



# Krab Shack App

Usability Test Report

# 1. Introduction

## 1.A Process Specimen Page

Crab Shack Kitchen user log out

Process Specimen

Accession Number

Catalog Number

Station Number

Center Number

Event Date

Geographic Locality

Habitat

Latitude

Longitude

Depth

Depth Units

Collectors

Scientific Name

Identifier Name

## 1.B Description of the UI

The process Specimen page. Features include 2 thumbnails and 1 main picture window. The fields are located on the right panel. As the field panel scrolls down, the left picture panel remains in the same position. The fields are vertically aligned with large blue buttons that fill in the text field when clicked. The buttons are citizen science submissions of transcriptions of the pictured labels.

## 1.C Test Plans

We designed 2 alternative layouts that incorporate features that may be helpful to speed along the process. For each version, the process is as followed:

- 1) Do 1 specimen.
- 2) Semi-structured interview
- 3) Speed run (5 minute timer, collected logs/minute for each)
- 4) Semi-structured interview

The following questions were used as a basic outline of the semi structured interviews:

- 1) How do you feel about the website so far/now that you did a speed run?
- 2) Was it easy to find everything?
- 3) How did you feel about the zoom functionality?
- 4) Did you have any difficulty finding the “correct” response from the suggestions?
- 5) Could you easily tell which fields were selected by you, opposed to automatic selections?
- 6) Did you like how the fields were organized and grouped?
- 7) Can you think of any changes to the layout or design that would make the task easier/faster/more intuitive?
- 8) Did you notice the confirmation message, and if so, did you find it annoying or satisfying?
- 9) Name 1 or 2 things you liked the most about this alternative layout?
- 10) Name 1 or 2 things you liked the least about this alternative layout?
- 11) How did you feel about the vertical alignment of citizen science submissions? Did it make them easier to compare? Which layout do you prefer (vertical, horizontal, or 2x2 grid?)
- 12) Can you think of any keyboard hotkeys/shortcuts that would make this faster?
- 13) Was this version faster, the same speed, or slower than the previous versions?

After testing all 3 scenarios a few wrap up questions were given, and I had the participant draw their ideal layout of the process specimen page. Wrap up questions included, but are not limited to:

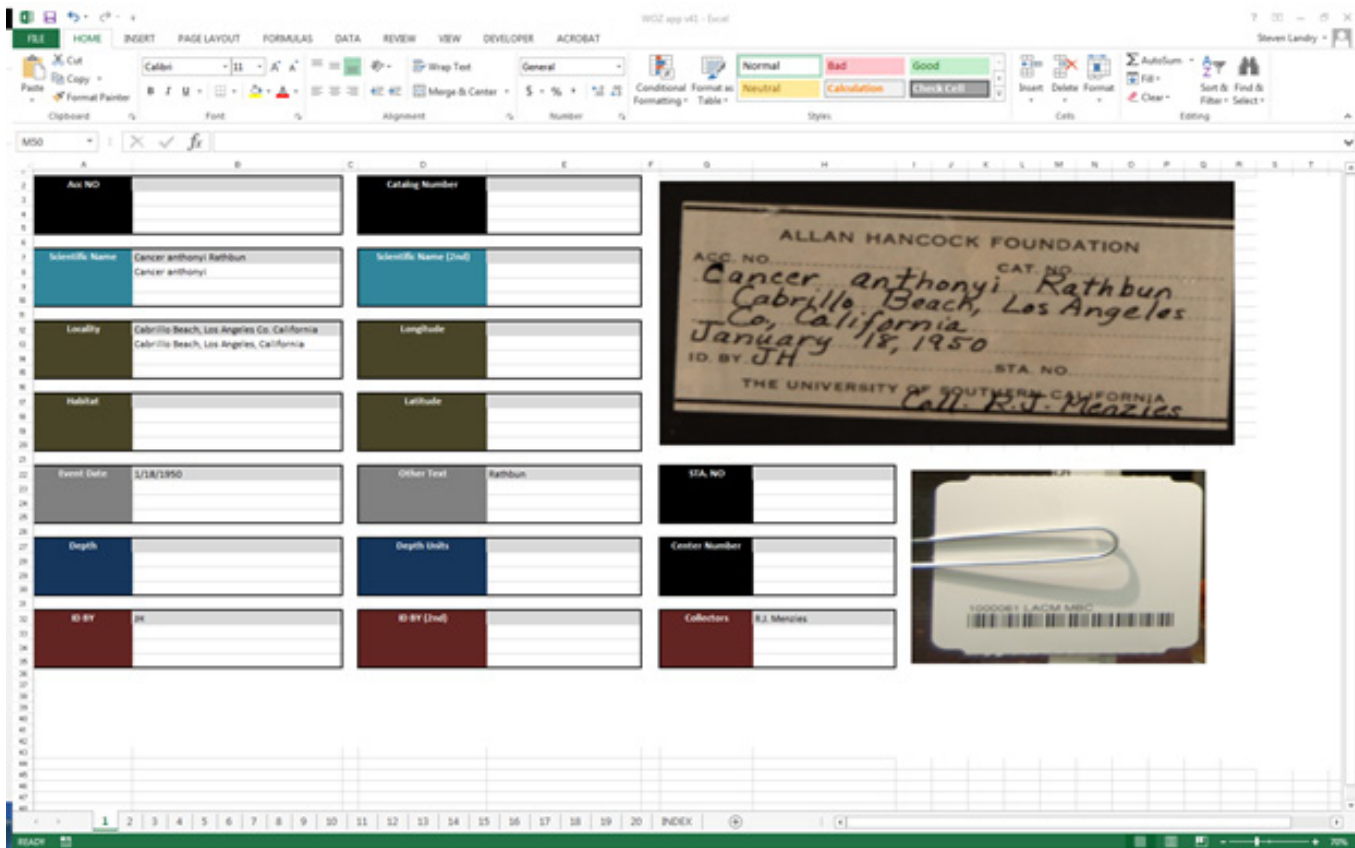
- 1) Which layout did you like the best?
- 2) Which layout do you think you were the fastest in?
- 3) Was there any element from the alternative designs that you would like to see in the original design?
- 4) Can you think of any keyboard hotkeys/shortcuts to make the original layout even faster?
- 5) What/where do you think would be a good place to provide tips, extra descriptions, or documentation?
- 6) What was your favorite/most frustrating feature of the original website?
- 7) What part of the consolidation process took the most time?
- 8) Do you have any other feedback you’d like to give regarding anything about the design of the website or how I am running my usability test?

