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# Hiya Mobile

## Usability Study Report



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# Executive Summary

## Overview

We conducted a summative usability study of Hiya's mobile app with iOS users in order to evaluate the usability of Hiya's key features. Our main goals were to evaluate ease of use in completing tasks related to key features, understand users' needs when navigating the app, and identify common issues that users experience. The findings of this study are intended to inform design changes that will improve the overall app experience for Hiya users.

We recruited a total of 6 participants who have access to Hiya's premium plan and who believe in the importance of communicating via phone and regularly receive spam calls. Half of the participants were current users and the other half were new users of the app. We conducted remote moderated usability sessions with participants and had them complete a total of 6 tasks related to key features while using think aloud protocol. The sessions also included pre-study interviews to understand their current experience with the app, post-task questionnaires to follow-up on tasks, post-study interviews to understand their overall satisfaction with the app, and a post-study questionnaire to gather quantitative scores related to usability and learnability.

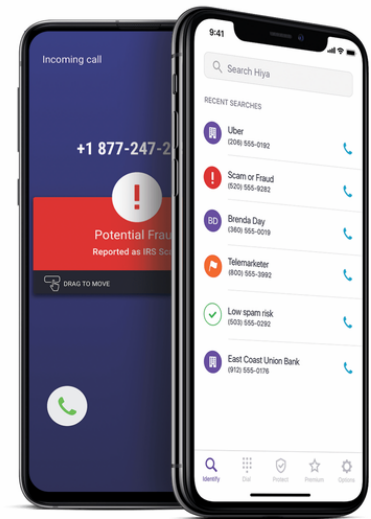
## Key findings

Finding	Recommendation
The lack of guidance and information provided to users results in unexpected and hidden features.	Provide consistent feedback based on user actions and include clear explanations about what features are and how to use them.
Unexpected technical issues occurred within the app, causing confusion among users.	Provide a clear and obvious way for users to contact customer support when issues arise.
Inconsistencies were evident within the app and with real world expectations.	Align information presented in the app to fit users' mental models and expectations and ensure consistency across the app.
Time- and resource-intensive tasks can prevent users from using certain features.	Design the interface so that the most important information is placed upfront, and eliminate extra steps for users.

# Study Overview

## Overview of the Hiya app

Hiya is an app that protects users from spam and scam calls. In addition, users can block unwanted numbers and report suspicious numbers. Hiya App also offers premium features like call screener (only available for iOS) that can let users know who and why they're calling before picking up the calls. Users are not expected to interact with the app itself often; instead, the app runs in the background similar to how a virus scanner functions.



## Study goals

The main objective of this study is to investigate the usability of Hiya app's functionality with existing iOS users. Through this study, we hope to a) determine whether or not users are able to easily and successfully complete key tasks on the Hiya mobile application and b) identify where in the app users experience issues or have difficulties with.

The goals of this study include:

- Evaluate ease of use in completing key tasks
- Understand users' needs when navigating the Hiya app
- Identify issues and problems that users experience

## Research questions

Our study focuses on the following research questions (that are all related to the key tasks):

- Do users understand how to report calls?
- Do users know how to block unwanted numbers?
- How easily can users look up unknown numbers?
- Do users understand how to check the voicemail messages they received?
- What issues do users experience when navigating Hiya app?

# Methods

## Methods used

We conducted a series of remote moderated usability testing sessions via Zoom in order to observe users as they navigated the app and ask follow-up questions as needed. During the sessions, participants were asked to think aloud while performing the tasks in order to gain insight into what they were thinking and feeling. Following each task, we asked a series of questions to gather feedback on ease of use and usefulness of the related features. We also conducted pre-study interviews to understand their background experience with the app and post-study interviews to understand their overall thoughts and feelings with the app. After the test, we administered the Systems Usability Scale (SUS) survey to obtain quantifiable responses about the app's overall usability.

## Participants

The target population for this study was iOS users between the ages of 18 and 65 years old who receive spam calls regularly and who believe phone communications are important. We used a screener to identify participants who met this criteria.

Six participants were recruited through convenience sampling via Hiya's family plan program and our personal networks. Three participants were current users and the other three were new users of the app.

