Your Very Own Safe Haven

Group Number:	**10**
Group Name:	**E5**
Group Representative:	**Syeda Shumiam Zehra**
Project Phase:	**Phase 5 - Evaluation**

Contribution Statement

Name	Contribution statement (in ALL PHASES)	Your Picture
Abdullah Naveed	Task book • Post-test questionnaire • Scenarios and tasks for test book • Printing Testing • Gathered participants for testing • Conducted testing (present in all interviews) Documentation of testing results (scanning, converting to digital sheets) Analyzed Testing data to convert to insights Scenarios in evaluation document Formatting	
Ahmer Jamil	Task book • Wrote Scenarios • Printing Conducted inspection Fixed Figma screens and added animations Conducted testing (present in all 21) Analyzed Testing data Document • Wrote Results / Findings • Analyzed Qualitative and Quantitative • Contributed to explaining scenarios	
Duaa Hassan	Testing • Helped find participants for testing Video and Posters • Filmed clips for the final video ad • Assisted in editing the final video • Designed and aided in 2 out of 3 posters Document • Wrote the complete discussion section • Wrote some sub-sections of the usability testing portion • Wrote the conclusion and recommendations	
Jawad Azhar Choudhary	Testing • Gathered participants for testing • present in all interviews Fixed Figma screens Converted qualitative and quantitative data to digital form Made graphs for analysis Posters	

Shumiam Zehra	Recorded and made Video Posters Measurement sections Pre-questionnaire Purpose Objectives	

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1. Hi-fi Prototype (final version)

Link: https://www.figma.com/file/QBsz6VRukK7BJxx8l6G2bz/Screens---HCI?node-id=0%3A1&t=cFsfvXNT6PfgN01Q-1

2. Usability Test Planning

2.1. Purpose and objectives

After designing our app, Afloat, it was necessary to test out its usability with target users. In this case, usability testing refers to testing whether the target user population can use the app's interface to perform the functions for which it was created. Hence, whether the users can perform tasks of finding a friend, therapist and communicating clearly in the forum. Testing usability was imperative to get **important feedback**, assess whether there is a **match between the system and the real world** and whether the app is **not only functional but also pleasing for the users.**

To assess the usability, we wanted to test out if the interface:

1. **Is easy to learn:**

   We wanted to test whether the various functions in the application were easy to navigate through for the users and determine **whether testers can complete tasks successfully and independently**.

2. **Is easy to remember**

   We wanted to test out whether the interface is promoting **recognition instead of recall** and whether the information provided in the application is easy to remember by the users.

3. **Is efficient to use**

   The efficiency of the application needed to be tested, by analyzing if the testers are taking less steps to perform a task, are not spending too much time on performing any tasks and if the steps they are taking are the optimal steps.

4. **Is subjectively pleasing**

   It was important to also assess whether users enjoy using the application and analyze the effectiveness of the design by observing users' behavior and mental state as they attempt to execute tasks.

5. **Causes few errors**

   We wanted to see if the users are able to perform all the desired tasks in the application without facing errors and if the error prevention is sufficient.

2.2. Participants

A total of 21 participants were selected for the testing of our application. Since the target audience was the LUMS student body, the sample was selected from the LUMS student body only. In addition to these 21 testers, 2 experts also tested our application, i.e., peers from our Human Computer Interaction course, who could provide more critical and in-depth feedback regarding our application design. The non-expert testers were all students ranging between the ages 18-23 years old. Students from the freshmen, sophomore, junior, as well as senior batches were included in the sample to ensure a more representative sample of the actual population. Gender-based bias was also avoided by ensuring a sample with adequate representation of both genders - 12 female and 9 male participants.

We incentivized participants with refreshments like ordering Chai and biscuits for them post-testing. These students were selected by a mixture of randomized and snowball sampling methods. Our group divided 3 of the most populous locations in LUMS, namely Khokha, IST, and Sports complex area amongst our members to get participants on board. This was done to cater to different personas of students, such as those that focus on academics (sample from IST), those that participate in sports (sample from sports complex), and those that spend time in social gatherings (sample from Khokha) with equal weightage i.e., 4 people from each location sample. We then randomly approached people, requesting for 2 minutes of their time to give an overview of our app design, and informing them of the purpose of doing it for our HCI course purely for designing purposes. We then proceeded to ask them for consent to test our application, and the ones who agreed were given the form for their signed, written consent, and used as testing participants. The remaining participants were selected through snowball sampling. After the testing, we asked the participants if they knew people who might be interested in our app given its nature, such as people who may be struggling with their mental health or social life on campus. They connected us to some people after their consent was taken, and these people were then tested as well.

The implicit assumption made with the participants, based on which they were selected, was that they were familiar with the technical interfaces of phone applications, and had access to a mobile phone which could be used to operate the application if need be. They were also assumed to/selected on the basis that they are educated enough to understand basic English, read it, and navigate through the application with comfort. Along with English proficiency, they were also assumed to/selected depending upon an existing mental model of using mobile phones, either android or apple interfaces. The participants were also selected keeping in mind the problem that the app aimed to solve, meaning people who struggled with their mental health were given priority during the snowball sampling phase to get a more reliable input from the actual target audience for the app.

2.3. Scenarios and tasks

For testing the maximum number of features of the app, we designed a set of 6 scenarios (2 for “Find a Friend”, 2 for “Find a Therapist” and 2 for “Community Center”) and tasks and documented them all in a booklet. The participants used the task booklet to perform different tasks with the help of the context provided by the scenarios. We started each test by explaining the purpose of our app to the participants and by giving them an overview about the main features. Since our participants knew the importance and value of mental health and were aware of the problems related to accessibility of trustworthy information and solutions, they were willing to test our proposed solution. We tested our app with 21 participants.

Scenario 1:

"The stress of university life and personal issues are making things difficult for you, and you think it is high time you should consult a psychologist. You have downloaded the AFLOAT App and signed up, by filling in all necessary information about your demographics and situation. Now you are at the home screen of the app. Since you are on a tight budget, you want to specifically filter out CAPS psychologists, and save the one you would like to visit later."

This scenario tests one of our app's major feature "Filtering". The user will be using a filter menu to filter for the required result only (in this case CAPS only therapists). Also, the user will be scrolling and viewing the therapist's profile on the "Find a Therapist" home screen. This scenario is also testing the save functionality/icon of the app, which allows users to add a therapist in the saved therapists list.

Scenario 1 requires users to use a filter to find all CAPs therapists and then save the profile. Major functionalities tested: Filtering, Saving therapist profile.

User tasks:

1) "From the App home screen navigate to "Find a Therapist" Home screen."

> This task showed us whether the users were able to easily navigate from the app home screen to the "Find a Therapist" home screen. This also allowed us to test the one-time questionnaire the users had to fill when they click on the "Find a Therapist" button for the first time.

2) "Filter out CAPS psychologists."

