



Universitat
Oberta
de Catalunya



Experience re-design

Chat for autistic kids
#Aspiehome

2020 Design anthropology
Patricia Saco Atanes

The goal

As we summarized after the ethnographic research, the aim of the requested re-redesign is to satisfy the needs of families, focusing our efforts in satisfying their **autistic children's needs** adapting the known chat experience.

Re-design the chat experience to fit the autistic children's needs and their families.

The process

To achieve the design goal, we have addressed the following steps:

Pre-research

Driven a user centered pre-research focused on the **user needs**.

Definition

Applied all the knowledge and conclusions extracted from the **research**.

Design

Built the architecture flow, UI sketches and final prototype of the **re-designed solution**.

Evaluation

Tested the final design with real users to evaluate **usability** and gather **feedback**.

Pre-research

Working with the final user

In order to understand the users's needs and, taking the advantage of having a son diagnosed within the spectrum as high functional autism (Asperger's), I have driven a visual brainstorming and interview around the question:

“What could a chat have for you to feel comfortable to share with other Asperger's?”

To facilitate the creative process, I asked him to draw his own personal vision of this chatroom to interact with his friends.

The result



He represents the chatroom externally with a **house** where all his friends can **gather together and talk**, standing out that there's an outside part and an inside part.

Inside the house there are **friends** to talk and **toys to play** with together, describing the following elements:

- A bottle of water.
- **Books:** stories for children.
- A car toy: to **play together**.

He prefers to focus their interaction into playing games, highlighting:

- **Building games:** Minecraft and Roblox.
- Racing games: Mario Cart.

He prefers the following devices:

- **Gaming console:** used in a **television**.
- **App:** used in a **smartphone**.

“I want to talk, read and play games privately with other children, so I don't feel lonely playing only with myself.”

Interviewing the secondary users

To find a good solution for the children's needs, it's also important to understand their parents perspective, as they are responsible of their education, health and security.

After interviewing some parents and users inside the chatroom, we extracted many needs all related with **parental control**.

- **Safe access:** the users are worried about the identity, anonymity and fraudulent access of adults, particularly pederasts.
- **Moderation:** the users are worried about the content shared between their children, as bad words, aggressive or sexual images and links.

“We want our children to interact safely, warranting privacy and preventing them from aggressors.”

Gathering the ingredients

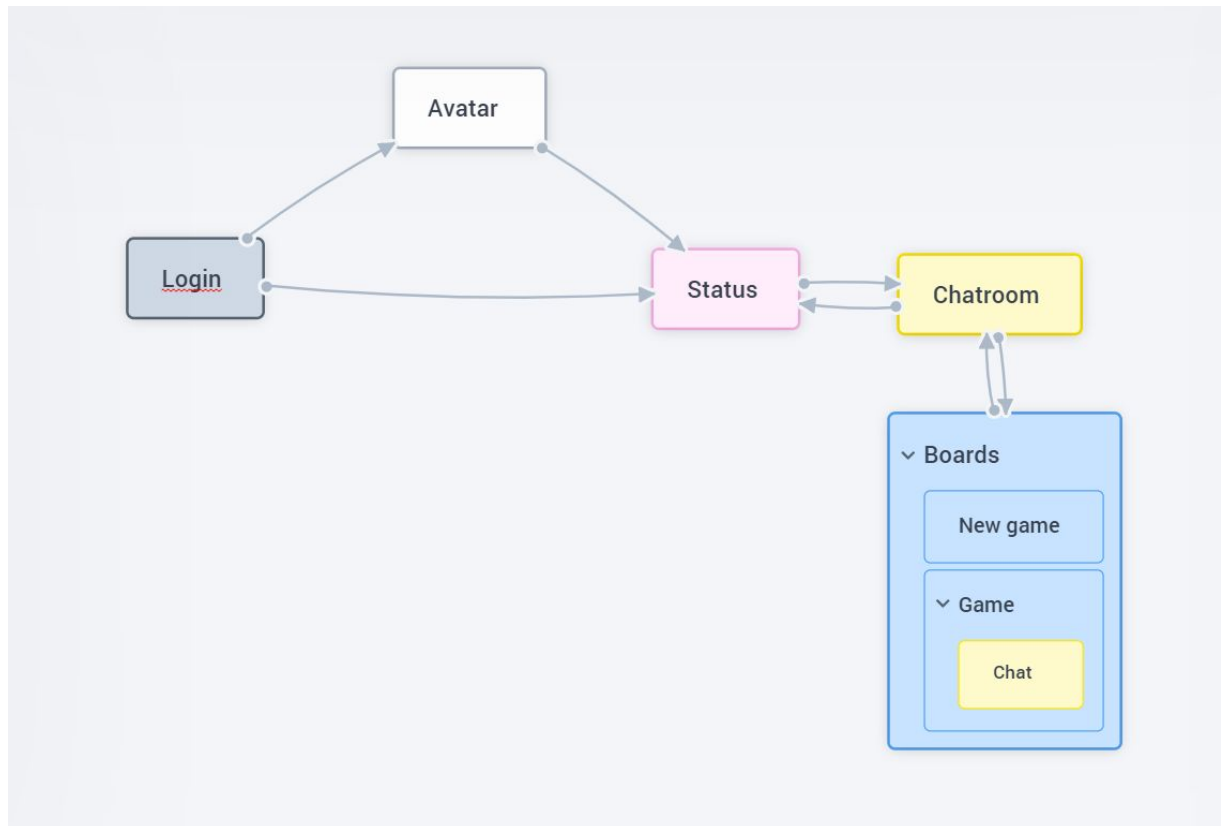
After analyzing the chatroom conclusions and the user needs extracted from the exercise, we generated the following list of requirements.

