Andrea Perez
Deyanira Amalin Ochoa Hamden
Teresita Bátiz Flores

Emotional Analysis of the Loudness App

Hypothesis

Through testing and user interviews regarding their emotions and feelings while using the redesigned Loudness application, we expect to gather various positive emotional responses towards the experiences of the users. Furthermore, integrating "EmoLists" is believed to make participants more consciously aware of their emotions, enhancing their interaction with each song.

Methodology

To select the sample range for interviews, three individuals with different characteristics and age ranges were considered:
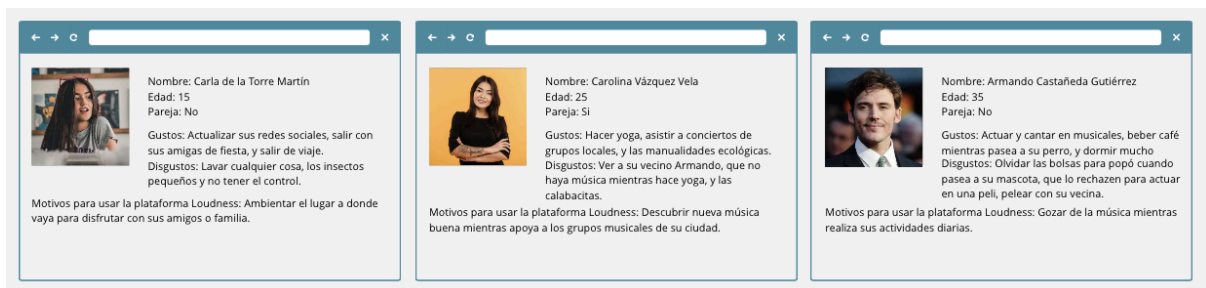
Based on these individuals, 5 users between 15 and 35 years old were chosen. They were asked to complete three activities with different objectives:

1. *Activity one:* Register on the platform.
2. *Activity two:* Search for a song that was found the day before (based on the given scenario).
3. *Activity Three:* Assign an emotion to that song to save it in an EmoList.

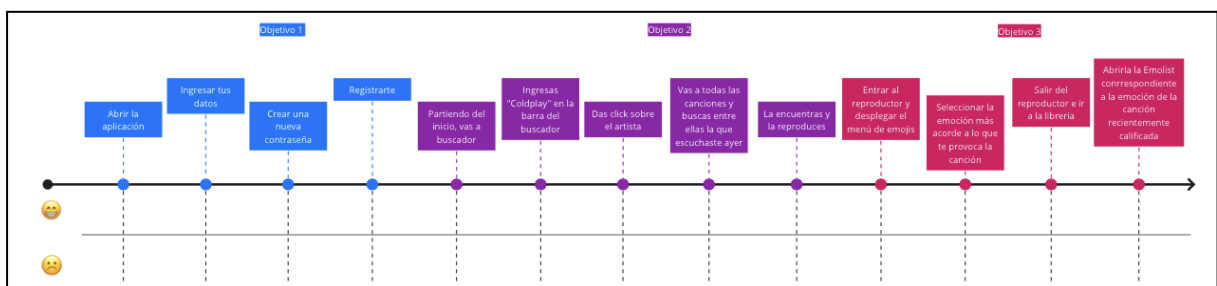Each activity has its own tasks that are described in figure 1.

Fig 1. User experience map for each Activity

The scenario presented was: "You're at home stressed about a task (or work), so you decide to look for the song you heard yesterday and liked. All you know is that the band singing was Coldplay." Participants were shown mockups of

the redesigned application after a heuristic analysis of the existing app, a usability test, and emotional design integration. They were then asked to complete the described activities.
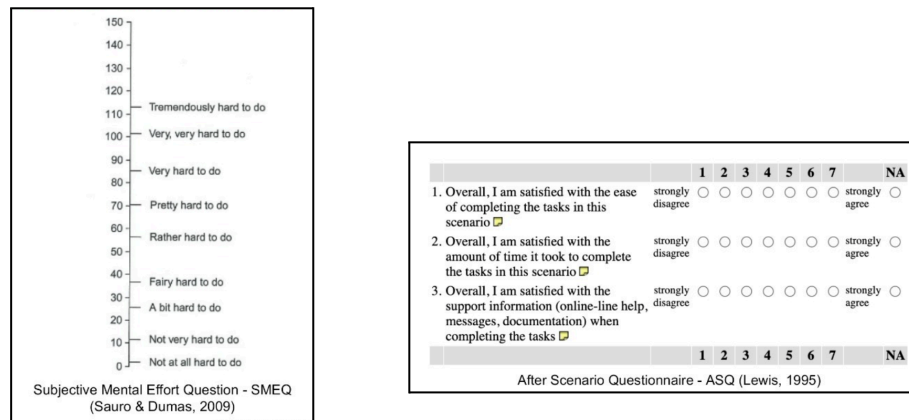

Fig 2. SMEQ scale Fig 3. ASQ scale

To evaluate participant satisfaction, various types of surveys were used, each with a different scale and purpose. The SMEQ scale assessed the effort required by participants, while the ASQ scale evaluated overall performance. Emotional journey tools were used to assess the effectiveness of emotional design in the application redesign.

