TalkBAC

DRINK & THRIVE

Team and Roles

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Problem and Solution Overview

Seven thousand years ago, in the depths of antiquity, the Egyptians invented beer. People have been getting drunk ever since. The line between alcohol as social lubricant and alcohol as traitorous toxin is often obscured. When that line is crossed, the consequences can be mild, such as a little belligerence or tomorrow's hangover. Or it could be more severe – blacking out or throwing up. As you approach that line, the effects of alcohol make it harder to see, which is why people cross it unintentionally so often. After a few drinks it becomes a little harder to objectively self-assess. Our proposed solution is to give our customers the ability to see their BAC and set personal limits.

Paper Prototype Description

The prototype depicts a smart phone app that can be used to help users monitor their BAC levels. The prototype was created using index cards and is operated by superimposing the cards over a smart phone.

❶ This is the alert screen. This is what users see after the app alerts them that they have crossed a previously set threshold. The alert announces a user's BAC along with an alert message.

❷ This is what the user sees upon unlocking the screen after an alert.

The user can snooze or dismiss the alert, leave a voice memo, or play a game to help determine the degree of inebriation.

Color Codes:
Green – Fun Night
Yellow – Bad Night
Red – Nightmare

❸ If the user chooses to leave a voice memo to note an event during the evening, a pop-up screen appears. The user records a message and presses "Done" to return to the previous screen.

❹ This is the sobriety game. The object of the game is to move the ball from the "START" position to the "END" position. This would present more of a challenge as users increase their alcohol consumption.

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❺ The history screen shows past BAC levels. Users can click on a date to see that night's results or they can use the "Adjust" button to adjust previously set levels.

❻ When a date is selected, a graph is shown to help the user see BAC levels over time for that date. The user can also access game scores and voice memos from that date.

❼ Pressing the dice icon presents a pop-up containing the user's score for the sobriety game. Pressing the voice memo icon would play a user-recorded voice memo.

❽ When the "Adjust" button is pressed, the user is able to change their threshold settings by sliding the control to the left or right for each boundary.

❾ The prototype must enable users to adjust limits so extra pieces are superimposed to reflect user changes.

Testing Method

Participants

Recognizing that we only have a limited amount of time and resources to conduct usability studies, we decided to focus our study on undergraduates currently attending the University of Washington. This was a strategic decision, made to better sample a population because we believed our application will be used generally by this population. For this usability study we made sure that our participants were over the age of 21, to eliminate any legal hurdles, and smartphone users. Having smartphone users will remove the necessity to train participants with regards on how to perform tasks for our study.

Environment

The studies were conducted in a lab-like setting at Odegaard Library because the participants were recruited there and ready to take the test. This private, yet inviting location allows for the participant's comfort, but eliminates distractions and interruptions. This location ensured that the application was tested for its usability, not the user's ability to adjust to environmental setting. The idealized setting would be a field study, however this would introduce more issues than it's worth. Odegaard Library was chosen because of its relaxed and relatively quiet environment.

Tasks

During the test, users were assigned the following three (3) tasks related to the overarching scenario. These tasks were based from our previous contextual inquiries and task analysis. The scenario had the user go out for drinking on one night and all three (3) tasks are based of the similar scenario.

Task 1: Check to see how your drinking is affecting you.

You are out drinking with your friends. Sometime after you start, the app alerts you by vibrating in your pocket. Use your phone to see how your drinking is affecting you.

Task 2: Figure out when you had too much last night.

It is the morning after your night out and you are hungover. You wake up and pull out your phone. Use the app to figure out at what point you had too much to drink last night.

Task 3: Change future alerts.

In retrospect, you feel you weren't alerted in time last night. Using what you just learned, have the app alert you sooner next time.

Procedure

Our testing procedure started with assigning roles to each team member, in order to make the usability test run smoothly and obtain valid data. Roles:

- Aasav Prakash – Note-taker
- Max Czapanskiy – Facilitator
- Mihir Shah – Computer

*Anna Marie was not able to assist with testing due to conflicting schedule.

