

RhymeBuddy

TEAM EPICO

THISURA SENARATH, ZHEHENG YANG, CONGRONG ZHANG, ZHE WANG, GUO CHENG

Problem Space

In today's society, many young individuals face challenges in socializing, due to issues like lack of confidence or difficulty finding shared interests. Music sharing has been identified as a potent tool to foster social interactions. Research has highlighted the role of music in enhancing social and emotional skills (LaGasse, 2017). Therefore, we're exploring the avenue of facilitating youth interaction through music.

Music plays a pivotal role in daily social activities (Håkansson et al., 2007). The act of sharing music, prevalent among the youth, has significant social implications. Based on literature (Komulainen et al., 2010), the motivations behind music sharing among young people include:

1. Gifting quality music, usually among friends with similar tastes.
2. Showcasing personal music preferences to bond over shared tastes.
3. Using music as a medium to convey emotions.

While music sharing addresses the social needs of the youth, current methodologies have limitations:

1. Limited sharing options: Prevailing methods include direct sharing via hard drives, Bluetooth, or sharing online links and files.
2. Asynchronous sharing in most apps: This creates a time and emotional disconnect between the sharer and receiver.
3. Minimal interactive features: Existing apps generally lack feedback mechanisms beyond merely listening to shared music.
4. Predominantly, music is shared among known circles, rarely extending to strangers.

Recognizing these limitations, we propose an innovative solution to optimize the social potential of music sharing. We introduce a 3D game-inspired mobile application where users in proximate real-world locations can interact in a shared virtual space. Within this realm, they can exchange and react to music via virtual avatars. The virtual setting can be modified by users, enabling them to express emotions associated with the music.

Our design stands out as:

1. Users share a synchronized temporal and spatial experience.
2. Interaction happens among unfamiliar users.
3. It promotes active engagement and feedback, with users able to alter the virtual environment in response to the music.

User Research

Through the analysis of "THE STATE OF MUSIC SHARING" by Byta and "Trends in online viewing and listening behaviour" by ACMA consumer survey 2020, we found that the majority of young Australians listened to online audio content. Compared to other age groups, young people aged 18-34 prefer to share music through streaming platforms.

Fig 1: Listened to online audio content in the past 6 months, by age* (%)

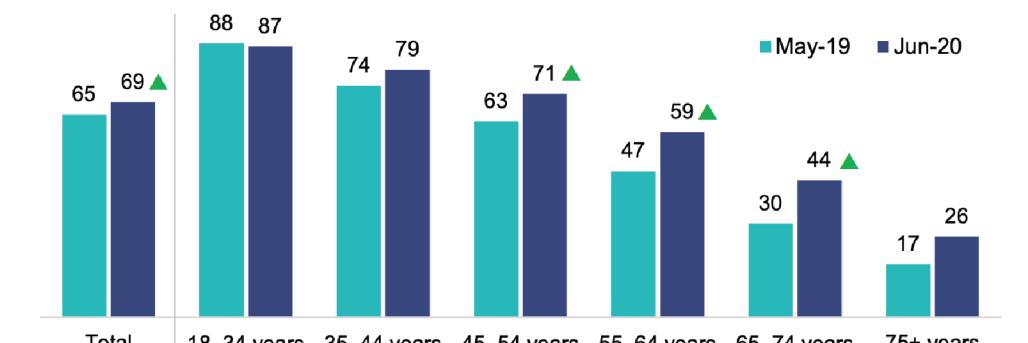


Fig 1: Listened to online audio content in the past 6 months, by age* (%)

Fig 2: Senders: stream/download preference by age

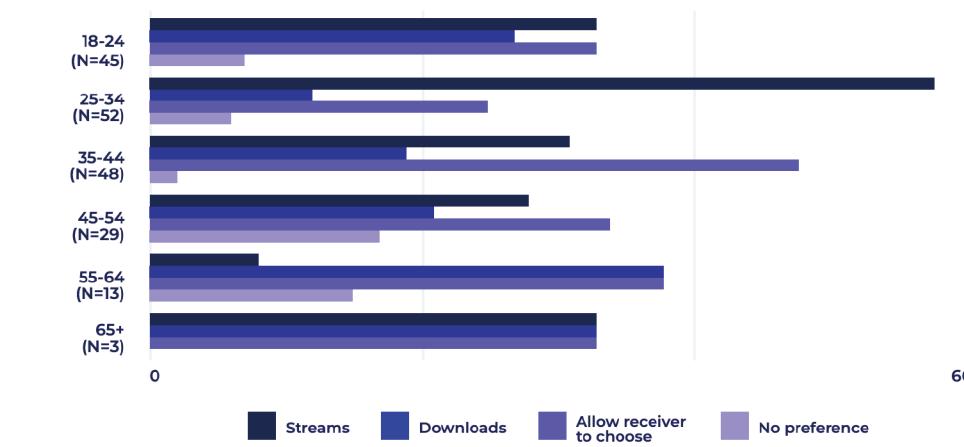


Fig 2: Preference for sending streams or downloads, broken out by age group

Upon analyzing the "Global Web Index Online Music Streaming Statistics," it's evident that Gen Z leads in streaming music, dedicating an average of 97 minutes per day. Additionally, the data reveals that a notable 50% of individuals aged 16-24 stream music on their mobile devices. Delving into the "Digital Music Streaming Penetration in the United Kingdom 2021" survey by demographic group, it was discerned that music streaming predominantly resonates with respondents aged 16 to 24 years, underscoring a generational inclination towards digital music consumption.

