

Project Proposal

Your Name: Hao Zhang

Supervisor: Andy Lapham

Working Title: Sound Explorers: Reshaping the auditory relationship of family communication

A/B Manifesto Influences

Critical rather than affirmative

Social Fiction instead of Science Fiction

Research through Design rather than Research for Design

Education rather than training

Design goal

This project aims to explore the emotional and power structure of "sound" in family education through interactive design and sound games, helping children, adolescents, and parents establish healthier and more equal communication methods, and transforming sound from a "control tool" to an "emotional bridge".

Theme

Sound perception and emotional regulation in family education

Insights

More than 45% of parents use high-pressure or moderate intensity language in education, which increases children's anxiety, inferiority, and aggressive behavior.

Mother's voice can activate various brain regions in children and is an important source of emotional safety.

Gamified learning methods can help improve the enthusiasm and efficiency of children and adolescents in emotion recognition and expression.

Point of view

We can use voice analysis and feedback functions to make parents aware of the impact of their tone on parent-child relationships.

We can help children recognize the connection between emotions and sounds through situational interactive games.

We can provide a 'safe space' for teenagers to express themselves and rebuild their voice identity.

How might we

Main : How can we use voice interaction design to help family members perceive and improve tone and emotional expression in communication?

Secondary : How can we reshape the power structure of "listening and speaking" for teenagers in the family through gamification?

Project Report

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Describe

In the project "Sound Explorers", I carried out a series of design studies and creative practices centered on the "power of sound" in family education. This project originated from a widespread but often overlooked issue in real life: parents' tone, intonation, rhythm and volume not only convey information in family education, but also profoundly influence children's emotional development, behavioral performance and parent-child relationship(Goleman, 1995). However, these "voice behaviors" are often hidden in daily communication and are rarely proactively detected, expressed or reflected upon by family members. Therefore, I hope to transform sound into a medium that can be "seen, played with and reflected upon" through an interactive platform, awakening the perception and intervention ability of children, teenagers and parents regarding "family voice relationships", thereby promoting the formation of a more equal and emotionally resonant family communication ecosystem.

The Research method of the project takes "Research through Design" as the core path, combining primary interviews, secondary literature research, user profile construction, prototype design and iterative testing. In the early research, I collected the voice usage scenarios and feelings from different family members through questionnaires and in-depth interviews. Research has found that over 45% of parents tend to use a moderate or strong commanding tone in family education, which has been associated with negative emotional and behavioral outcomes Evans & Kim (2013). Although this tone is regarded as an "effective management tool", it actually triggers anxiety, unease and rebelliousness in children. Another part of the research also shows that a mother's gentle voice can activate multiple areas of a child's brain and help form a secure attachment, reinforcing the importance of auditory environments (Schafer, 1994). Therefore, voice is not only a communication tool but also an invisible channel for family emotional regulation and power flow.

Inspired by these studies, I decided to take "sound perception" as the design entry point of the project and develop a mobile sound interaction platform around the circular relationship of "expression - feedback - co-creation". The core functions of the platform include: sound analyzer, Sound Game, Emotion Diary, parent-child Report Area and achievement progress system. Among them, the "Voice Analyzer" helps users understand the emotional tendency of their tone through recording and intonation recognition, such as whether it has features like control, command or soothing. The "Sound Game" centers on

gameplay elements such as "role swapping", "emotion matching", and "rhythmic speaking", allowing parent-child members to experience each other's perspectives in a relaxed interaction and establish an empathy mechanism. "Emotion Diary" encourages family members to record a remembered sentence and their mood of the day every day. Through a visual "emotion map", it helps users to be long-term aware of the connection between their language and emotions. The "Report Area" offers parents feedback suggestions and behavioral reminders, encouraging them to communicate with their children in a more encouraging and constructive way.

Interpret

During the design process, I gradually realized that although sound is invisible, its social attributes are extremely strong, especially within a family. It is like an invisible "educational framework" that builds the boundaries between authority and obedience, intimacy and distance, empathy and suppression. This "voice structure" has long been concealed within functionalist family relationships, especially under the realistic factors such as the pressure of exam-oriented education, parenting fatigue, and gender division of labor. Parents tend to "control through voice" rather than "communicate through voice". This also prompted me to shift the project from "improving communication skills" to a deeper exploration of "revealing the power structure of voice", aligning with the speculative design approach advocated by Dunne and Raby (2013). It was precisely this shift in awareness that enabled me to start from the design of instrumental products in the project and gradually build an exploration system with social criticism and educational intervention significance.