For each participant we followed the same procedures and script. Before each session, the facilitator, computer, and note-taker ensured that all paper prototypes were in place and ready for testing. Once the participant arrived, the facilitator greeted them, explained the usability test, and provided them the consent form to sign. After completing the consent form, the participants began the usability test. The participants were also requested to speak aloud throughout all the tasks and we made sure to assure them that we were testing our application, not them. Following each task, they were asked the post-task questions. Once the participant completed the usability test, they were asked a series of post-test questions. At the end, we thanked the participants for coming to the usability test session. Scripts, post-task and post-test, are attached in the appendix.

Test Measures

These tests focused on collecting qualitative data and quantitative data to understand the overall experience and efficiency of the application. We collected the qualitative data about the application by asking participants post-task and post-test questions. These questions focused on the ease of use and overall experience with the interface. These qualitative data allowed us to iterate on our existing design.

Testing Results

User testing provided clear and constructive feedback for further design iteration across all three tasks. During testing, a total of six critical incidents were noted and analyzed for severity, with results informing design both at a global application level and at a low design-specific level. Despite these incidents, participants still responded positively to questions about the application's overall usability, even indicating that it would be easy to pick up for new users. These results suggest that the overall design of the application and task alignment with user goals are well suited, with design-specific features requiring further iteration. Results are broken down by task with discussion of critical incidents occurring in each, and followed by critical incident analysis.

Task 1

In task 1, participants tended to find the BAC meter confusing at first. After some exposure, however, they seemed to warm up to it, as suggested by post-task and post-test feedback. Specifically, post-task feedback was taken after completion of task 1, with positive responses for the applications usability and the user's understanding of the application itself. Further, in post-test feedback, Task 1 was most commonly identified as the easiest. Although this might have been due to the overall difficulty of using the

application, the points of frustration did not include portions of Task 1, indicating that users did not find themselves hampered by it.

A very common piece of feedback for the Task 1 was "I don't know what last score means." On the screen, last score is supposed to display the most recent attempt of the game the user can play to test their current state of inebriation. However, this, along with the purpose of the play button itself, was unclear to most users. They ended up playing the game only as a result of curiosity or a desire to explore the functions of the app – a desire that did not similarly extend to use of the memo button, which was never pressed in testing. All users expressed confusion over its purpose. Once the game was played, the purpose of "last score" became clear to the user. In further design iteration, however, we cannot make the assumption that all users will press "Play" out of curiosity. This feedback indicates that the meter screen requires simplification and/or explanation – some way to inform users of the purpose of the information and buttons displayed.

Task 2

A significant amount of the feedback given for the application pointed to Task 2 as confusing or frustrating due to the graph. Several reasons were identified – first, it was unclear to the user what the meaning of the dice icon was. This was understood only after pressing it. In addition, the voice memo icon was universally unclear. Most times, it was not even pressed. Participant 3 also noted that the confusing icons distracted her from the colors that were displayed to indicate BAC level, indicating a serious design problem. At least explicitly, none of the participants noted the connection between colors on the graph and the color that was displayed earlier on the date selection screen.

Notably, Participant 2 never reached the graph screen. On the initial date screen, he noted that "Adjust" was the only button he could press. The reasons for this may be twofold – On the one hand, the design itself does not make it clear enough that they can be pressed. On the other hand, this may be due to the paper prototype itself, in which press-able buttons were stuck on with tape in all other screens, whereas the dates themselves are drawn directly on the notecard, giving them a more static impression. The usability implications, however, are grave enough that this merits further iteration.