## Test procedure

We began each session by giving participants an overview of the study, having them sign the consent form, and asking for permission to record. We then conducted a pre-study interview to understand their current experience with the app.

Each participant was then asked to perform six tasks on the Hiya app from their own mobile devices while sharing their screens. Participants performed tasks in the following order:

- Task 1: Notice information about a missed call
- Task 2: Review the voicemail message for the missed call (from task 1)
- Task 3: Block a recent call's number
- Task 4: Report a spam call
- Task 5: Import number into block list
- Task 6: Look up an unknown phone number

We observed their behaviors and asked them to think aloud as they were working through the tasks. After every task, we asked them a few questions to follow up on observations and determine perceived ease of use and usefulness on a 5-point Likert scale.

After participants finished the tasks, we conducted a post-study interview to understand overall thoughts and feelings about their experience and administered a post-study questionnaire (the SUS) to measure overall usability.

## **Data analysis**

We collected qualitative data, including observation notes, participant quotes, and responses from interview questions. We then created an affinity map to group notes based on themes and these themes were then translated into key findings about the app's usability.

We also collected quantitative data to measure performance and preference. Performance data included the number of errors made, number of hints needed, and completion rate of tasks. Preference data was collected using 5-point Likert scales to assess ease of use and usefulness, as well as overall satisfaction. SUS scores were also calculated using the established methods. Averages were then calculated for these various metrics to understand participants' overall perceptions.

## **Severity ratings**

Each key finding's severity level was rated based on Nielsen's severity rating scale, and each severity was evaluated based on frequency, impact, and persistence. The severity levels are defined as:

- 0 = I don't agree that this is a usability problem at all
- 1 = Cosmetic problem only: need not be fixed unless extra time is available on project
- 2 = Minor usability problem: fixing this should be given low priority
- 3 = Major usability problem: important to fix, so should be given high priority
- 4 = Usability catastrophe: imperative to fix this before product can be released

The findings in this report that follow are ordered from highest to lowest severity.