> This was one of the most crucial tasks as it demonstrated whether the users were able to find the filter menu or not. Most of the initial participants trying to figure out the filter option faced difficulties (discussed later). This part helped us recognize the user understanding of clickable text/icon and accessibility of the filter option.

3) "From the list of CAPS psychologists, view "Shakeel Ahmad" profile."

> After filtering for CAPS only therapists, the next step was to check if the users were able to locate a particular therapist and understand that the displayed boxes were clickable. This is to test whether the font, shape, size and design of the therapist's profile on the "Find a Therapist" home screen is appropriate, and the user can easily recognize the profile they are looking for.

4) "Save psychologist "Shakeel Ahmad" profile."

> This step is to ensure that the icon/metaphor we used for saving a therapist's profile is easily understood by the users. We used a bookmark icon which is widely used across many popular app for saving things.

Scenario 2:

"You have used the AFLOAT App before, for checking out CAPS and other psychologist profiles and have had a meeting with one of the saved therapists in your favorites list. Now you want to give a rating to this particular therapist by first viewing the saved psychologist profile and then also remove that therapist ("Shakeel Ahmad") from your saved list."

Scenario 2 requires users to locate the save a therapist from the hamburger menu and give a rating. Major functionalities tested: View saved therapist list, therapist review.

User Tasks:

1) "From the App home screen navigate to "Find a Therapist" Home screen.

This task showed us whether the users were able to easily navigate from the app home screen to the "Find a Therapist" home screen.

2) "Locate "Shakeel Ahmad" profile in the list of saved therapists."

This step aimed to see if users can locate the list of saved therapists by clicking on the saved therapist button in the hamburger menu.

3) "Give Shakeel Ahmad a 4-star rating."

This step checks if users can understand that the list of saved therapists is clickable and will navigate to Therapist expanded view screen (screen 18). The next step was to give the therapist a 4-star rating to see if users can locate the "add a review" section on the screen and successfully give a rating.

4) "After giving the rating, remove Shakeel from this list."

This step aimed to see if users can understand both the ways of removing a therapist from the saved list: either by clicking on the save button on the Therapist expanded view screen (screen 18) or by clicking it on the Saved therapist's screen.

Scenario 3:

"You want to make more friends but do not know how to strike up a conversation with new people in person. While scrolling on LDF you come across the LUMS specific app "AFLOAT" where you can find new people to hang out with. You download the app and complete the sign up and sign in process and have been navigated to the App's home screen. From here you want to find new people to connect with and send them a meet up request"

Scenario 3 requires users to locate a particular friend and send a meetup request. Major functionalities tested: Navigating Friends home screen, sending meetup request.

User Tasks:

1) "From the App home screen navigate to "Find a Friend" Home screen."

This task showed us whether the users were able to easily navigate from the app home screen to the "Find a Friend" home screen.

2) "After answering given questions, view recommended friends' profiles."

Guide users to scroll and view profiles.

3) "Open Duaa's profile and send her a meetup request."

Aimed to check if users realize that the recommendations are clickable and locate the meetup button.

4) "Set meet-up description, time, date, location."

Understand if the procedure to fill in the information is understandable and complete.

Scenario 4:

"It's another normal day and you randomly checked your friend's recommendation from the AFLOAT App, and you found someone you don't like. Now you want to block that person and also confirm that person has been added to the blocked persons list."

Scenario 4 requires users to block a suggested friend profile and view the blocked people list. Major functionalities tested: Blocking, viewing blocked people list.

User Tasks:

1) "From the App home screen navigate to "Find a Friend" Home screen."

This task showed us whether the users were able to easily navigate from the app home screen to the "Find a Friend" home screen.

2) "After answering the questions, view "Duaa Hassan's" Profile."

Check that users can successfully open a friend's profile.

3) "Block Duaa Hassan's profile."

Ensure that users can block recommendations.

4) "From the menu bar, view blocked people to confirm if "Duaa Hassan" is blocked."

Most important task that aimed to check if users can successfully locate the list of blocked people.

Scenario 5:

"Enrollment time is here and you're still clueless about when to start and what time it is. You want to reach out to the LUMS community to ask about the enrollment timings, so you open Afloat and through the community center's general channel, you ask for the information you're looking for."

Scenario 5 requires users sign in and send a message in the general channel. Major functionalities tested: viewing channels, sending message in channel.

User Tasks:

1) "Sign into the app."

   Test the sign in process.

2) "From the App home screen navigate to the "Community Center" Home screen."

   This task showed us whether the users were able to easily navigate from the app home screen to the "Community Centre" home screen.

3) "Locate the "General" Channel and enter it."

   The task aims to ensure that users can locate and identify buttons present on the community center home screen as channels.

4) "Type out your question and send it in the channel."

   Task to ensure that users understand the general interface of channels.

5) "Confirm if your message has been sent."

   To make users scroll and check their message.

Scenario 6:

"It's the perfect weather to go swimming in LUMS, but unfortunately your friends are too lazy to accompany you. You decide to check out Afloat if someone's interested by creating a new channel in the community center and creating a separate space for people to discuss and plan swimming activities there."

Scenario 6 requires users to create a new channel. Major functionalities tested: viewing channel, creating new channel, and viewing channel list.

User Tasks:

1) "From the App home screen navigate to the "Community Center" Home screen."

   This task showed us whether the users were able to easily navigate from the app home screen to the "Community Centre" home screen.

2) "Find the option to create a new channel."

3) "Fill out the channel description for the new channel "Swimming" and submit."

   Submit a new channel request.

4) "Confirm whether the channel "Swimming" has been created in the list of channels."

Task aims to check if users can understand the horizontal list of channels and locate the newly created channel.

2.4. Test materials

- Test book (including consent form, pre-test questionnaire, and post-test questionnaire)
- Usability measurement (for noting the time to complete scenarios)
- Laptop
- Phone
- Stopwatch
- Refreshments (Chai, Cocomo, chilli-milli)

3. Usability Testing

3.1. Test Procedure

After selecting testing participants from different locations at LUMS via random and snowball sampling methods as mentioned in the participants section above, the testing procedure began. The participants were seated in a quiet area with subtle student activity nearby to ensure that they felt comfortable and relaxed, unlike how they would have felt under serious, silent, isolated testing conditions. They were first given the consent form, which contained the clause to obtain their consent along with their demographic information. They were then given the pre-test questionnaire to gather their psychographic details which helped in understanding the state of the participants' mental well-being and social life. Some examples of the questions were, how important their mental health is to them, questions regarding their social life - whether they struggle with it and whether it is linked to their mental health, whether mental health services were accessible to them easily, and their willingness to use these services.

After filling out the questionnaire, the participants were briefed regarding the purpose of the testing. They were given an overview of the idea behind the application and what problems it aimed to address. This was done to ease them into the process and prepare them for the test so that they did not feel confused or anxious during the test. They were also informed that the testing was done for the application, and it was not their capabilities that were being tested. This was done to reassure them and make them feel comfortable before they began using the application.