Task 3

Participants were not as confused by the sliders in Task 3, probably as a result of having seen the meter in Task 1 already. Despite the affordance of a groove for the slider controls, participants still did not recognize its purpose at first. Instead, all participants attempted to press the actual numbers displayed next to "Limit 1" and "Limit 2" in order to change them. This is another situation where the design of the paper prototype itself may be interfering with testing results, as the numbers are taped on in a similar fashion to buttons elsewhere, but the feedback here is a strong indication to simply allow the user to

change limits by pressing the numbers if that is their first instinct anyway. After changing the limits and seeing the slider controls move in response, the user would be properly indicated of an alternative interface for accomplishing the task.

On a positive note, participants were able to understand both that the sections represented limits for the app's alerts, and that the colors indicated severity of BAC.

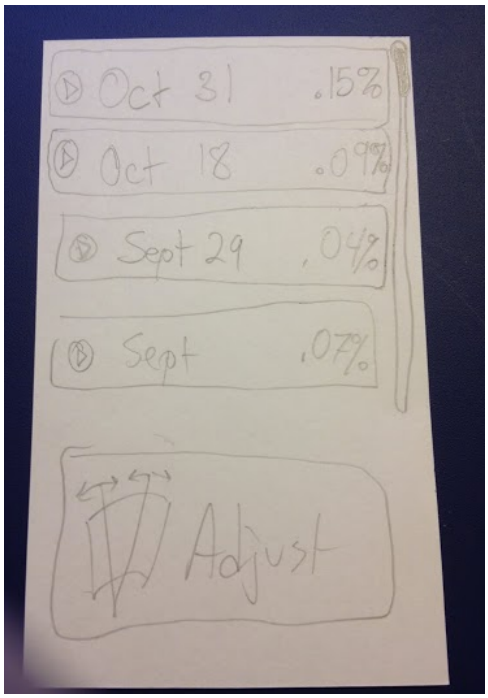
Critical Incidents

- Confusion over memo button – **Severity 3**
  Although it does not generally interfere with completion of the task, this is a significant issue in the user's understanding of the application and its features.
- Confusion over play button – **Severity 3**
  Similar to the previous, another issue with the application and its features.
- Dates don't look clickable – **Severity 4**
  This is by far the most critical issue, and needs to be rectified immediately. It completely prevents a user from completing the task and accessing several key features.
- Slider was not noticed – **Severity 3**
  Important to fix, but not as high priority as the previous issue. There are also alternatives, whereas no alternatives exist for the previous issue.
- Users expected numbers in "Adjust" screen to be clickable – **Severity 2**
  This is more of an opportunity to improve usability than a fix, as discussed earlier.
- Color representing level of BAC – **Severity 2**
  Although a minor usability problem, this issue may be solved by extensive use of the application, and does not interfere with performance of any task.

Interface Revision Sketches

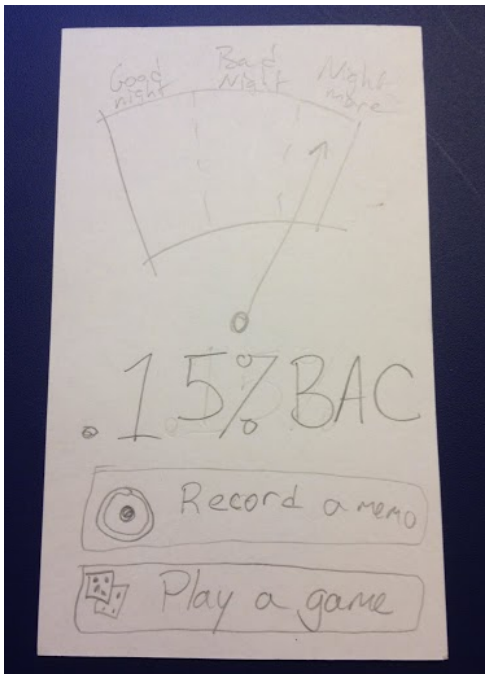
Home Screen

The most severe usability problem we encountered was some users' inability to reach the history screen from the home screen. In the existing design there is a list of clickable dates, but there isn't affordance enough for everyone. So in the new sketch we added some padding between dates and a chevron icon, which has become standard in many iOS apps. We also added a scroll bar on the right to indicate some dates may be hidden.