# Findings

## Summary of results

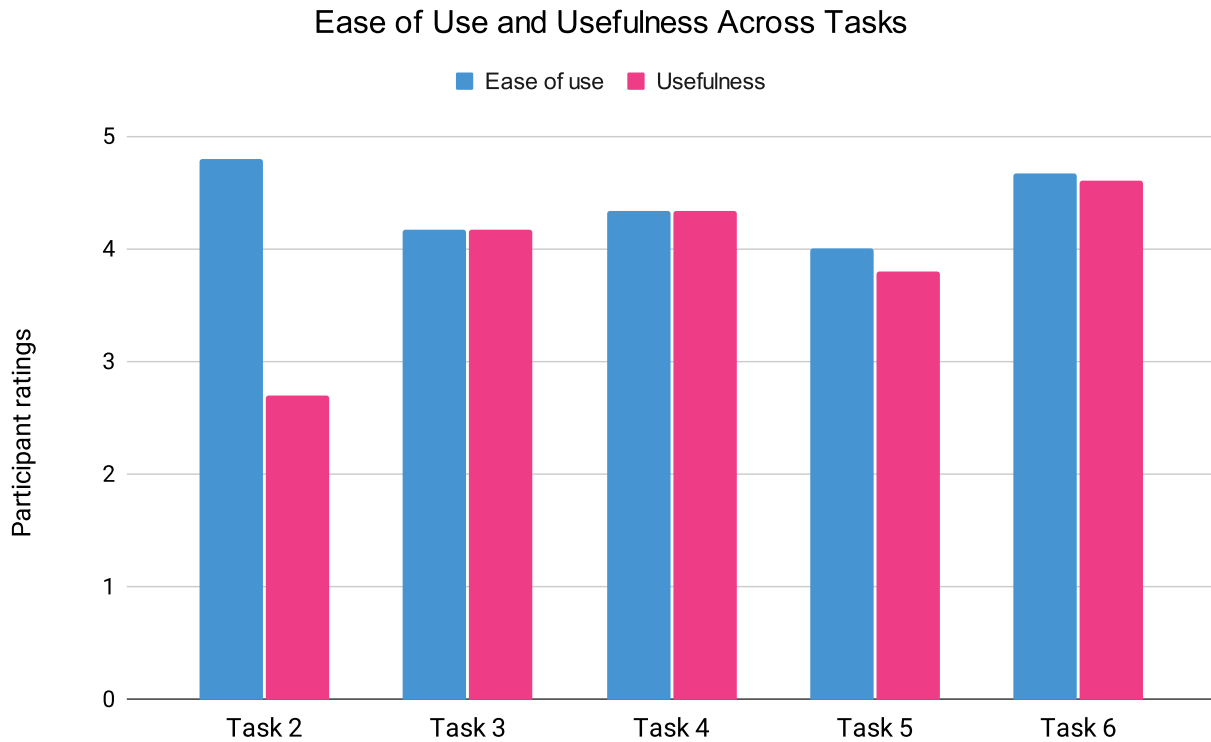


Figure 1. Average participant ratings (n=6) for ease of use and usefulness across tasks (note: these two measures were not asked about in task 1)

### Overall satisfaction and SUS score

	P1	P2	P3	P4	P5	P6	Avg.
<b>Overall satisfaction</b>	5.0	5.0	4.0	5.0	3.5	5.0	<b>4.6</b>
<b>SUS score</b>	85.0	50.0	75.0	95.0	75.0	87.5	<b>77.9</b>

Table 1. Overall satisfaction ratings and SUS scores across participants (n=6) (Overall satisfaction: 1.0 = Extremely dissatisfied - 5.0 = Extremely satisfied)

Figure 1 displays averages for participants' ratings for ease of use and usefulness across all tasks on a scale of 5. The two variables were not asked about or measured in task 1 since it was not applicable. The ratings suggest that overall, most of the tasks were easy to use and useful to participants. The only exception is task 2, reviewing the voicemail for a missed call, which participants rated as easy (average = 4.8) but not very useful (average = 2.7).

The average overall satisfaction across all participants was 4.6, which aligns with findings of high ease of use and usefulness. The SUS score average was 77.9, which is considered above average. These numbers all suggest that overall, users found the app easy to use, useful for their needs, and satisfying.

### **Positive findings**

The app's interface is uncluttered, clean, and simple, allowing users to easily navigate its features without encountering any significant difficulties. According to user feedback, the app is relatively simple to use, and users find it uncomplicated to comprehend its functionality. Additionally, users have noted that the app's features are intuitive and straightforward to use after initial exposure, indicating a high level of learnability. The app's flexibility is evident in its provision of multiple options for achieving the same objective, such as providing various ways to block a phone number.

“ So now that I've gone through it, and I see that it's pretty easy to use and and that it could be useful for blocking stuff I think I will go ahead and start using it for sure.



## Finding 1: The lack of guidance and information provided to the user resulted in hidden features and no setting of expectations

### Severity: 3 (major usability problem)

The lookup feature was rated as one of the most useful (avg. = 4.6) but half of the participants didn't know this feature existed prior to the study. This may be due to the lack of explanation about this functionality on the lookup page (see Fig. 2), causing them to assume the page functioned as a dialer to make calls. [3/6]

Another example of a hidden feature is the blocking feature. The landing page of the "blocking" tab provided no instructions on how to block a number (see Fig. 3), causing some users to struggle with this task and not know how to proceed. [3/6]

These examples reveal an underlying issue in that some features are perceived to be really useful by users but may be underutilized since they are not made evident in the interface.