The next step was to conduct testing based on the speed-dating method. The participants were told that they would be given a task book containing certain scenarios, based on which they had to navigate through the application, and informed which scenarios to perform the tasks for. The 6 scenarios all tested different features of the application. Out of these 6 scenarios, participants were required to randomly perform 4 scenarios each divided into 3 different combination sets. In case the participant had time constraints during the testing procedure, they were tested for 3 scenarios out of these 6. This process was recorded on camera with guidance provided in case of any questions (such as clarifying questions regarding the application buttons and scenarios). 2-3 group members were present during the testing process to ensure smooth testing. One group

member was assigned the task of sitting, guiding, and ensuring a smooth testing process, one was assigned to keep track of the time and measurements to analyze the data and application design later, and one group member remained present in case of any issues. During the test, the time taken to complete each scenario were noted alongside any issues faced or areas of trouble, and whether the participant passed the test or failed it.

Once all the scenarios were tested, the participants were requested to fill the post-test questionnaire to gauge the application performance according to the user. This included questions regarding how easy, efficient, and pleasant the experience is of using the application. They are then also asked if they have any final feedback or comments regarding the application on camera. Many participants were hesitant to make additional comments on camera, so they were asked for comments again once the recording was stopped. They tended to provide a more open and honest feedback without the camera which was noted down by our group members. After this whole procedure, their feedback was acknowledged and validated, they were thanked for their time and feedback, and were given refreshments such as coffee, tea, biscuits, and other snacks etc. The same process was repeated for each participant and the results were then gathered by entering the collected data on excel and a google form so that their responses could be visualized in the form of graphs and statistics.

3.2. Pre-test questionnaire

- Your mental health is very important to you.
- You feel out of place very often at LUMS.
- It is difficult for you to make friends online.
- Your mental health is affected by your social life.
- It is very difficult to find the right therapist.
- You wish you could find a specialized therapist according to your concerns.
- You are interested in being matched to therapists based on your concerns.
- You are willing to use a mental health app catered to LUMS students.

The pre-test questionnaire was to understand the psychographics of the participants and understand which functionalities out of the three major functionalities (find a friend, find a therapist and community center) would be most useful for the participant.

3.3. Final questionnaire

The final questionnaire judges' different aspects including efficiency, effectiveness, satisfaction, learnability, accessibility, navigation, and interface/ design.

- It is easy to find the information that I need. (**Efficiency**)
- I am able to efficiently complete my work using this app. (**Efficiency**)
- This app has all the functions and capabilities I expect it to have. (**satisfaction**)
- Using this app for the first time is easy. (**Learnability**)
- It was easy to learn to use this app. (**Learnability**)
- The app uses colors and structures that are easy on the eyes. (**Accessibility**)
- This app provides good navigation facilities for information content. (**Navigation**)
- The interface of this app is pleasant. (**Navigation**)
- I would be willing to use this app again. (**Satisfaction**)

Question: Mention something you liked about the app. (optional)

Question: Mention something you did not like about the app. (optional)

Question: Any suggestion about the overall interface, color scheme, design, or navigation of the app? (optional)

3.4. Measurements

To perform usability testing mentioned above, there were a few metrics for measurement. These involved:

1. Time on task: how long did the user take to perform the scenario given to them?

2. Accuracy: how many errors were there/number of clicks in the wrong direction?

3. Recognition: did the users recognize the symbols/cues given to them? (Such as bookmark symbol for Save and funnel symbol for Filter)

4. Emotional response: what were the emotions displayed by the users while performing the tasks? Were they frustrated, or was it subjectively pleasing?

4. Results (Findings)

We did usability testing with 21 participants that fall in our user audience. We had a pre-test, consent form, and a post-test questionnaire that involved both quantitative as well as qualitative data. Along with this we recorded the time taken by participants to complete scenarios, steps that participants faced issues in (judging by their reactions during the tests as well as hindrances faced) and their comments regarding the app.

All of this data was then converted to excel and used for further analysis.

During our testing, we ensured diversity in demographics to avoid skewness. The pre-test questionnaire also helped us better understand the user and their viewpoint that could be used later for further analysis and for understanding any relevant trends in the data.

Usability testing

We designed 6 scenarios and asked users to carry out different combinations of scenarios that involved intermediate tasks. We used the completeness of a scenario to see if a particular case can be handled by participants whereas the tasks are the intermediate steps that highlight if a particular functionality can be discovered and used by participants.

During our testing we noticed participants using alternate task sequences or skipping of tasks to complete the given scenarios. While the scenarios were completed successfully which indicated that the app was successful in helping participants reach the desired goal, the skipping or usage of alternate tasks despite being given a sequence of tasks highlighted some potential problems with particular functionalities. We hypothesized this problem to be the result of either lack of discoverability and hence a design flaw or a result of limitation of our testing with Figma. We changed our Figma screens to test out our hypotheses and discuss these changes along with the results below.

Pre-Test Questionnaire and its aims

The pre-test questionnaire aimed to figure out the psychographics of our participants and give us further insights of our participants' mental well-being and the issues faced by them. We also evaluate any outliers keeping this psychographics in mind and see how closely our participants represent the intended target audience.

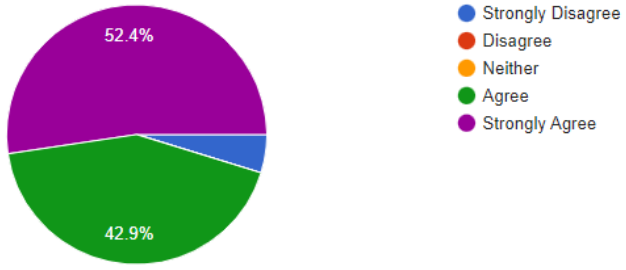
Post Test Questionnaire

In our post-test questionnaire we asked participants to give feedback regarding the app where we tried to judge different aspects including efficiency, effectiveness, satisfaction, learnability, accessibility, navigation, and interface/ design.

We will discuss the findings below.

1. **It is easy to find information that i need**

   The question aimed to judge the efficiency of information retrieval of the app. We received very positive feedback.

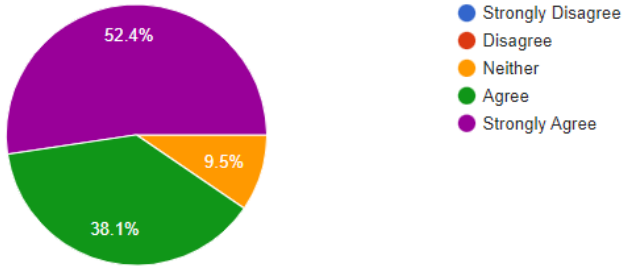


More than 90 percent of the people agreed that finding information was easy. We received one response that strongly disagreed however considering the time taken to solve scenarios, the facial cues during testing and qualitative response after testing indicates no such issues faced with the app and hence, we would treat this response as an outlier.