This process also profoundly reflects my shift from the A-oriented design of the "A/B Manifesto" to the B-side. I no longer merely pursue the affirmative effect brought by design, but hope to present the essence and structural contradictions of the problem through design. I no longer fantasize about a technological utopian home voice assistant (science fiction), but rather consider whether we can construct a "de-controlled" parallel voice world (social fiction) if we change the way we use language in our daily lives. I no longer strive around "research for design", but transform the design itself into the field and experimental process where the research takes place (research through design)(Noble & Bestley, 2016). I am no longer content with merely "training" parents on how to speak, but rather inspire them to grow together with their children and establish a reflective "voice education" mechanism. These changes in design philosophy have also profoundly altered my understanding of "communication design".

Evaluate

It is worth noting that although the initial prototype test has received positive feedback, the project also faces some practical challenges and technical limitations. Firstly, due to the limited development resources, the accuracy of speech recognition and emotion analysis is still unstable, and the effect is poor in complex noise environments. Secondly, the

number of user samples is relatively small, and the test only covered three groups of families, with a relatively single cultural and language background. Secondly, some teenage users have "language inertia" in expressing their emotions and need a more detailed guidance mechanism. These issues all need to be prioritized for optimization and expansion in the future iterative process. I plan to introduce a more accurate voice emotion recognition model in the next stage and expand the project to families with multiple languages and cultural backgrounds. At the same time, it is also planned to cooperate with mental health education platforms, incorporating some functions as part of school or family education counseling courses to verify their effectiveness in a larger real-world environment.

Looking back on the entire design and research process of the project, it is not only a development practice of a sound interaction platform that considers social and emotional factors in user-centered design (Hirsch, Forlizzi, & Hyder, 2010), but also a deep exploration of family power, emotional mechanisms and design ethics. In a family setting, which is highly emotionally complex and relationship-sensitive, sound is often the medium that most effectively triggers resonance and most easily leads to conflicts. By gamification, interactivity and emotionalization of sound, I attempt to establish a new model of parent-child communication, making the design not only focus on "what to say", but also on "how to say" and "why to say it this way". This also makes me more convinced that communication design is not merely the expression of interfaces and visuals, but rather a process of reconstructing emotional systems, relational logic and social structures.

Plan

The completion of "Sound Explorers" not only improved my ability to design across different fields, but also changed the way I understand the role of sound. It made me realize that a good design should not only focus on appearance or how smoothly a product works, but also explore the deeper issues that exist in everyday life. It should help people become more aware, think critically, and make meaningful changes. Sound is often overlooked, but through this project, I hope more people can truly "hear" their family conversations. From there, they can build a more caring, balanced, and lasting way to communicate.

In the next stage of the project, I plan to bring "Sound Explorers" into a wider range of practical settings. The first step is to improve the technical performance of the app. I will try to work with developers who specialize in voice and emotion recognition, which aligns with the idea of emotional design in product development (Norman, 2004) to make the voice analyzer more accurate in understanding tone, rhythm, and pitch. I also plan to improve its performance in noisy environments so that it can better reflect how people speak in real situations. At the same time, I will strengthen the privacy system to make sure that all user data is protected and handled responsibly.

In addition, I want to introduce "Sound Explorers" into educational environments and

programs that support family communication. For example, I will explore cooperation with schools and family support centers to develop versions designed for teachers and parents. These tools can help adults notice possible emotional problems in communication and offer practical ways to respond using sound. This will not only make the design more useful in everyday life but will also help bring attention to sound education as a part of public discussion.

Meanwhile, I also plan to develop parent-child interactive workshopsto support autonomy and connection within families, as emphasized in self-determination theory (Deci & Ryan, 1985), conducting practical activities around modules such as sound games, voice expression, and emotional awareness. This is not only an offline extension of the interactive platform, but also an important attempt to promote face-to-face "practice of listening and expression" between parents and children.

Finally, in terms of dissemination and long-term impact, I will continue to update the project results in various forms and consider creating an online open-source "Voice communication toolkit" for use by families, schools, and designers. Through such a continuously open design platform, I hope to truly transform "sound design" from a concept in an academic or artistic context into an operational, interventional and usable daily practice approach.

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