Boulder72

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Executive summary

We conducted user tests on two different paper prototypes of the Boulder 72 app with four different users. Overall, users appeared to find the app straightforward and most reported that they would be moderately interested in using it personally. The few usability problems our participants encountered were primarily minor and we don't foresee a major redesign. There However, there were a number of clear lessons from this stage of research that we plan to incorporate into the next, medium-fidelity, prototype. The map, in particular, confused several of our users so we will need to find ways to improve its design or present the information in a non map-based manner. There were also several requests for new features, not currently present in the prototype, that we can envision incorporating into future designs.

Description of the testing protocol

To test our paper prototypes, we spent between thirty and forty minutes with each of our participants. After thanking them for their participation and providing a high-level description of the Boulder72 project, we asked them to complete five tasks that spanned the major functionality of the app on each prototype in order. They were:

1. Getting notification during a disaster and to find out whether you are in the area that has been hit by the disaster.
2. Adding Emergency contacts.
3. Checking on an emergency contact during a disaster.
4. Keeping track of your preparedness.
5. Checking on one of your emergency contact's level of preparation.

Generally we were able to follow the testing protocol outlined in our testing plan. It was easier than expected to recruit users to do our testing and they seemed to enjoy performing the tests. In total, were able to test four users. Each user was a current graduate student at CU, three of whom experienced last year's flood. Additionally, three were home-renters and one was a home-owner. Most of our tests were conducted with three team members present while a couple only involved two members: one to act as the computer and another to take notes.

One weakness of the tests during this round was that we did not do well in varying the order of our tests, something which we said we would do. As a result, *prototype two* may have been judged easier to use because the users were already familiar with the tasks.

Usability problems

There were a handful of usability issues, we have modified the UAR template to record these issues in a consistent manner:

UAR #: 1	**Problem/Good:** *Problem* **Found By:** User 3
Name:	The Document checklist is confusing
Relevant heuristic:	User control and freedom, Match between system and the real world.
Steps to reproduce:	Launch the app, go to documents, attempt to enter preparedness information beyond the static list the app provides.
Detailed explanation:	Our current checklist is very static and pre-defined. We do not allow users to enter custom information into the preparedness checklist
Possible solution:	Allow users to enter their own items into the preparedness checklist by giving an “other” or “add category” option.
Severity (low, medium, high, critical):	Medium. The app still functions, but is not as usable or desirable to use.

UAR #: 2	**Problem/Good:** *Problem* **Found By:** User 1
Name:	The evacuation map is unclear
Relevant heuristic:	Recognition rather than recall

Steps to reproduce:	For Prototype 1, when a Push Notification comes in, opening the app brings you to a page describing an emergency with a link to the map, understanding this map is not straightforward.
Detailed explanation:	The text on the prior page discusses the 'red zone' needing to evacuate, but it is not immediately evident as to where the red zone is or if you are in it.
Possible solution:	This could partly be due to the poor resolution / sketch of the map, but not all users are very comfortable reading maps, so there should be more text based information
Severity (low, medium, high, critical):	high. This is an important part of our app.

UAR #: 3	**Problem/Good:** *Uncertain* **Found By: Multiple Users**
Name:	Ping Terminology Intuitive?
Relevant heuristic:	Match between the system and the real world.
Steps to reproduce:	On both the all friends page and the individual friend pages, a button with the word "Ping" appears. When pressed, this sends a message either to all contacts or just to the individual friend with the location of the user as well as a message that says "are you ok?"
Detailed explanation:	Some participants found this feature intuitive and useful, others expressed concern that older users would not understand the 'ping' terminology
Possible solution:	We could conduct further user-testing with a broader range of potential users and address this question specifically

Severity (low, medium, high, critical):	Medium

UAR #: 4	**Problem/Good:** *Problem* **Found By:** User 3
Name:	Ping one user vs ping all users?
Relevant heuristic:	Consistency and Standards
Steps to reproduce:	On both the all friends page and the individual friend pages, a button with the word “Ping” appears. When pressed, this sends a message either to all contacts or just to the individual friend with the location of the user as well as a message that says “are you ok?”
Detailed explanation:	Because the text “Ping” appears in two separate places but has two different functionalities, users might be somewhat uncertain what the response of the system would be
Possible solution:	We can change the text on the friends landing page to “Ping All Friends” and the text on the individual friend page to “Ping (name of friend).”
Severity (low, medium, high, critical):	medium

Subjective feedback from users

Here we outline a few relevant pieces of feedback from each question we asked our users after they finished completing the tasks.