Participants generally found the information retrieval to be easy and efficient as mentioned by Person 1 who stated that "it was easy to navigate and finding the relevant option was a very easy task".

2. **I am able to efficiently complete my work using this app.**

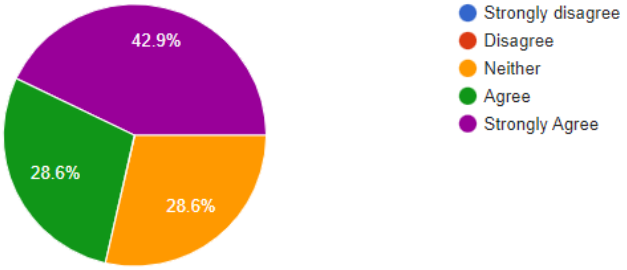
The question measures the efficiency of the app to complete tasks.



We generally received a positive response with 90 percent people agreeing and 9.5 percent being indifferent.

3. **This app has all the functions and capabilities I expect it to have**

The question measures the level of user satisfaction with the provided functionalities.



We received a positive response, and the majority of the participants were satisfied with the provided functionalities. Person 13 stated that "The app flowed pretty smoothly. The app contained all the functionality that I

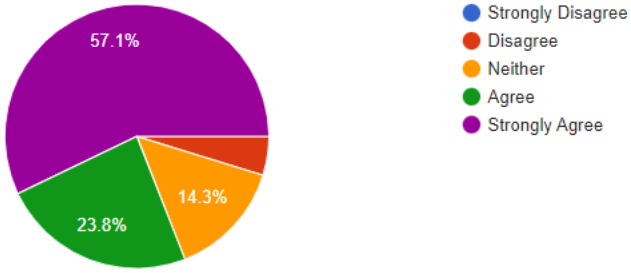
would expect a mental health app to have". Similarly, person 15 said that "The diversity of options and opportunities that have regarding mental health. Can connect with people and communicate as well as professional help."

Person 6 appreciated the functionality of therapist ratings and said "The idea itself implemented on an app was something I liked. The option to view the rating of different therapists under one screen was really fascinating for me".

One participant (Person 19) suggested an added functionality of being able to save therapists directly from the home screen rather than opening the therapist profile and then being able to save.

4. Using this app for the first time is easy.

The question measures the learnability and ease of use.

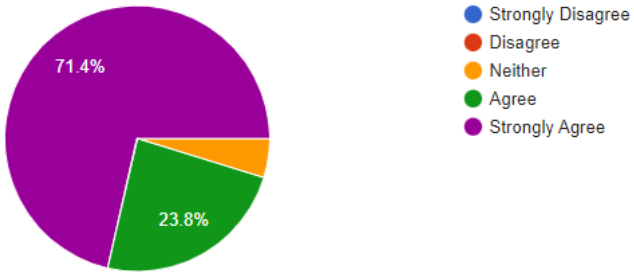


A majority of participants found the app very easy to use as highlighted by the quantitative results as well as participants comments. Person 18 said that "The app itself looked very good and was Easy to use." Person 19 stated that "It was easy to use even at the first try". Similarly, Person 10 found the app "easy to navigate through especially for first-timers".

However, some participants also felt that the app should provide a tutorial to help first time users understand the design as stated by person 15 who highlighted that "I wasn't acquainted with the app before starting and should have gotten a proper tutorial."

5. It was easy to learn to use this app

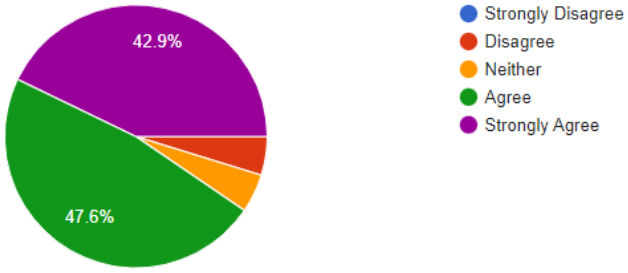
The question measures learnability and the level of learning curve to be able to understand the app. Since our target audience consists of e group 18-27 and a test audience of age group 18-23, the learning curve was low for students as most people were able to easily figure out the basic functionalities of the app as mentioned by Person 3 who said that they liked the "Color scheme" and the app was "easy to use".



However, some participants faced issues in figuring out certain functionalities such as finding list of saved therapists as mentioned by person 6 who said that "there are some actions which are not easy to execute e.g., when I was asked to remove a therapist from the saved list, it was extremely hard to figure out".

6. **The app uses colors and structures that are easy on the eyes.**

The question measures accessibility of the app. The results were mostly positive with 90 percent participants agreeing.



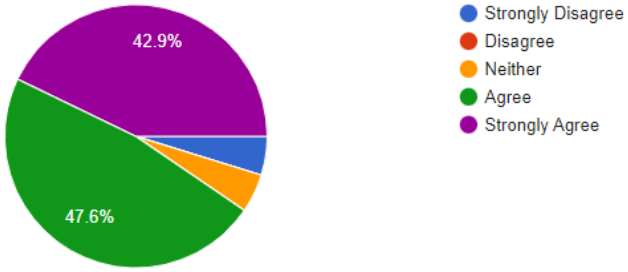
Majority of the participants found the color scheme to be soothing and therapeutic and relevant to the context of a mental health app as mentioned by Person 2 who stated that "The color contrast is very pleasant". Similarly, person 5 said that "I think the color scheme was really soothing". Person 12 said "the color scheme and palette is extremely therapeutic in itself". Person 13 also felt that "The soft colors used are in keeping with the sensitive issue of health apps and are soothing to the eyes. The app was easy to navigate through"

However, there were exceptions where participants felt that the light-colored text created a difficulty to read due to the similar light-colored background as stated by person 10 who felt that the "White text on a light-colored background makes it difficult to read".

Person 20 also pointed something similar and said that they failed to realize there was text in some places due to the light-colored background.

7. **This app provides good navigation facilities for information content.**

The question measures the ease of navigation while using the app.



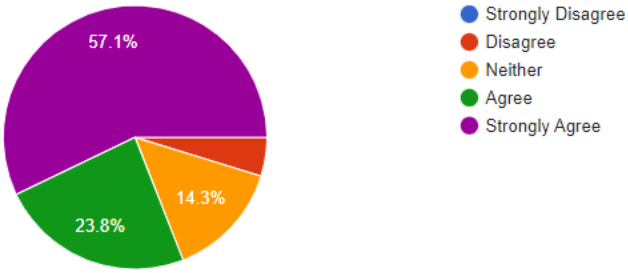
The general response was positive with about 90 percent of people agreeing. Participants generally found the app "Easy to use and navigate" (Person 17). Person 10 also said that "It was easy to navigate through especially for first-timers"

However, some participants did feel that the "Navigation can be improved" (person 6) as they found it difficult to find the list of saved therapists. Person 18 also mentioned that "Navigation could be made easier".