\*Note from the Author: The process specimen page was the only part of the website that was tested, due to that page being the flagship of the consolidation task and the limited amount of time/participants for usability testing.

# 1.D Alternative Versions

The original web application is called version "A"

## Version B



Version B is a mock up excel based interface. This layout features colors and location that group related fields (for instance, both "2<sup>nd</sup>" fields are placed next the matching primary fields, numbers are colored black, depth dark blue, location fields are green, etc). The location of each field box is static (not dependent on the number of submission), and is organized in a similar manner to the typical label card found in the majority of the label pictures (i.e., ACC NO top left, CAT NO top right, scientific name, locality, habitat, longitude, latitude, Event data, Depth, ID by STA NO and Collector at bottom right, etc). This layout also features all fields in 1 page view, removing the necessity for the user to scroll. Finally, the citizen science submissions are displayed vertically rather than horizontally.

## Version C

The screenshot shows a web browser window with the URL `isabelinc.in/crabshackdemo/#/`. The page title is "Crab Shack Kitchen". The form contains several input fields with dropdown menus:

- Scientific Name:** Contains "Cancer anthonyi Rathbun" and "Cancer anthonyi".
- Acc No:** An empty text field.
- Locality:** Contains "Cabrillo Beach, Los Angeles Co. California" and "Cabrillo Beach, Los Angeles, California".
- Event Date:** Contains "1/18/1950".
- Habitat:** An empty text field.
- ID BY:** Contains "JH".
- Depth:** An empty text field.
- Scientific Name (2nd):** An empty text field.
- Catalog Number:** An empty text field.

To the right of the form is a photograph of a specimen label from the Allan Hancock Foundation, The University of Southern California. The label contains handwritten text:

ALLAN HANCOCK FOUNDATION  
ACC. NO. \_\_\_\_\_ CAT. NO. \_\_\_\_\_  
Cancer anthonyi Rathbun  
Cabrillo Beach, Los Angeles  
Co., California  
January 18, 1950  
ID. BY: JH STA. NO. \_\_\_\_\_  
THE UNIVERSITY OF SOUTHERN CALIFORNIA  
Call: E. J. Pezales

Version C is a mock interface made with Node.js. It is a hybrid featuring different elements of versions A and B. It's features include field windows (instead of a list), 2 columns of fields with semi-adaptive size (if submission text is long, the field takes up 2 columns of a row instead of 1), and vertical display of citizen science submissions that act as buttons to fill in the text box.