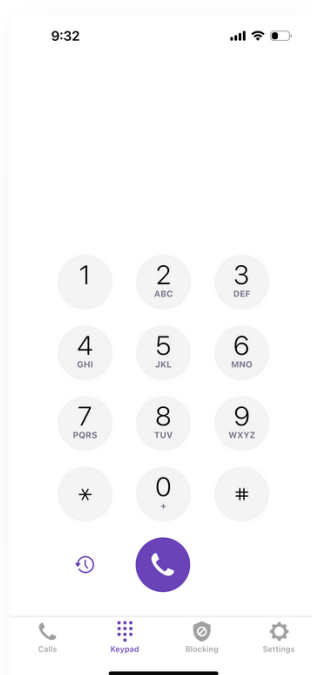


Figure 2. Lookup page

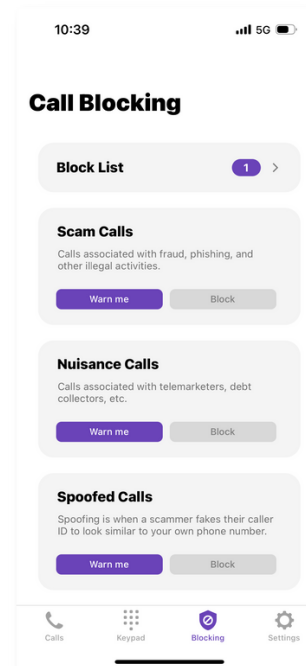


Figure 3. Blocking page

Additionally, no feedback was provided to the user about system status, such as lags in voicemail transcription. This caused confusion among users about what was happening within the app at times. There was also a lack of information provided when errors and issues came up (e.g., call screener working improperly), resulting in users not understanding causes of these errors and how to go about addressing them. [4/6]

\* [ ] = number of participants

“ *It says it's transcribing it. I don't really know if it's really transcribing it or if there's just no message there.*

**Recommendation:**

Provide the user with clear explanations about each feature and how to use them, system status updates (e.g., feedback about user actions, notifications about possible errors or technical issues), and information on how to address any errors or issues.

**Finding 2: Some unexpected issues occurred within the app which raised confusion among users**

**Severity: 3 (major usability problem)**

Several participants experienced technical issues while they were interacting with the voicemail feature. Issues included the audio not playing [3/6], transcripts appearing with no voicemail attached [3/6], and inaccurate transcription of voicemails [2/6]. These issues caused confusion and frustration among users.

In addition, there were some issues with the call screener, which many participants found to be a helpful and important feature. However, the majority of participants' call screening feature did not work properly (e.g., contact numbers were screened when they should not be, calls were unable to be displayed on the screened calls page), resulting in confusion about the functionality of call screeners and the causes of these various errors. [4/6]

“ *I actually see calls from my wife, calls from my kids, that got screened that I'm like, 'Hmm, I'm not sure those should've gotten screened, those should've come straight through.'*

“ *I have a list of calls that were screened but they were all screened in November of 2021 and since then it hasn't screened anything.*

One other issue that we identified was one participant losing all of their app data -- including their saved calls, blocked numbers, and comments left in reports -- after an update and was not able to recover from it, causing them to stop using the app altogether. [1/6]

“ I was a Hiya user for a very long time. But then when they did some updates, they deleted all the work that I did in Hiya and I just never had the time to rebuild it. So all the numbers I saved, blocked, comments I left were gone... It all went away in the blink of an eye, and that was really the hardest part.

**Recommendation:**

Provide a clear and easy way to contact customer support within the app when issues arise. One suggestion is to include a more noticeable icon for submitting the inquiry.

**Finding 3: Inconsistencies were evident both within the app and with real world expectations**

**Severity: 2 (minor usability problem)**

One inconsistency that participants noted was related to blocked numbers. Numbers that have been blocked on certain screens appear as unblocked on other screens and in some instances, the same number would appear multiple times in the block list if the participant chose to block it using different methods. [2/6]

Another inconsistency that occurred was that the names associated with phone numbers when looked up by participants are inaccurate as they do not correspond to the real owner of the number. [1/6]

“ That's actually my number. By the way, I don't know who Jennifer Miller is. So that's interesting, right? We got somebody else's name in my number, and this is suspected spam. So that's not good.

The spam categories in the report list (see Fig. 4) were also noted to be inconsistent with the spam categories in the blocking page (see Fig. 5). [1/6]

“ So there's a different nomenclature on what I can block. Actually [I] like these [categories in the blocking tab] much better, but why can't I report calls using the same categories?