Some participants also highlighted the need for a tutorial or guide as mentioned earlier.

8. The interface of this app is pleasant.

The question measures participant's satisfaction with the interface and design along with ease of use and understanding.



About 80 percent of the participants agreed that the interface was smooth and pleasant as stated by Person 4 who said that the "Interface is pretty smooth & easy to navigate. The colors are soothing". Person 18 also felt that the "interface, color scheme and design was very good"

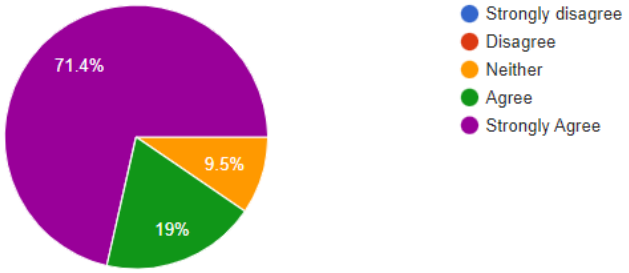
However, some participants felt that the interface could have been better as the target audience for this app are university students and "the interface is a bit old school for an app made for young individuals" (Person 17) and also that "Design should be more modern"(Person 17).

However, based on the pre-test questionnaire filled by person 17, it can be concluded that Person 17 does not fall into our target audience of someone facing or having faced a mental health problem or someone struggling to make friends and hence the relationship between the relevance of these factors and perception of user interface is something that is left unclear as of yet. Hence the particular participant was in our

target audience demographically but not in our target audience based on psychographics.

9. **I would be willing to use this app again.**

Measures people's intent to reuse and general happiness and satisfaction with the app and its usefulness.



Majority of the people responded positively to the question.

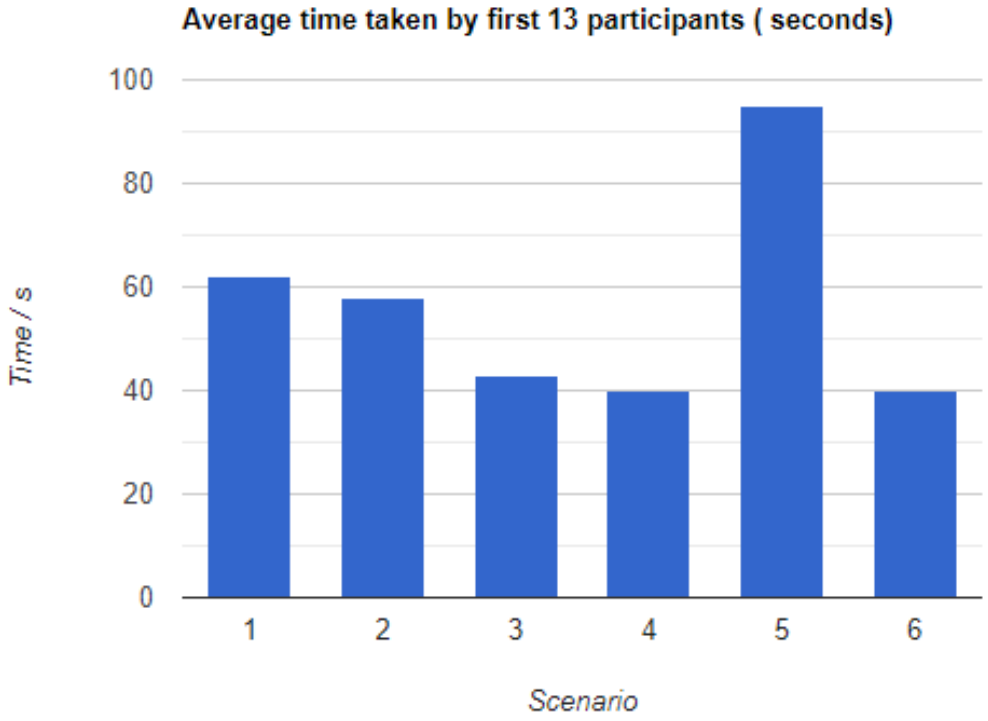
Out of the people who responded as indifferent, we analyzed and listed some frequent issues faced by these participants from the available data to understand the reasons behind their response. We list the top few reasons as follows:

- Navigation could be improved as they could not find the saved therapist list.
- The participants did not fall into the target audience based on psychographic as concluded by the pre-test questionnaire.

We also measured participant's time to finish particular scenarios and problematic steps or steps that they skipped which are summarized below.

	S1	S2	S3	S4	S5	S6	Time S1 (s)	Time S2 (s)	Time S3 (s)	Time S4(s)	Time S5 (s)	Time S6 (s)
Person 1	P	P	P	P	-	-	81	70	55	21	-	-
Person 2	-	-	-	P	F	P	-	-	-	28	41	33
Person 3	P	P	P	P			105	41	63	28	-	-
Person 4	-	-	P	P	P	P	-	-	18	42	163	62
Person 5	P	P	P	P			46	42	38	25	-	-
Person 6	P	P	-	-	P	P	65	177	-	-	39	37
Person 7	P	P	-	-	P	P	10	24	-	-	21	23
Person 8	P	P	P	P	-	-	73	31	14	74	-	-
Person 9	-	-	P	F	P	P	-	-	31	50	265	33
Person 10	P	P	P	P	-	-	44	39	63	27	-	-
Person 11	-	-	-	P	P	P	-	-	-	75	39	52
Person 12	P	P	P	P	-	-	89	52	63	35	-	-
Person 13	P	P	P	P	-	-	47	46	40	37	-	-
Person 14	P	P	P	P	P	P	56	37	30	29	47	53
Person 15	P	P	P	P	-	-	159	53	55	39	-	-
Person 16	P	-	-	-	P	P	94	-	-	-	47	19
Person 17	P	P	P	P	-	-	148	35	63	19	-	-
Person 18	P	P	-	-	P	P	78	58	-	-	25	33
Person 19	P	P	P	P	-	-	30	54	45	42	-	-
Person 20	P	P	-	P	-	-	66	72	-	59	-	-
Person 21	-	-	P	P	P	P	-	-	26	37	64	37

We conducted the first 13 tests with our initial screens and found that the participants did not follow the same tasks as mentioned in the task book. We also noted the average time taken to complete each scenario with the scenarios taking 62.2, 58 , 42.7 , 40.4 , 94.6 and 40 seconds respectively.