# 2. Results

## 2.A Speed

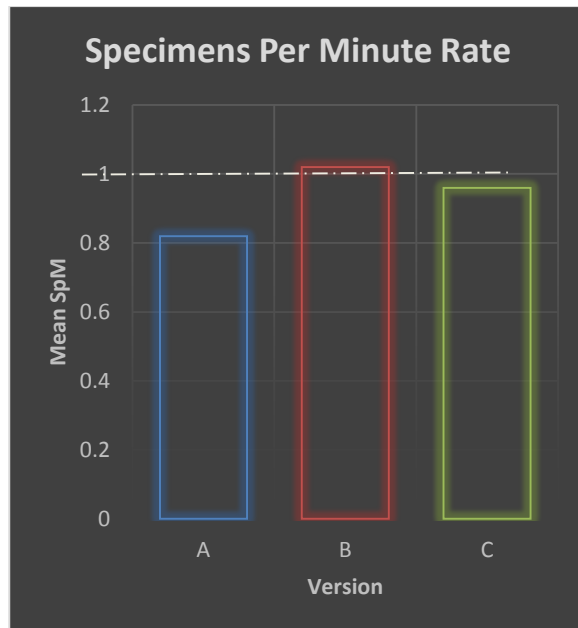


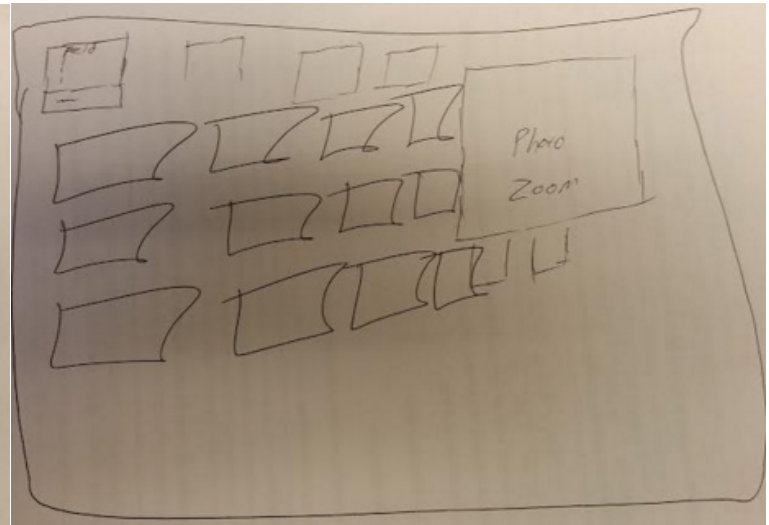
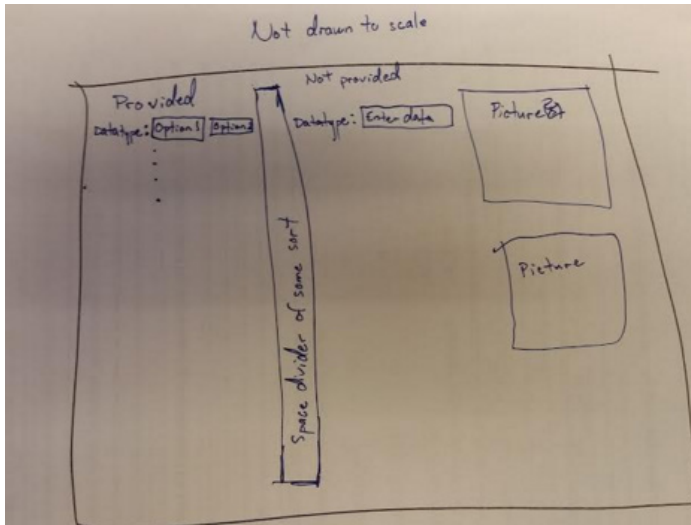
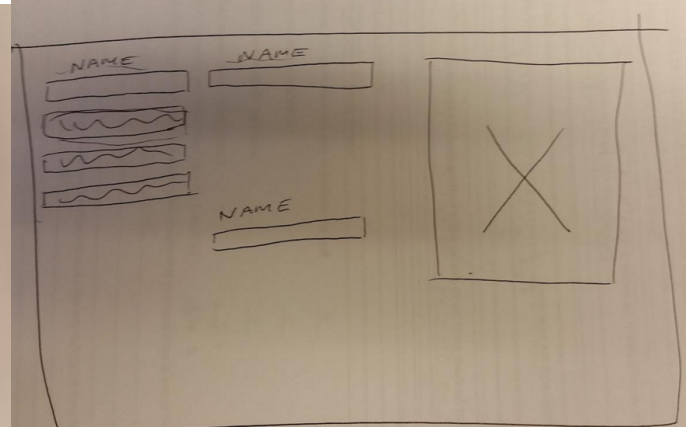
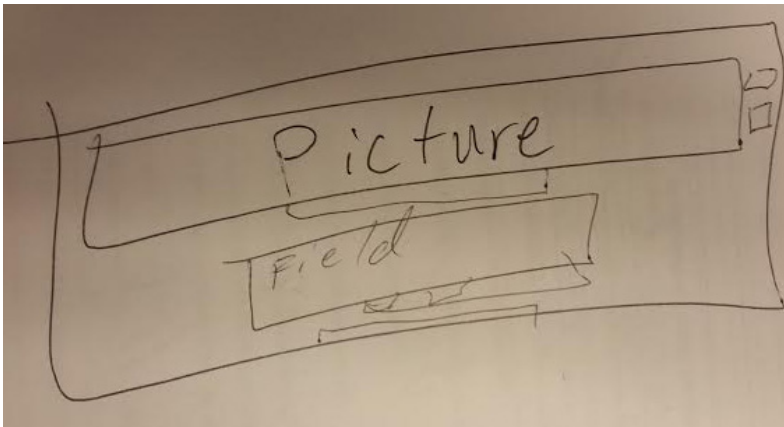
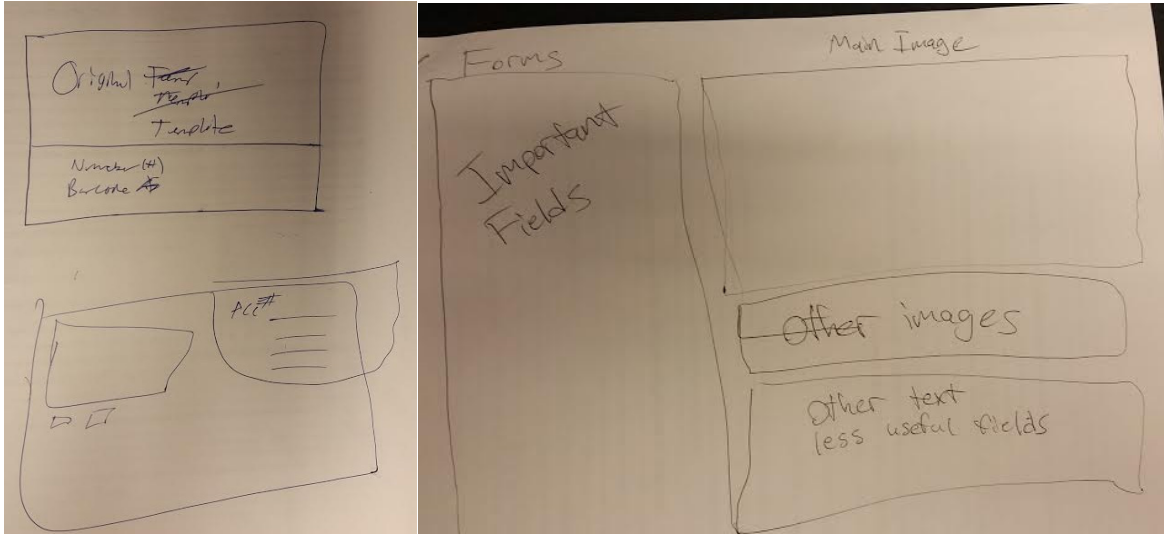
Figure 1. Mean specimens per minute rate for each of the versions across all 6 participants. Dashed grey line represents the approximate time of ignoring the citizen science submissions and simply transcribing the pictures (1 specimen per minute, approximated by myself as a surrogate domain expert).