Topic	Requirement	Description
Devices	TV and mobile.	The design of the application will be focused on TV and smartphones.
Avatar	Gallery and editor.	<p>To completely maintain anonymity and safety, the users will only be capable of choosing an avatar from a drawing's gallery, or creating their own with the system.</p> <p>It will not be possible to add any images stored online or locally.</p> <p>Also this responds to the anonymity and privacy need detected through the study with adults.</p>
Communication	Emotional status	<p>The user must select an emotional status that will be shared with the other users.</p> <p>For autistic people, sharing and understanding their own emotions and others is specially important as we noticed during the research process.</p>
	Limited content	<p>The system will provide of several communication contents including: emojis, animated gifs and blocks of words, pre-selected to fit the children's need as to be safe.</p> <p>The users will not be capable of sharing any external content as type words, images, video and audio.</p> <p>Both safety and adaptive communication purposes are fit with this solution, having in mind that even some autistic children don't speak at all, and some small children don't know how to write or</p>

		read.
	Visual communication	<p>All the communication content will be mainly visual and easy to understand for them, focused on autistic needs and literal language.</p> <p>Also the words and phrases chosen in the blocks will be chosen to be adapted to their way of expressing and thinking.</p>
	Coding language	<p>In a second stage it could be implemented a command system similar to a coding language to choose words and create phrases.</p> <p>Probably this would be interesting for them, as we extracted this need also from the anthropologic research.</p>
Game environment	Boards	<p>The main interaction between the kids will take place in the boards, which include different integrated games interesting for children within the spectrum: chess, construction, scrabble, and others.</p> <p>This will warranty their social interaction, including also an individual chatroom per game board, adapted to their needs and ways of understanding.</p>
Content space	Books	<p>The application can also provide a selection of books, comics or even other contents, adapted to the needs of the children, so they can share between each other.</p>

Architecture

To build the final screens and interface design, we defined the architecture of the application.



