentage*, they will press the question buttons as since they don't understand what those terms mean. Then the participant will be asked to select reasonable values for all entries in the query. Finally the participant will be asked to submit the query.

3.1.3 Task List

- Start the app

- Press help links

- Enter reasonable values for all entries

- Click Calculate

3.1.4 Quantitative Measurement List

- The amount of time needed to complete the query

- Number of times the participant clicked/tapped

3.1.5 Quantitative Measurement List

- Whether the participant looked confused?

- Did the participant have a to squint to read or type

3.1.6 Potential Observations of Participant

- Did the participant ask questions?

- Did the participant zoom several times?

3.2 Scenario 2 - Devious Student

3.2.1 Test Goals: Hacking the app

- To check if the app can handle erroneous data

- To check if the app feedback is appropriate

3.2.2 Description

The setup for this scenario is the participant in Library room 233. The participant is given the consent forms, operation instructions, and pre-experiment questionnaire. Then the experiment is done, and after there is an post-experiment questionnaire, and bug report interview. Lastly the participant can leave.

The participant will start the app. The participant will be asked to select *unreasonable* values for all entries in the query. Then the participant must put in the location of a lake or sea. Then user is told to submit their location, and go back to the home page. Finally the participant will be asked to submit.

3.2.3 Task List

- Start the app

- Enter unreasonable values for all entries

- Press Manual Location

- Enter the location of their favorite lake or sea

- Click Calculate

3.2.4 Quantitative Measurement List

- The amount of time needed to complete the query

- Number of times the participant clicked/tapped

- number of messages/warnings that

3.2.5 Quantitative Measurement List

- Whether the participant looked confused?

- Did the participant have to use the the back button on their phone, and not on the app

3.2.6 Potential Observations of Participant

- Did the participant ask questions?

- Did the participant complain?

3.3 Scenario 3 - Confused Student

3.3.1 Test Goals: Navigating the app

- To check if the map of the app is easy to navigate

- To check if the app feedback is appropriate

3.3.2 Description

The setup for this scenario is the participant in Library room 233. The participant is given the consent forms, operation instructions, and pre-experiment questionnaire. Then the experiment is done, and after there is an post-experiment questionnaire, and bug report interview. Lastly the participant can leave.
The participant will start the app. The participant will be asked to select reasonable values for all entries in the query, but pick *Manual Location*. Then the participant must put in the location of their favorite park on the map. Then user is told to submit their location, and go back to the home page. Finally the participant will be asked to submit.

3.3.3 Task List

- Start the app

- Enter reasonable values for all entries

- Press Manual Location

- Enter the location of their favorite park

- Click Calculate

3.3.4 Quantitative Measurement List

- The amount of time needed to complete the query

- Number of times the participant clicked/tapped, trying to select a location

3.3.5 Quantitative Measurement List

- Whether the participant looked confused?

- Did the participant have to use the the back button on their phone, and not on the app

3.3.6 Potential Observations of Participant

- Did the participant ask questions?

- Did the participant have a small phone or large phone?

Appendix

Computer User Interface Usability Testing

You are being invited to participate in a research study to determine the usefulness and usability of computer user interfaces. This study is being conducted by Dr. Robert Pastel of Michigan Technological University Computer Science Department and students in Dr. Pastel's Human-Computer Interaction (HCI) courses. The students are performing the usability tests as part of their project and to fulfill the HCI course requirements.

There are no known risks if you decide to participate in this research study. There are no costs to you for participating in the study. The information you provide and tasks that you will perform will determine the usefulness and usability of user interfaces. The questionnaires and the tasks should take less than an hour to complete. The information collected may not benefit you directly, but the information learned in this study should provide more general benefits.

The questionnaires and test are anonymous. Do not write your name on the survey. No one will be able to identify you or your answers, and no one will know whether or not you participated in the study except for the instructor of the class that is giving you credit for participating. Should the data be published, no individual information will be disclosed.

Your participation in this study is voluntary. By completing the questionnaires and performing the tasks, you are voluntarily agreeing to participate. You are free to decline to answer any particular question you do not wish to answer or not to perform a task for any reason.

If you have any questions about the study, please contact Dr. Robert Pastel, Assistant Professor, Computer Science Department, Michigan Technological University, Houghton, MI 49931.

The MTU Institutional Review Board has reviewed my request to conduct this project. If you have any concerns about your rights in this study, please contact Joanne Polzien of the MTU-IRB at 906-487-2902 or email jpolzien@mtu.edu.

   Participant signature and date:

Pre-Experiment Questionnaire

1. How many years have you used a smart phone? _____

2. Please indicate your level of agreement to the follow statement:
   I am very interest in the testing of this application.

   (a) Strongly agree

   (b) Agree

   (c) Neutral

   (d) Disagree

   (e) Strongly disagree

3. Were you ever in a Usability Test before?

   (a) Yes

   (b) No

4. What is your phone size (in inches)? _____

5. What is your major? _____

6. Were you ever a teacher or in a position similar to one?

   (a) Yes

   (b) No

7. How many 9-12 year old children do you know that have a smartphone? _____

Post-Experiment Questionnaire

1. Please indicate your level of agreement to the follow statement:
   Overall, this application was easy to perform the task.

   (a) Strongly agree

   (b) Agree

   (c) Neutral

   (d) Disagree

   (e) Strongly disagree

2. Please indicate your level of agreement to the follow statement:
   I enjoy using this application.

   (a) Very Much

   (b) A little bit

   (c) Neutral

   (d) Not very much

   (e) Not at all

3. Please indicate your level of agreement to the follow statement:
   I would use this application again.

   (a) Strongly agree

   (b) Agree

   (c) Neutral

   (d) Disagree

   (e) Strongly disagree

4. Please indicate your level of agreement to the follow statement:
   The application was easy to understand?

   (a) Strongly agree

   (b) Agree

   (c) Neutral

   (d) Disagree

   (e) Strongly disagree

5. Please indicate your level of agreement to the follow statement:
   Are the color choices pleasing to you?

   (a) Strongly agree

   (b) Agree

   (c) Neutral

   (d) Disagree

   (e) Strongly disagree

6. Any other comments about the app:

Bug Report Form

Number	Name	Uniqueness	Location	Description