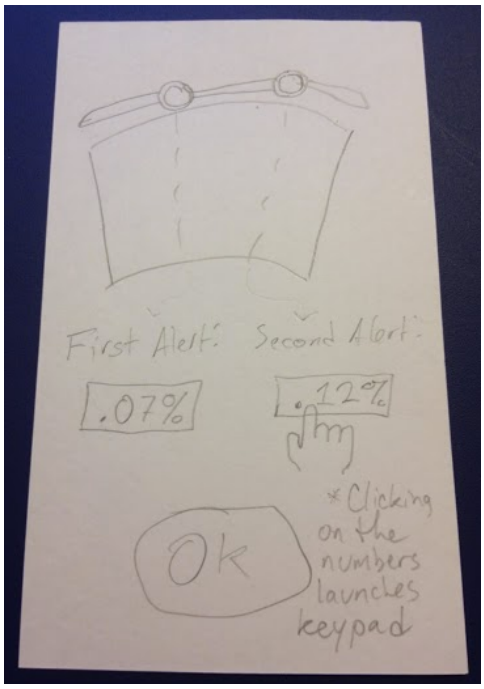
Monitoring Screen

Although our users didn't express frustration at the monitoring screen, they struggled to understand the voice memo and sobriety game features. To make things clearer we simplified. First, we stripped the "Dismiss" and "Snooze" buttons. The alarm clock analogy apparently isn't clear to begin with and the buttons occupy valuable real estate. Then we made the buttons slightly more verbose – "Memo" and "Play" become "Record a memo" and "Play a game". The voice memo icon was based on the iOS voice memo app, but it must not be commonly used because it caused confusion. This led us to use the older and more familiar red circle record icon. Correspondingly, on the history screen we will change the voice memo icon to a play audio icon.



Adjust Limits Screen

All three of our testers stumbled at the adjusting their limits task. Intuitively they wanted to click on the numbers and only when that failed did they notice the slider. So in our new sketch we jumbo-sized the slider and made the numbers launch a numeric keypad. This is a problem we think will also be assuaged by a higher fidelity slider since we aren't confident in the appearance of the one in our prototype.



Summary Discussion and Lessons Learned

User testing was an extremely illuminating experience for our team. So many features that had seemed straightforward to us were either mysteries or frustrations for people who had never read our proposals (you know, real people). We had to reconsider the metaphors and affordances we were providing our users because the conceptual model they were creating from our interface did not match our own. A good example is the Snooze/Dismiss feature. The metaphor here is an alarm clock. When a BAC limit is reached and the phone issues an alert, the user can either tell it to go away for a short time or dismiss it for the entire evening. That seemed like a great idea to us as it would offer our users greater flexibility. In our testing we found two things about how our customers relate to that feature. First, it's not expected and considered superfluous. Second, the alarm clock metaphor does not translate and only serves to add confusion.

The sobriety game offered up a different kind of dilemma. The idea turned out to be sound – users readily interpreted game scores as an indicator of inebriation. However, we managed to hide it in plain site by cluttering the screen with too many other controls. The lesson, as it often turns out to be, is to simplify. We are optimistic that this feature will not only better inform our customers but also create an emotional connection to the app now that it's taking center stage.

Finally, we would be remiss if we didn't comment on how difficult wrangling testers can be. Usability testing really is a skill that takes practice. Most users are reluctant to speak aloud and require multiple reminders. Offering those reminders without being overbearing is a tricky trade off. Also, people apparently don't like to share critical opinions with strangers, which flies in the face of millions of YouTube comments. An incident had to be transcendently annoying before someone would say something negative. Reading body language, especially hesitations and pauses, is a more reliable tactic.

Appendix