

Device for Exchanging Music

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PROCESS

needs to be lifted to continue

playing

People share music with others all the time, often hoping others like their favorite songs too. It is not just about the song, it is about feeling understood [4]. This is beautiful, but the way of sharing music is not. It's just some link in a chat bubble, or a screen with a play button and a progress bar.

To start, inspired by the first step of acting out choreographies in Ross' and Wensveen's paper [9], I explored how music makes me feel. For this, I used the "Flow" feature on Deezer [5] which randomly picked songs within my music taste. During the 30 minutes I spent listening to familiar and unfamiliar songs, I noticed that I enjoyed the familiar ones more and "danced" in the rhythm of those songs more, as shown in Figure 1. Unfamiliar songs needed to be very catchy and spark my curiosity in order for me to enjoy it just as much. When hearing something unfamiliar, I noticed the urge to skip the song came up sooner.

Maybe people need to be engaged more when listening to unfamiliar music. Inspired by gravity powered clocks, which need to be recharged every now and then by lifting a weight, I explored the same thing with a speaker. It would



Another idea I had about making music more tangible, is a portable device functioning as your playlist with your favorite songs, shown in Figures 3 and 4. This device can be used to "inject" a song you wish to share into a speaker, so



Exploring feelings when listening to unfamiliar and familiar music



Interaction relabeling of syringe as music playlist



into speaker

INTRODUCTION

When learning about affordances [8], feedforward and feedback [11], I was personally very intrigued by the concept of affordances and looking forward to using it in my designs. Also, applying the frogger framework seems to be straightforward and makes sense.

The next few topics were some methods that can be applied to an interaction design process. Interaction relabeling is about relating a certain interaction with an item to a completely different action and extreme characters about designing for very specific characters resulting in less "ordinary" designs [6]. Making experience prototypes, for example by using existing products as something else or quickly prototyping with simple materials, is

perhaps the most important thing to do during an interaction design process [3]. To me, these methods felt strange at first, but I understand how they lead to more creative designs and aesthetic interactions. Experience prototypes especially are more tangible than "passive" techniques like sketching.

The following papers were more oriented at aesthetic interactions and understanding experiences. Mostly about bodily experiences, focusing on movements or haptic properties of materials and actuators. Soma Design is a great example of this, as it is really about how certain movements feel, as well as material properties like touch, smell, sound, feeling or even taste [10].

Personally, I am interested in emotions that can be evoked Speaker that through design, so interactions and their aesthetics are especially interesting to me as they can affect the user's emotional feelings [7].



After discussing this idea with someone, they stressed how sharing music is like sharing part of your personality, which means some people can be anxious about this. This is an interesting extreme character: Someone who does not like to share music because they would be ashamed if the other doesn't like it. They would need reassurance and trust that the song will not alter opinions about them.

Thinking back to my experience how I like familiar songs more than unfamiliar ones, one way of giving reassurance is by creating a visual of the song so the listener will already know what's coming when hearing it for the first time. This way, the song will be less "unfamiliar" and thus could be enjoyed more. A way of giving trust, is by making sure both people share music so they expose their personality equally.

All these aspects are combined in the final iterations: A device to exchange music, it is shown in Figure 7. As made clear in the video, it can only be used when both people share music, to minimize the possible anxiety caused when only one person at a time can share music. The idea of using a visual to represent the song visually is also present, although just the result of a spectrogram analysis [1] for now, for a future version an algorithm could be made to show the contents and style of the song in a clearer way.

The fact that the tangible playlist, a portable device, can be placed against the speaker is shown by the protrusion on the device and indentation in the speaker being same shape, as shown in Figure 6. This is inherent feedforward, just like the slider which can be pushed into the device. Interaction relabeling is what ultimately lead to this action possibility, as the second experience prototype was a syringe used as the tangible playlist. By designing for an extreme character, it was possible to define a more specific context.

Although the reading material clearly aided the design process, I did find some methods to be unfeasible, mainly because they either require a group of people or access to certain professionals (like dancers acting out a lamp [9]).