Paying attention to the facial cues of participants and the steps performed during testing, we noted some general points of confusion/ issues that are as follows:

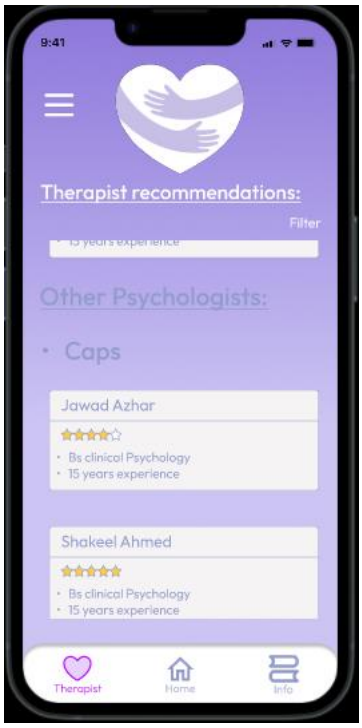
- Participants faced an issue in understanding the horizontal list of channels on the channel and Event screens (screens 47 and 48 mentioned in the design document) and hence took more time in locating the new channel created in task 4 of scenario 6.
- Participants generally did not use the **filter** button on the Therapist Recommendations/ therapist homepage screen (screen 17) to filter out only CAPs therapists in task 2 of scenario 1 and skipped this step.
- Participants skipped the step of locating the therapist profile from the **saved therapist list** and hence skipped task 2 of scenario 2.
- Scenario 5 took more time than other scenarios due to participants' interest in scrolling down the general channel and reading messages. In some cases, participants got confused due to the lack of typing functionality in our testing. Hence, we conclude that these factors affected the performance during testing, owing to a greater time to complete scenario 5.

Considering these common trends, we hypothesized the problem faced in bullet point 2 and 3 to be a fault in the screens used for testing as we had a limited number of recommendations that were static and hence participants could locate the particular therapist profile directly on the screen without the need for a filter or the need to find the list of saved therapists. However, in a real-world setting, with multiple therapist profiles showing on the therapist homepage, the participants would find the functionality of filter and saved therapist to be more convenient.

Skipping Filter Button

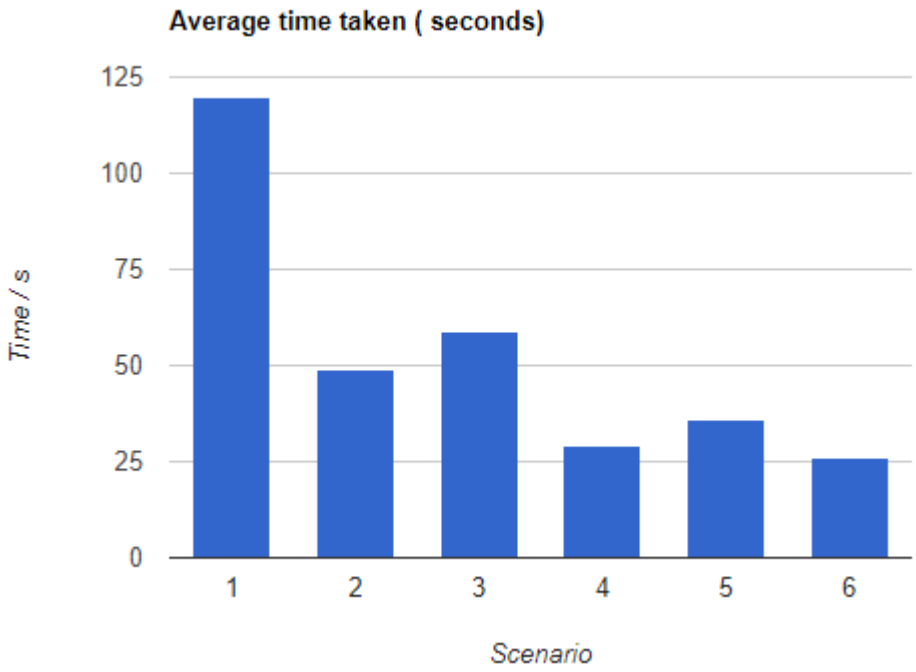
Other possible reasons included lack of visibility of the filter button and confusing the task of "filter out CAPs Psychologist" with scrolling to the list of available caps psychologists on the therapist home screen only.

To test this hypothesis out we changed the screens and tested out more versions.

	
Initially, the Therapist home screen included the profile of therapist "Shakeel Ahmed" and participants scrolled down to the screen and ignored the task of filtering out all CAPs therapists.	To cater to the issue of finding the required profile on the Therapist home screen only, we removed Shakeel Ahmed's profile from the home screen to avoid participants from skipping the task to filter. Furthermore, to check the effect of the Filter button, we changed the button to the icon as shown above to test the effect of visibility of the filter button.

After testing out these changes on 4 participants, we noted that participants continued to try and find the required therapist profile on the therapist home screen by scrolling down (continuing to ignore task 2 ; "filter out CAPs psychologists") and upon failing to find the required therapist, they struggled for a while before figuring out the filter button.

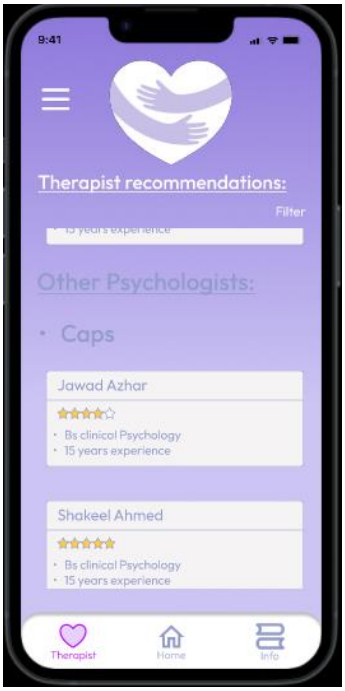
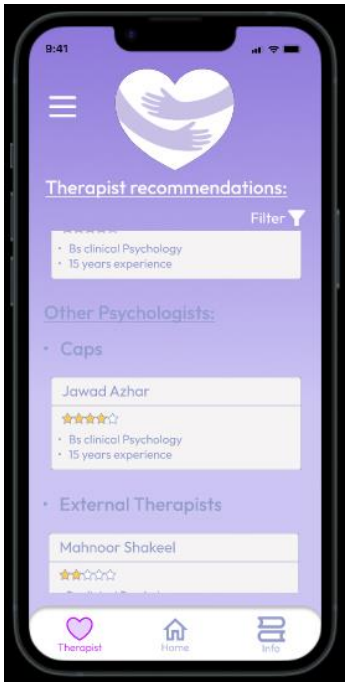
The average times to complete scenarios for this set of participants were 119.75, 48.6, 59, 29, 36 and 26 seconds respectively.