1. What was the worst aspect of your experience for each prototype?

Prototype1
User 1: Map is confusing
User 2: Batteries are important, but perhaps car batteries, phone batteries, are just as important.
User 3: Checklist in Documents is misleading -- shouldn't be checklist.
User 4: "Don't really need the map"

Prototype 2:
User 2: HATES the idea of Zippy[1]
User 3: Prototype 2 was more confusing in terms of where to go next.
User 4: Hates the idea of Zippy

2. Which, if any, parts of the task instructions were not straightforward?

User 1: Tasks were mostly straightforward
User 2: Checking of documents was a bit contrived.
User 3: "passports, documents, etc. was confusing: What's a safe place, what does that mean?" What does the doc preparedness look like?

3. Which, if any, parts of the interface were potentially confusing or misleading?

Fortunately, no user voiced concern over this.

4. Would you use an app like this before/during a disaster?

User 1: She would consider using an app like this because she has no current level of preparedness and likes the idea of the app telling her where she is lacking.

User 2: Yes, he would keep it on his list of apps at all times, but only use it when something bad happens. Wouldn't use the gamification feature ahead of time -- would definately use it if there was notice of a disaster coming.
User 3: "Probably, not a bad idea." Even just this testing process has made her realize she has no plan of any sort – even after experiencing the flood last year. This is something to keep her aware of the need to be organized.
User 4: She may start with the app -- but probably not maintain it.

5. Overall feedback of each prototype?

User 1:Second prototype is better because it's bigger, but first one has more details.

[1] See next section on *List of Proposed Changes: Boulder72 Mascot :(*

User 2:Prototype 1 is better -- more interactive.Geospatial information is very helpful.Road closures would be helpful as well.Wishes the alert section of prototype 1 had links and such. Adding information to the map.Did not find much difference between the two prototypes.
User 3:The initial screen on prototype 1 was more straightforward in terms of navigation, good visual; map was good touch, however prototype 2 which directly tells you you're affected is much better.
User 4:Second one was better. More intuitive, spoke easier. Easier to work out.

6. Were there any tasks for which one prototype was significantly better than the other?

User 1: Prototype 2 is easier to understand because it is plain text.
User 2: Prototype 1 is better because it is more interactive. Geospatial information is very helpful.
User 3: Prototype 1 was more "followable"
User 4: Prototype 2 document checklist is more straightforward. User likes the simple star notion instead of the item by item breakdown.

List of Proposed Design Changes

Map

Based on our testing results, it is difficult to ascertain whether or not a user needs to evacuate based on our current map. This could in part be due to the lack of detail in the paper sketch, but even when users identified the evacuation zone on the map, it was not obvious that they were currently in danger.

It seems worrisome, however, to remove the map entirely from the app. The map has the ability to provide a quick glance of where issues may be in the disaster. The key change we will make at this stage is to add text to the push notification as well as the top of the map that explicitly states whether or not a user should evacuate.

Document Checklist

The document checklist seemed a bit contrived and some users were concerned about giving out too much personal information. However, if this information was not shared, this feature would be interesting for some users.

Custom Items

Users would like to be able to add their own items to the checklist of emergency preparation, an option which we do not currently allow. This is a high priority change, but will require determining how these items play into the scoring of preparation.

Boulder 72 Mascot :(

While it was not implemented in this iteration of the prototype, we had previous plans for a mascot named Zippy (he would be a squirrel with a fire chief's helmet) who would act as an omniscient character in the app, providing tips and encouragement to . When we asked our users after using the prototype if this would be a neat feature, there was resounding hatred of the idea, for it seemed too close to Clippy, the obnoxious Microsoft paperclip.

Increased Gamification

While there is some degree of gamification in the app at present, several users expressed interest in more information regarding the preparedness of their friends and how they each compared. In future iterations of the prototype we will incorporate a more explicit leaderboard and other features that will highlight the competition between friends to show who can be more prepared.

Ping All Friends, Ping Kendra

On the main landing page of the friends section of the app, users are presented with an option to “Ping” their emergency friends. On each of the friend profile pages there is also an option to ping just that friend. In order to ensure maximum clarity, we will change the text on the friends landing page to “Ping All Friends” and the text on the individual friend page to “Ping (name of friend).”

Custom Information in Ping Messages

As currently designed, the “Ping” messages just send a text that says “I’m ok” to a user’s chosen contact(s). Users requested to be able to add custom information these messages. We should look at either creating a few preset messages (e.g. ‘I need help,’ ‘I’m ok,’ ‘Evacuating’) or just a free text area that users can type whatever they’d like into.

Friend Groups

One user requested the ability to be able to divide their friends into different groups so they could compete separately but also ping separately during emergencies. We can explore adding this functionality to the next prototype.

Contribution Report

Robert, Jennings, and Sayani each participated in at least three of the user tests and all contributed to the writeup. Kevin participated in one user test.