Therefor, I believe that designing for aesthetic interactions is more difficult to do in an individual setting. However, this does not change the fact that it is a very relevant concept within Industrial Design, capable of drastically improving interactions with a design. Even more so in the future, where designs become increasingly digital and decreasingly tangible.

Video link: https://youtu.be/0ehKKDhynrA



Figure 5: Early experience prototype of handheld tangible playlist



Figure 6: Protrusion and indentation on the device and speaker, to show where to connect

Figure 7: Final, museum-quality experienceable prototype of speaker to exchange music from a handheld tangible playlist



REFERENCES

- [1] 2015. Spectrum Analyzer. *Academo*. Retrieved from https://academo.org/demos/spectrum-analyzer/
- Kristina Andersen and Ron Wakkary. 2019. The Magic Machine Workshops: Making Personal Design Knowledge. In Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems(CHI '19). Association for Computing Machinery, New York, NY, USA, Paper 112, 1–13. DOI: https://doi.org/10.1145/3290605.3300342
- [3] Marion Buchenau and Jane Fulton Suri. 2000. Experience prototyping. In Proceedings of the 3rd conference on Designing interactive systems: processes, practices, methods, and techniques (DIS '00), Daniel Boyarski and Wendy A. Kellogg (Eds.). ACM, New York, NY, USA, 424-433. DOI: http://dx.doi.org/10.1145/347642.347802
- [4] Donna-Claire Chesman. 2018. Sharing Music Is More Than Sharing Music. *DJBooth*. Retrieved from https://djbooth.net/features/2018-11-26-sharing-musiclove-family
- [5] Discover Deezer Flow, our Al music generator. *Deezer*. Retrieved from https://features.deezer.com/flow/
- [6] Tom Djajadiningrat, Bill Gaver, and Joep Frens. 2000. Interaction relabeling and extreme characters: methods

for exploring aesthetic interactions. In Proceedings of the 3rd conference on Designing interactive systems: processes, practices, methods, and techniques (DIS '00), Daniel Boyarski and Wendy A. Kellogg (Eds.). ACM, New York, NY, USA, 66-71. DOI:

http://dx.doi.org/10.1145/347642.347664

- [7] Caroline Hummels, Kees Overbeeke, and Sietske Klooster. 2007. Move to get moved: a search for methods, tools and knowledge to design for expressive and rich movement-based interaction. Personal Ubiquitous Computing 11(8), 677-690. DOI: http://dx.doi.org/10.1007/s00779-006-0135.y
- [8] Victor Kaptelinin. Affordances. The Encyclopedia of Human-Computer Interaction, 2nd Ed. https://www.interaction-design.org/literature/book/theencyclopedia-of-human-computer-interaction-2nded/affordances
- [9] Philip Ross and Stephan Wensveen. 2010. Designing aesthetics of behavior in interaction: Using aesthetic experience as a mechanism for design. International Journal of Design, 4(2), 3-13. http://www.jdesign.org/index.php/UDesign/article/vie File/765/294
- [10] Vasiliki Tsaknaki, Madeline Balaam, Anna Ståhl, Pedro Sanches, Charles Windlin, Pavel Karpashevich, and

Kristina Höök. 2019. Teaching Soma Design. In Proceedings of the 2019 on Designing Interactive Systems Conference (DIS '19). ACM, New York, NY, USA, 1237–1249. DOI: https://doi.org/10.1145/3322276.33 22327

[11] Stephan Wensveen, Tom Djajadiningrat, and Kees Overbeeke. 2004. Interaction frogger: a design framework to couple action and function through feedback and feedforward. In Proceedings of the 5th conference on Designing interactive systems: processes, practices, methods, and techniques (DIS '04). ACM, New York, NY, USA, 177-184. DOI: http://dx.doi.org/10.1145/10.131151

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[12] Icon: https://thenounproject.com/icon/sha re-music-818000/