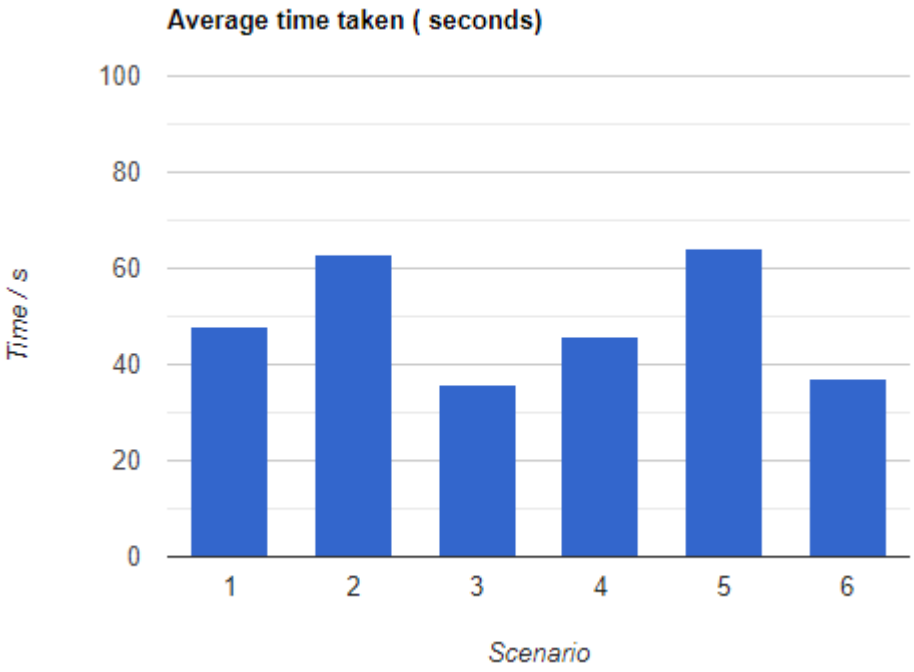
These observations depicted that the visibility and design of filter button created difficulty for participants and upon observing participants' actions and asking for review later, we realized that the task of "filter out CAPs therapist" also created confusion as participants scrolled to the list of CAPs Therapists on the therapist home screen and confused that as filtering out only CAPs therapists. Both these issues led to an increased average time to complete the first task; however, it did ensure that the task of filtering out was not skipped by participants.

To further test this we conducted a test where we changed the task to "filter out all MALE therapists". In this test we observed the participant continuing to ignore the task to filter and attempting to find the therapist directly by scrolling. After a short struggle the participant succeeded in locating the filter icon/ button and successfully completed the task.

This confirmed the reason behind the confusions to be with the visibility of the filter button. Hence, we changed the design to include both written text as well as icon and increased the size to increase visibility.

	
Initial version Included only the text filter button.	Final Version Includes bigger filter text along with icon

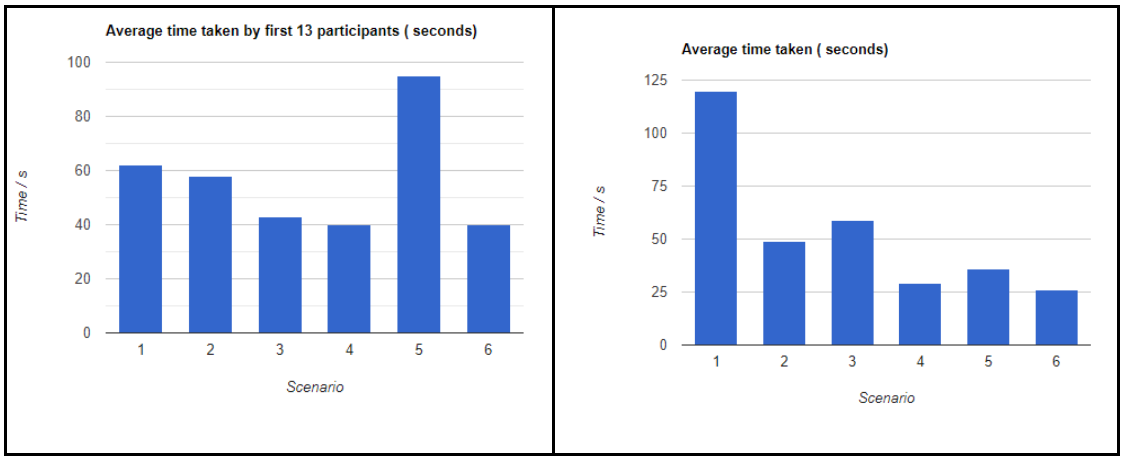
After changing to the final version, we conducted more tests where we asked participants to filter out CAPs therapist and the participants successfully completed the scenario with no skipped tasks which indicated that the issues caused in the previous tests was majorly due to the lack of visibility of the filter button which confused participants.



The average time to complete scenario one in this set of tests confirmed our hypothesis.

Skipping Saved Therapist list

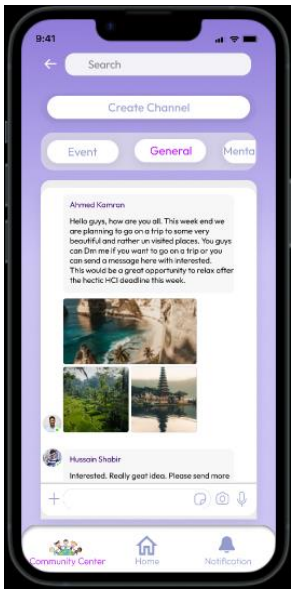
After removing therapist "Shakeel Ahmed's" profile from the therapist homepage, we noticed participants focusing on the task of locating the profile from the saved therapist and they successfully located the Saved Therapist button from the hamburger menu.

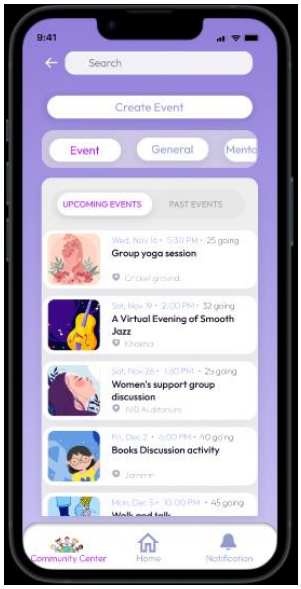


The change in average time to complete scenario 2 along with the facial cues and our observations confirmed that the majority of the participants could find the saved therapist list after removing the therapist profile from the therapist home screen. However, some participants did struggle a little in locating the saved

therapist list button from the hamburger menu and also mentioned it in their feedback regarding navigation as discussed previously.

We also noticed participants facing difficulty in understanding the horizontal list of channels on the Event and Channel screens of the community center (Screens 47 and 48).





While all participants were able to understand that the list was clickable and would navigate to another screen and also understood that the list was scrollable, they failed to understand that it was a list of channels and participants suggested adding a label of channels above the list or explaining it in a tutorial.

Another important observation was that participants attempted to rate therapists by clicking on the therapist's rating instead of scrolling down to “add a review” section on the Therapist expanded view screen (screen 18) in scenario 2.