The mean score across all 6 of my participants was highest for version B (1.02 specimens per minute). However, this result should be taken lightly, as the amount of “work” to be done by the user varied randomly (based on the amount of citizen science submissions, and amount of information contained in the pictured labels). Also, individual differences (in consolidation strategy and excel familiarity) played a huge role in participant’s speed, depicted by the large standard deviation of speed for each version (1.6, 2.7, and 1.6 for versions A, B, and C respectively). Due to the small sample size and large standard deviations, no significant differences were found. Raw data (calculated specimen per minute rate) is depicted by participant and version in table 1 for the reader’s pleasure.

Table 1

Sub #	A	B	C
sub1	3.25	1.5	3.5
sub2	4.5	5	4.5
sub3	3	6.5	6
sub4	3.5	4	3.75
sub5	3.2	4	3.6
sub6	7.25	9.5	7.5

## 2.B Participant submitted Ideal Layout Drawings



## 2.C Usability Issue Summary

**Orienting visual attention:** The majority of the task consists of the user visually scanning the left and right sides of the page. With either strategy employed by the participants (Extract data from picture vs fill out fields in order of field presentation), the user must reference the picture and fields in an alternating fashion. Qualitatively, the most time and effort is spent on orientating visual attention back to the current field once scanning the picture. Participants reported “getting lost” in the long list of submissions once leaving the picture and attempting to fill out the corresponding field.