The participants were asked, after each task within the activities, what their emotional state was on a scale of 7. The value scale was between 1 and 7, with the range of 1-3 being representations of negative emotions, and the range of 5-7 the positive values of positive emotions. The number 4 is equivalent to a neutral feeling.

Results

Figure 4 displays a variety of negative and positive emotions within the tasks for each activity. The most positive sentiment was achieved when finding and playing the desired song, while the most negative sentiment occurred when searching for a specific song among all songs by the same artist.
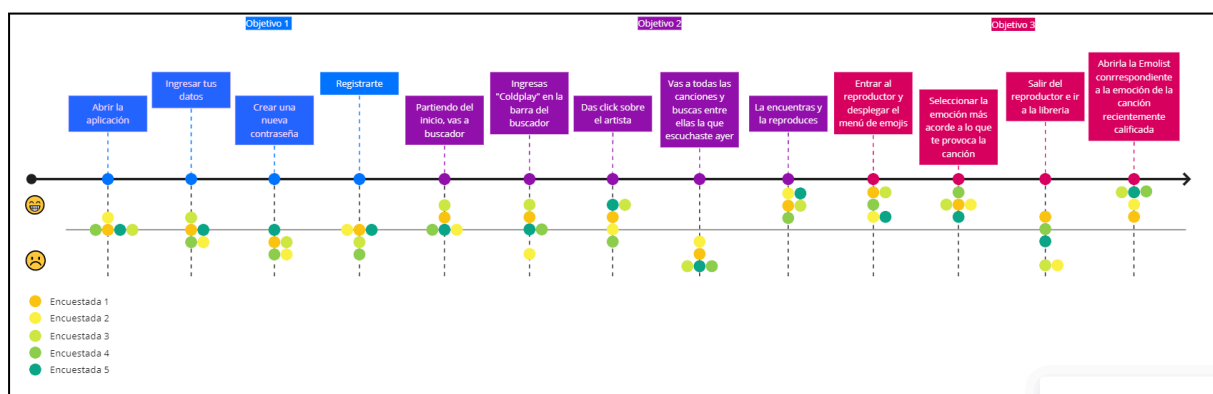

Fig 4. User experience map for each Activity with Results

Within each activity, tasks that generate positive and negative feelings were found; the results are found in the following tables and graphs:

Table 1 shows that the activity in general was rated neutral to negative by the participants.

Table 1. Results of feelings experienced by participants when performing each task of activity 1.

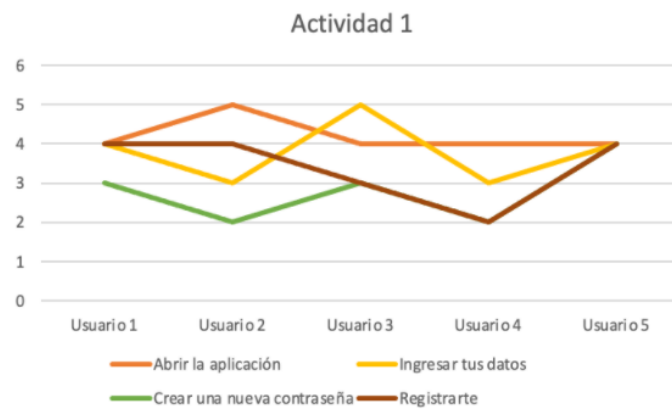| Objective 1	How positive was the feeling experienced?					
Tasks	User 1	User 2	User 3	User 4	User 5	Average per task
Open the application	4	5	4	4	4	4.2
Enter your details	4	3	5	3	4	3.8
Create a new password	3	2	3	2	4	2.8
Register	4	4	3	2	4	3.4

Fig 5. Graphic representation of the results of Table 1.

While activity 2 (Fig. 6) shows how it went in a neutral way, in task 4 it had a drop and immediately in task 5 it rose drastically to positive.

Table 2. Results of feelings experienced by participants when performing each task of activity 2.

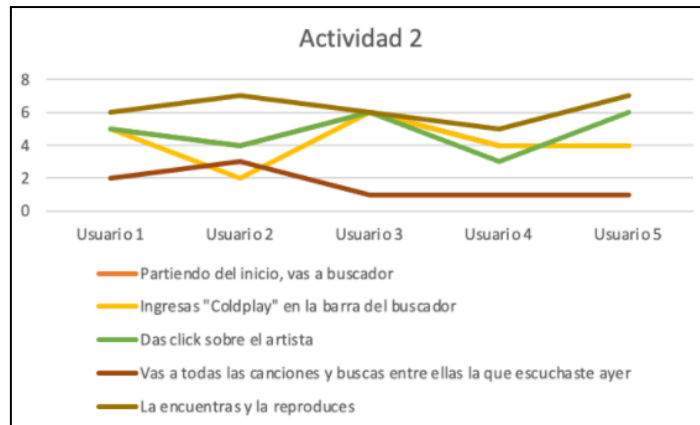| Objective 2	How positive was the feeling experienced?					
Tasks	User 1	User 2	User 3	User 4	User 5	Average per task
Starting from the beginning, you go to search engine	5	4	6	4	4	4.6
Enter "Coldplay" in the search bar	5	2	6	4	4	4.2
Click on the artist	5	4	6	3	6	4.8
You go to all the songs and search among them for the one you heard yesterday	2	3	1	1	1	1.6
You find it and play it	6	7	6	5	7	6.2

Fig 6. Graphic representation of the results of Table 2.