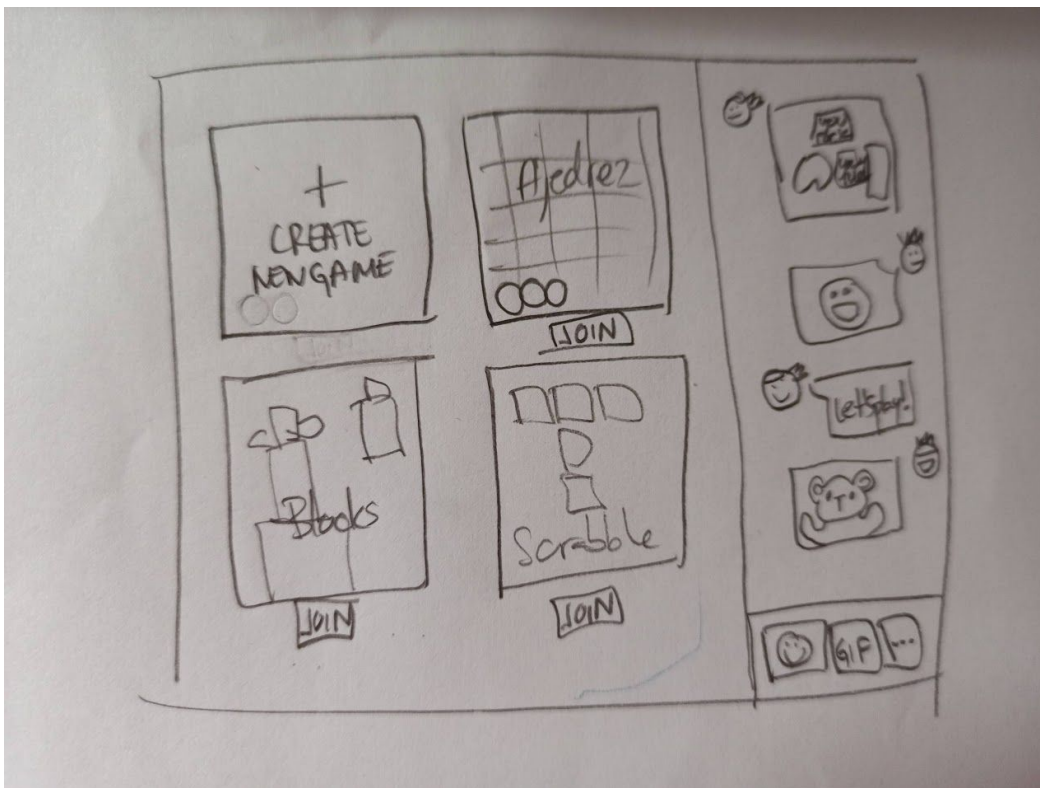
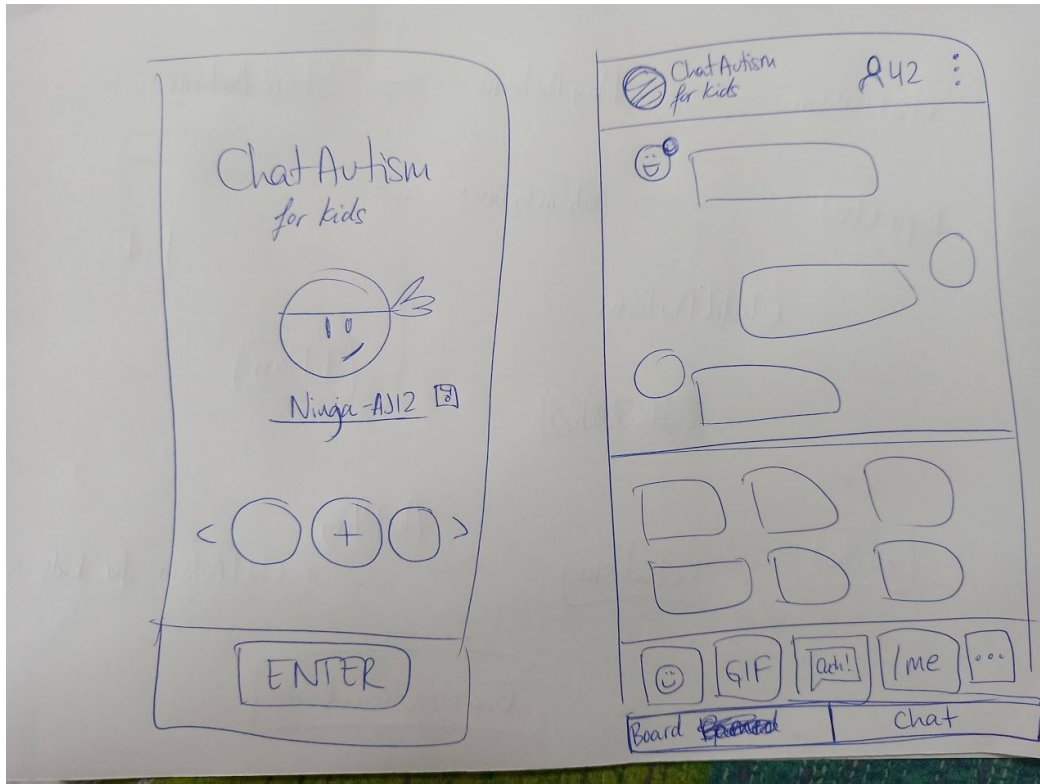
Architecture