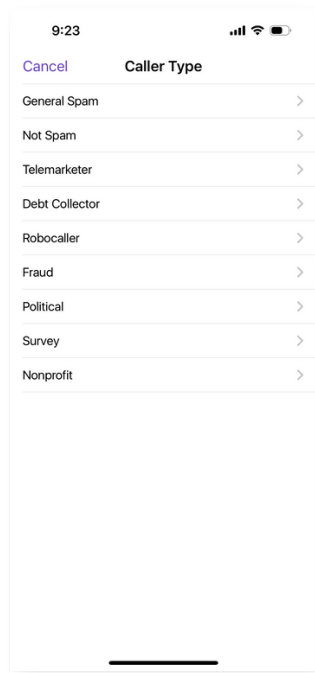


Figure 4. Spam categories in reports

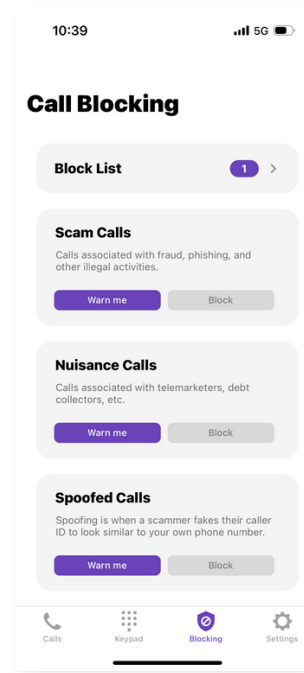


Figure 5. Spam categories on blocking page

Finally, the tabs "calls" and "keypad" in the navigation bar (refer to Fig. 6) do not meet participants' expectations. The naming of these tabs caused participants to have inaccurate expectations about the functionality on those tabs (e.g., participants thought the calls tab would display a list of all calls; however, this tab displays only calls that have been screened). [4/6]

“ I don't get this button that says 'calls' and then I open it up and I don't actually see my calls. I see screened calls...my assumption is that this would be all received calls, not just screened calls.

### Recommendations:

- After blocking a number, all related screens should show that the same number has been blocked.
- Improve the accuracy of lookup results.
- Keep the spam list options consistent across features.
- Change the labels of tabs to more closely align with their functionality (e.g., "calls" > "screened calls", "keypad" > "lookup").

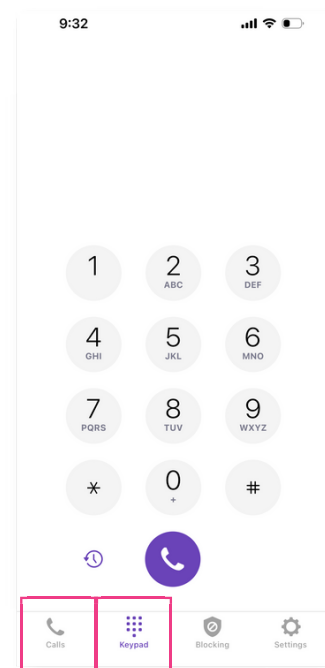


Figure 6. Keypad page

\* [ ] = number of participants

## Finding 4: Time- and resource-intensive tasks can create barriers to adoption of certain features

### Severity: 2 (minor usability problem)

Hiya offers the option to manually block numbers, but participants found this cumbersome and lacking in use cases. In addition, they had to navigate to a separate page from the blocking landing page (see Fig. 7 & 8) in order to block a number which caused confusion as there were no instructions displayed on the landing page and also required an extra step. [3/6]

“ It takes a lot of work and I don't know anyone that has the time to manually key in 9 numbers every time someone calls and I guess that's where I ended up falling off in my day to day with this app.

“ My eye line is up high but the plus sign is down low, so I had to scan the entire page to understand what I'm doing, what my options are.