Table 3. Results of feelings experienced by participants when performing each task of activity 3.

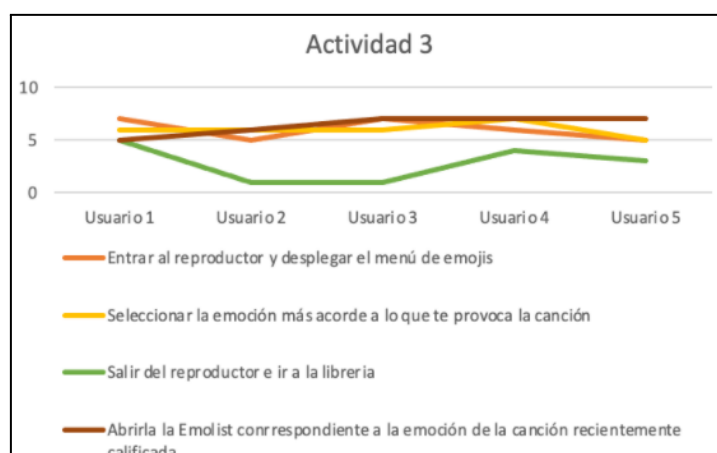| Objective 3	How positive was the feeling experienced?					
Tasks	User 1	User 2	User 3	User 4	User 5	Average per task
Enter the player and display the emoji menu	7	5	7	6	5	6
Select the emotion most in line with what the song provokes in you	6	6	6	7	5	6
Exit the player and go to the library	5	1	1	4	3	2.8
Open the Emolist corresponding to the emotion of the recently rated song	5	6	7	7	7	6.4

Fig 7. Graphic representation of the results of Table 3.

Table 4 shows that participants generally rated their experience as satisfactory, with the highest satisfaction in Activity 3.

Table 4. Results of the activities carried out by users, rating the level of satisfaction that each one felt at the end.

ASQ						
Act 1.						
question #	**User 1T**	**2T User**	**User 3A**	**User 4A**	**5D User**	**Avg.**
1	6	5	6	6	5	5.6
2	6	5	7	5	4	5.4
3	6	4	7	6	6	5.8
Act 2.						
question #	**User 1T**	**2T User**	**User 3A**	**User 4A**	**5D User**	**Avg.**
1	5	6	6	5	5	5.4
2	6	4	5	4	7	5.2
3	6	4	5	4	7	5.2
Act 3.						
question #	**User 1T**	**2T User**	**User 3A**	**User 4A**	**5D User**	**Avg.**
1	6	6	7	7	4	6
2	5	6	7	7	6	6.2
3	6	5	7	6	5	5.8

Regarding the efficiency measurement, it is shown in Table 5 that the most difficult activity to perform was the second, with an average of 18 between 0 and 150, while the remaining two did not offer significant difficulty.

Table 5. Results of the activities carried out by the users, rating the level of mental load that was required by each of them.

SMEQ						
Act 1.						
question #	User 1T	2T User	User 3A	User 4A	5D User	Avg.
1	0	0	0	10	28	7.6
Act 2.						
question #	User 1T	2T User	User 3A	User 4A	5D User	Avg.
2	10	10	10	10	50	18
Act 3.						
question #	User 1T	2T User	User 3A	User 4A	5D User	Avg.
3	0	10	0	0	10	4

Discussion

The results suggest areas for improvement, particularly in creating a password and registration tasks (Objective 1). For password creation, providing users with saving options or password difficulty recommendations could enhance the user experience. Additionally, implementing a password difficulty filter would enhance user security.

Objective 2, finding a song heard the day before, received positive responses for playing the song. However, searching for the specific song among all songs by the artist had a low average sentiment. Implementing a sound analysis software option for searching may address this issue.

Objective 3, assigning an emotion to a song, resulted in positive sentiments, indicating that providing alternatives for emotional expression enhances the user experience.

Considering user emotions during platform interaction led to increased satisfaction and positive feelings. The redesign not only impacted emotional responses but also improved usability and efficiency.

Conclusion

To conclude, the second redesign emphasized the importance of incorporating emotions into product design. The redesign not only provided emotional support but also improved efficiency factors such as mental load and task difficulty. The increase in satisfaction correlated with a decrease in age range, indicating that younger users found tasks easier, likely due to familiarity with newer technologies. Using a Likert-type scale for the emotional journey made quantitative data collection more efficient, aiding in better understanding test results.was easier for users to carry out the activities since they were involved with newer technologies and with which they seemed more familiar. Likewise, the use of a Likert-type scale for the emotional journey made it more efficient to obtain quantitative data to better understand the results of the Test.

References

Caldas, S. (2021). The power of graphic design to generate emotions. Grafica, Vol. 9, 17.