**Horizontal display of submissions:** Most (5/6) users preferred the vertical layout of citizen science submissions. Displaying the submissions vertically allows the user to spot differences in similar submission much more quickly, since the distance traveled by the eye is smaller, and location of spacing can be used reference points.

**Non-obvious back button:** The logo at the top left of the page is a back button, allowing the user to go back to the main page without saving the current specimen. However, it is not obvious it is a button/link.

**No current picture feedback:** Some users (2/6) mistakenly clicked on the current picture thinking there were 3 pictures.

**Order of fields:** Participants felt that the order of the fields inhibited performance. The field order did not match the presentation order of the information in label pictures. Additionally, the two “2<sup>nd</sup>” fields were closer to the bottom of the list, far from the primary related fields. This caused participants to feel like they were back tracking redundantly through the image in search for the information that may or may not be present.

**All white background:** 1 user noted that the all-white background may be taxing on the eyes if stared at for hours at a time.



# 3. Conclusions

**Static vs Dynamic field location:** Have the field location be static (not dependent on number of submissions), or display them dynamically by grouping fields with and without submissions.

**Give the top left logo some depth cues** to make it more obvious that it is a button/link.

**Field order** should be displayed in the order that the cataloger chooses to read through the card. Try to match the location of the field in the website with the location of the information displayed on the pictured labels, OR the most logical ordering that matches the cataloger's mental model of each specimen.

**Minimize empty space**

**Highlight the currently used submission.** Increase the color disparity of the submissions that used and unused. Have that color remain after the user selects another option in a different field for rechecking.

**Slightly darker background color** to reduce visual strain of all-white background.

**Highlight active picture,** and reduce the size of the thumbnails to make it more obvious that they are not 3 separate pictures.

**Let the "tab" key skip submissions** allowing the user quickly cycle through fields using only the keyboard.

**Use "visual attention hooks"** to assist in reorienting visual attention back and forth from the current field and the picture.

- 1) Group similar fields by color, and spacing.
- 2) Larger field names
- 3) Add a cue to signify previously user processed fields (as opposed to automatic default selection).
- 4) Highlight currently active field

## 4. Mockup of Updated Interface

Crab Shack Kitchen user log out

ALLAN HANCOCK FOUNDATION

ACC. NO. *Cancer anthonyi* CAT. NO. *Rathbun*  
*Cabrillo Beach, Los Angeles*  
*Co, California*  
*January 18, 1950*  
ID BY *JH* STA. NO.

THE UNIVERSITY OF SOUTHERN CALIFORNIA  
*Coll. R.W. Meazies*

ACC. NO [Dropdown]  
CAT. NO [Dropdown]  
STA. NO [Dropdown]  
Scientific Name [Dropdown]  
Scientific Name (2<sup>nd</sup>) [Text Box]  
Locality [Dropdown]  
Habitat [Text Box]  
Longitude [Text Box]  
Latitude [Text Box]  
Date [Text Box] August 4, 1997

New/modified features of the mockup interface

- 1) "Home button" more obvious as a button.
- 2) Hybrid button/dropdown/text box.
- 3) Green dot signifying previously user-processed fields.
- 4) Arrow button indicating multiple submissions to review for a particular field.
- 5) Use small black dots to signify the number of citizen scientists that submitted that particular submission.
- 6) Larger field names.
- 7) Fields grouped by color and spacing.
- 8) Use dropdown menus for certain fields that can only be out of a possible 4 answers (e.g., depth units).
- 9) Smaller picture thumbnails
- 10) Highlights currently active picture and field
- 11) Could fit 1 or 2 columns of fields to fit all fields in 1 page view (to prevent the need to scroll).
- 12) Could eliminate the use of the mouse all together by using tab, arrow, and number keys, and allowing the user to control the zoom and position of the picture camera using ctrl+WASDQE

# Appendix A: Undergraduate group member attendance at testing

Chloe – 3

Colton – 4

Keagan – 2

Massimo – 3

# Appendix B: Bug Report

Bug ID	Bug name	Bug uniqueness	Bug location	Bug description	How to replicate	Bug finder

- No bugs were identified during my usability testing.
- Sachin's testing found 2, but were immediately fixed before my studies.
- We thought we found two (accidental hover zoom and autofill functionality), but those were caused by the particular web browser (chrome). To ensure intended display/functionality, make sure hover zoom add-on is not on, and turn off chrome's autofill settings.