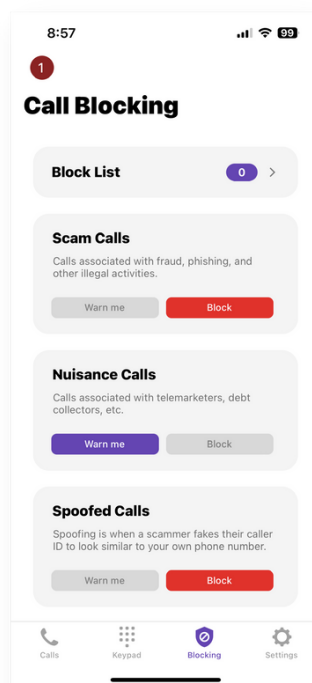


Figure 7. Blocking landing page

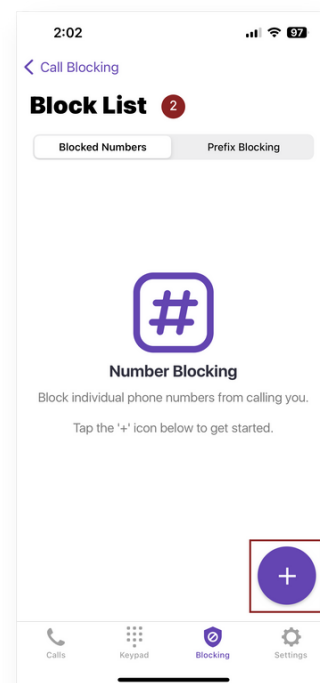


Figure 8. Block list page

Participants also found other users' reports to be informative and useful (avg. = 4.3) because they could see more in-depth information about the spam calls and the sources. However, they found it bothersome to submit reports themselves. [3/6]

“ I just care that the number doesn't call back, I don't necessarily care that I categorized it for a community of people.

Additionally, participants mentioned that for features that repeat with iPhone functionality, such as checking voicemail and blocking numbers, they preferred doing so through their iPhone directly as it was faster, easier, and linked directly to their contacts book. [2/6]

“ I don't know if I would come here to review voicemail. I'd probably just check it on my phone.

### Recommendation:

- Include instructions on the blocking landing page and place the “+” button on this page and in a prominent position so users can block numbers directly without having to access another page (see Fig. 9).
- Provide a point system (i.e., users would receive points for each report they submit) as a way to incentivize users to submit reports.

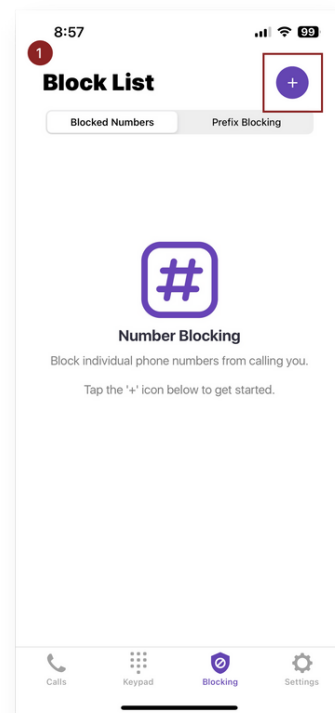


Figure 9. Suggested blocking landing page

## Limitations

Social desirability may have biased our results since the majority of our participants were recruited through Hiya's family plan network and are likely to have a connection to Hiya. This may create motivation or inclination to speak positively of their Hiya experience despite frustrations and struggles that we observed during the tasks.

We also encountered technical issues during some of the sessions that may have affected results or prevented completion of certain tasks. One example of this is the call screener did not work properly for most participants, preventing them from completing tasks related to this feature (e.g., task 1 - notice information about missed call, task 2 - review voicemail message for missed call).

Finally, the convenience sample may not have accurately represented our target population and their needs.

## Future Directions

Some suggestions for next steps include:

- Focusing more on users' process for seeking help from customer support. We noticed and heard about technical issues that users experienced but did not explore in-depth how they go about seeking help and whether or not this process is easy.
- Expand the study to include Android users and compare usability across the two different platforms since the app looks and functions differently on iOS versus Android.
- Include a larger and more diverse sample that is representative of the target population.
- Iterate on the design using the findings from this report and conduct another round of testing to evaluate if usability improves.

# Appendix

## **A. Usability study kit**

Includes screener, consent form, task logistics, discussion guide, and note taking sheet

## **B. Raw data**

Includes raw qualitative notes taken during sessions, SUS scores, and other quantitative data

## **C. Affinity map**

Qualitative data organized into themes

## **D. Screening survey**

Survey distributed to prospective participants to determine eligibility

## **E. Consent form**

## **F. Systems usability scale - SUS**

Survey administered post-study to obtain quantitative scores related to usability and learnability