Design

Sketching

After defining the flow steps for the user to follow, each interface screen has been sketched.





Design

Prototype

Finally we built the final prototype, including the main interactions and screens, using Adobe XD.



[Prototype](#)

Usability testing

In order to verify the usability of the application, we have driven two usability guided tests with target users.

Users

User	Profile
User 1	Boy Asperger's 7 years old
User 2	Girl Neurotypical 5 years old

Usability goals

Step 1:

Create your own golden avatar, change your nickname, and enter the app!

Step 2:

Say “hello” in the general chatroom.

Step 3:

Create a new “Lichess” game.

Task	Usability issue	Solution
Change avatar	<p>User 1 clicks in the avatar instead of the “edit” icon.</p> <p>User 2 clicks in the “edit” icon.</p>	Added the same interaction in the avatar icon. The “edit” icon is kept.
Send “hello” message	<p>Users doesn’t understand that clicking in the plus button is sending a message.</p> <p>User 2 clicks on “chatroom” speech bubble icon to send a message.</p>	Change the button UI including the speech icon.
	<p>Users don’t understand that clicking on “/me” will show text messages.</p> <p>User 2 tries to click in the button “Ouch” to achieve it.</p>	Change the button UI including an speech bubble with text.
Create “Lichess” game	<p>User 1 presses in “Join” to create it.</p> <p>User 2 presses in the “Lichess” existing board.</p>	Include a list of the existing games, include the action in the board picture and change the UI with two options: create and join existing games.

The test was made using V2 of the prototype, and solutions have been applied in current version.

Evaluation

Feedback

We also obtained feedback in the original adults chatroom and in other environments, obtaining data provided by 4 Asperger's adults and 1 Neurotypical adult.

Feedback

Required a yellow avatar.

Emotion should be more important than the messages, as Asperger's need to identify their emotions.

Asperger's lack of abilities on identifying emotions (Alexithymia). Explanation is needed.

Required avatar entire customization.

The plus button seems out of context. The action is not identified correctly.

Required more solutions to include selected content into the application: parents providing content and/or AI automatic content provider.

Solution

Included a yellow avatar as the final selection.

Included a scrollable emotion selector in the top of the chatroom.

Included descriptive text next to each selectable emotion.

Avatar editor included.

Adding actions in both areas are replaced.

Planned to analyze AI functionality. Parents intervention discarded due to security reasons.

The feedback was obtained using V₁ and V₂ of the prototype, and solutions have been applied in current version.

Bibliography

Why My Autistic Teen Struggles to Chit-Chat

Last week at a training, an older woman (who has a grandchild with autism) asked if individuals with autism “can’t” talk or “won’t” talk. I’m not sure why, but, her question caught me by surprise.

Credits

Interface design, project definition and research has been developed by Patricia Saco Atanes in 2020, without any commercial purposes.

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Graphic design

Graphic design elements were downloaded from <https://www.freepik.com/free-photos-vectors/design> and ownership belongs to their authors according to their terms.

Thanks

I would like to express my sincere appreciation to my son Aitor, who has worked hand by hand with me, to UOC University and to my friends from the autistic channel for giving me feedback and support.