5. Discussion (about evaluation)

Key findings

The user testing was conducted to test the major features of the application Afloat to better understand user experience and whether the interface design ranked high in usability. Our findings provided valuable insights regarding the functionality of the application, its benefits, its limitations, and its implications. After conducting the initial surveys to validate the concept of the application, we received an overwhelming response from the participants claiming that such an application was increasingly necessary for the LUMS community. Our findings contextualize these claims and provide interesting, varying responses, some of which contradict the initial data gathered. Speed-dating helped explore the participants’ preferences regarding their interaction with the interface, while the qualitative comments at the end of the questionnaire helped gauge what were their most and least favorite aspects of the application.

Based on these key insights, we concluded that most individuals liked the application interface and especially pointed out the color scheme and visual aesthetics of the application. Some suggested some improvements in the font and colors, though. Some participants also highlighted issues faced while navigating through the application which shed light on the key implications for the application's designing and presented opportunities to propose recommendations for future research and development purposes.

General Discussion

Visual Aesthetics

Mental Health and social struggles related applications must be extremely sensitive to the user experience since their struggles may be exacerbated by a stressful application experience. Previous work highlights the importance of color schemes and calming tones on the stress levels, well-being, morale, and productivity of users (Ghamari and Amor). One extremely important insight gained from the user testing supporting this theory was the significance and value placed by the testing participants on the physical aesthetics of the application. These visual elements impacted user experience by affecting the visibility, efficiency, and effectiveness of the features. Many participants especially underscored the application's appealing physical appearance and others suggested improvements in the fonts and colors to enhance this experience. E.g., Person 2 mentioned trying to "make fonts and tabs smaller" while 9 of the participants displayed satisfaction with the graphics of the interface.

Mental Health in Pakistan and existing work

Mental Health in Pakistan is a gradually arising concept, but not much work has been done in the past since it is still a taboo amongst Pakistanis (Javed et al.). Despite the fact that more liberal and higher education institutions like LUMS encourage mental health awareness, there is still a major gap within the market. Mental health services are still inaccessible to a majority of the population, even in institutes like LUMS. This belief was solidified during the initial phase when surveys were conducted, and a majority of the people admitted that it was difficult to find mental health professionals who were qualified enough and had reliable reviews.

Even with advancement in this area, most platforms in Pakistan cater to the **provision** of mental health services such as platforms like BetterHelp which provide access to therapists. However, there is no platform that verifies and provides real time reviews for existing services. This is one gap that Afloat addresses and during the testing, this was appreciated by the participants as well, thus substantiating our process.

Simple Interactions

A notable insight we got was the significance of simplified interaction with the interface. Participants prioritized easier ways to carry out tasks which required less clicks. In the context of a mental health related application which caters to personal and social struggles of the individuals, this is an important criterion so that the process of seeking help is made as convenient and efficient for the user as possible.

Under this light, our findings proved that any interface complexities were faced with user resistance during testing. Examples include the disapproval of "saving the therapist" option being available only after opening the therapist profile rather than the main screen beside its preview. Similarly, it was observed that when asked to filter out therapists, participants preferred to scroll and search for the profile on the main screen rather than go through the hassle of applying a filter. Even when asked to give a therapist a rating, they attempted to give ratings on the first set of visible stars (representing existing ratings) rather than scrolling to the end to give personal ratings.

Limitations

Long term vs short term impact of app

One major implication of Afloat is that an application which aims to resolve any mental struggles of an individual needs to be judged over a longer period of time for holistic feedback of its interface. An immediate impact of using the application cannot be pinpointed - a repeated usage of this application will be a more accurate indicator of the improvements that need to be made to enhance its performance.

In this regard, our testing falls short of feedback complete in itself, taken over a period of time of using this application due to logistical constraints. This opens up a myriad of opportunities for future research to test such an application contextualized in an elongated time period rather than an incidental point in time.

Scale of application

The application Afloat is designed exclusively for the LUMS community to serve their mental well-being and combat social isolation on campus. Within this community, the application allows individuals to seek reliable professional help or seek out new people within the community for a fresh environment. Our findings suggested that the participants were quite satisfied with the features available and did not suggest any additional or missing features within the application. However, the exclusive nature of this application prevents other potential users from accessing these services. Additionally, it also prevents LUMS students from broadening their social network outside of LUMS and restricts their interactions with new people only amongst themselves.

For future considerations, this limitation can be accounted for and worked upon to make the application services more accessible depending on the preferences of the current user base. Extensive research can lead to interesting ways to make this application available to a wider audience.

Sampling bias

Another implication of this application is how usable it is under stressful circumstances, such as when a person is truly feeling low and wants to reach out for help from a professional or meet a new friend to combat loneliness. Under these situations, user response to the application's interface may be a lot more different from the testing environment.

Furthermore, despite attempts to make the sample diverse by incorporating different batches into it as well as sampling from different locations at LUMS, we still fail to take into account people who may not prefer to be present in such social settings and thus were not accessible to us. This causes misrepresentation in the sample, skewing it towards individuals who are more comfortable socially. These factors may bias our sample and deter attaining a definite and clearcut testing feedback.

Recommendations

Amongst the recommendations we received, one of the most serious ones was the suggestion to improve navigation. This can be observed in many participants' failure to carry out tasks such as using the filter option and save option effectively. It also entails that the horizontal bar in the community center does not adhere to the existing mental model of the users as they find it inconvenient to use, so this can be altered to cater to the user mental model.

Other recommendations from a few individuals included improving the design outset to make it look more modern, edit the font colors to make them more visible, and reduce the button/tab sizes for a more aesthetically pleasing outlook.

Based on these recommendations and our analysis of the findings, it is imperative to make some crucial changes to the existing design by incorporating the feedback given by the participants. Additionally, the limitations of our design and testing which open up new opportunities should be explored, such as conducting testing over a longer period of time to attain more accurate feedback which can then be incorporated. Also, considering the expansion of the audience from only the LUMS community to a broader audience after taking into account whether or not the existing audience would like an exclusive platform and how this need can be catered to.

6. Conclusion

Our comprehensive usability test aimed to evaluate social acceptability, convenience of learning, consistency, flexibility, efficiency, faultlessness, and visual aesthetics. We used quantitative and qualitative analysis in tandem with one another to conclude that Afloat is an easy-to-understand and learn application with satisfactory flexibility, efficiency, faultlessness, and incredible visual aesthetics. There was a slight inconsistency owing to differing font sizes which we attempted to fix for a better experience. Our plan to contribute to the mental wellness ecosystem by placing our application in the center of it all was a success as we gained a lot of positive feedback for the idea. Our application received some constructive criticism which can help us understand how to further improve our design in areas that it lacks.

Works cited

Ghamari, Hessam, and Cherif Amor. "The Role of Color in Healthcare Environments, Emergent Bodies of Evidence-Based Design Approach." *Sociology and Anthropology*, vol. 4, no. 11, 2016, pp. 1020–1029., doi:10.13189/sa.2016.041109.

Javed, Afzal, et al. "Mental Healthcare in Pakistan." *Taiwanese Journal of Psychiatry*, vol. 34, no. 1, 2020, p. 6., https://doi.org/10.4103/tpsy.tpsy_8_20.