| Ages 16-24 | Ages 25-34 | Ages 35-44 | Ages 45-54 | Ages 55-64 |
|-------------|-------------|-------------|-------------|-------------|
| 97 min./day | 76 min./day | 61 min./day | 44 min./day | 23 min./day |

Fig 3: The music streaming usage statistics, by age group

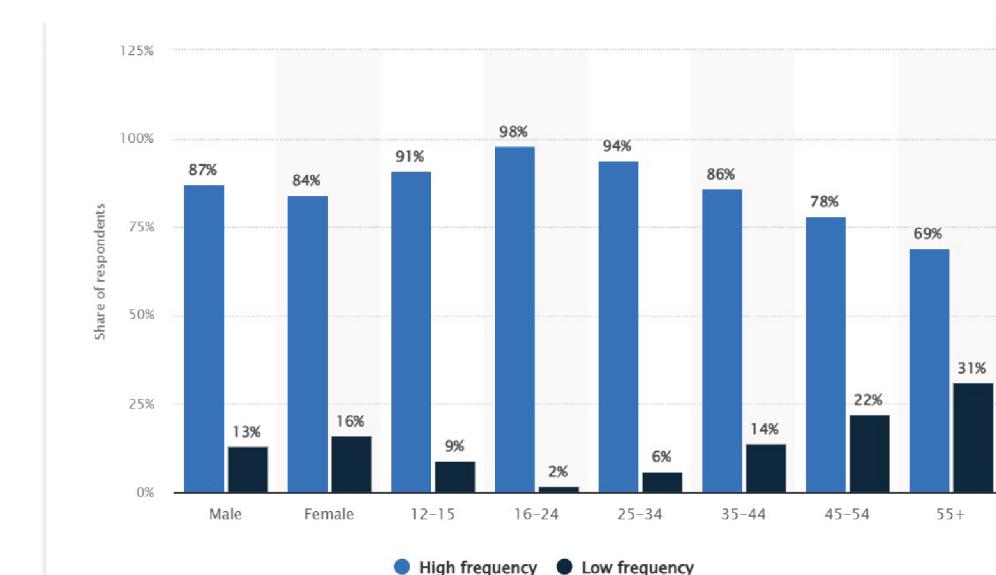


Fig 4: The penetration of music streaming via the internet, by age group

Design Process

In order to address the design points mentioned in the problem space, the team has developed a mobile game aimed at enhancing and building social connections through music.

First and foremost, to ensure that the design integrates real and virtual spaces and achieves consistency and uniformity in the mobile domain, the team has established a system requirement: only users in the same physical space can access the same virtual space. Similar to a local area network, this design approach is intended to give users a stronger sense of real-world engagement while using the virtual system.

Furthermore, the team has designed multiple segmented spaces within the virtual world on the mobile platform to enable users to enjoy a diverse range of music elements within the same space. Each of these spaces plays different genres of music, and users enter the same space through virtual avatars to enjoy the same kind of music. This approach is intended to create connecting conditions for different users, using music as a medium to attract and gather users with similar music preferences.

To enhance users' interactive and social experience, the team has built upon the foundation of music sharing by introducing the functionality of custom spaces. This feature is aimed at empowering users with the ability to modify and create content within these spaces. Users can change and add everything within the space based on the music elements and their feelings. They can also doodle and sketch within blank spaces. Communication between users is facilitated through various interactive means such as voice, text input, sending emoticons, and even dancing. The team's goal is to enable all users within the same space to unleash their creativity and imagination within the ambience of music, allowing them to construct their unique music space. This sparks creative inspiration and serves as a bridge for communication and interaction among strangers. This design concept enhances the social and interactive elements of the project.



Fig 5: Sketch of the low fidelity prototype

Another design advantage is that this music sharing is simultaneous and synchronous, which means that users can generate real-time feedback and experiences through music. This design inspiration stems from early-stage user interviews and observations, where user feedback indicated that synchronous design elements can enhance engagement and appeal.

The team's goal is to enable all users within the same space to unleash their creativity and imagination within the ambience of music, allowing them to construct their unique music space. This sparks creative inspiration and serves as a bridge for communication and interaction among strangers. This design concept enhances the social and interactive elements of the project.

The prototyping process consists of "non-digital process simulation" and "digital system modelling." The former aims to adjust and iterate the design process and details, while the latter aims to demonstrate the visual and functional aspects of the design. In the first phase, the team experiments using materials such as stickers, headphones, brushes, erasers, pencils, and Bluetooth speakers to test user reactions to music sharing and expressive sensations during the design process. The aim for our user testing is to figure out whether the experience of listening to music with multiple people is better than listening alone and to identify some specific features/functions in our design. Additionally, participant feedback is used to decide whether to add details such as song options, doodling, and voice output for interaction.



Fig 6: Interaction plan for the game

| KNOWLEDGE | QUESTIONS FROM INTERVIEW | ANSWER |
|-----------------------------|--|--|
| Know D.S. | What do you know about the design space? | The participant was asked to be the participant in the design space. |
| Know F.n. | What do you know about the function of the design space? | The participant was asked to be the participant in the design space. |
| Spatial and Object Oriented | What do you know about the spatial and object oriented design? | The participant was asked to be the participant in the design space. |
| Human Eng. | What do you know about the human interaction? | The participant was asked to be the participant in the design space. |
| Music Options | What do you know about the music options? | The participant was asked to be the participant in the design space. |
| Expect to Understand Others | What do you expect to understand others? | The participant was asked to be the participant in the design space. |
| Stronger Our reaction | What do you think about the strong reaction? | The participant was asked to be the participant in the design space. |

Fig 7: The Process of User Testing

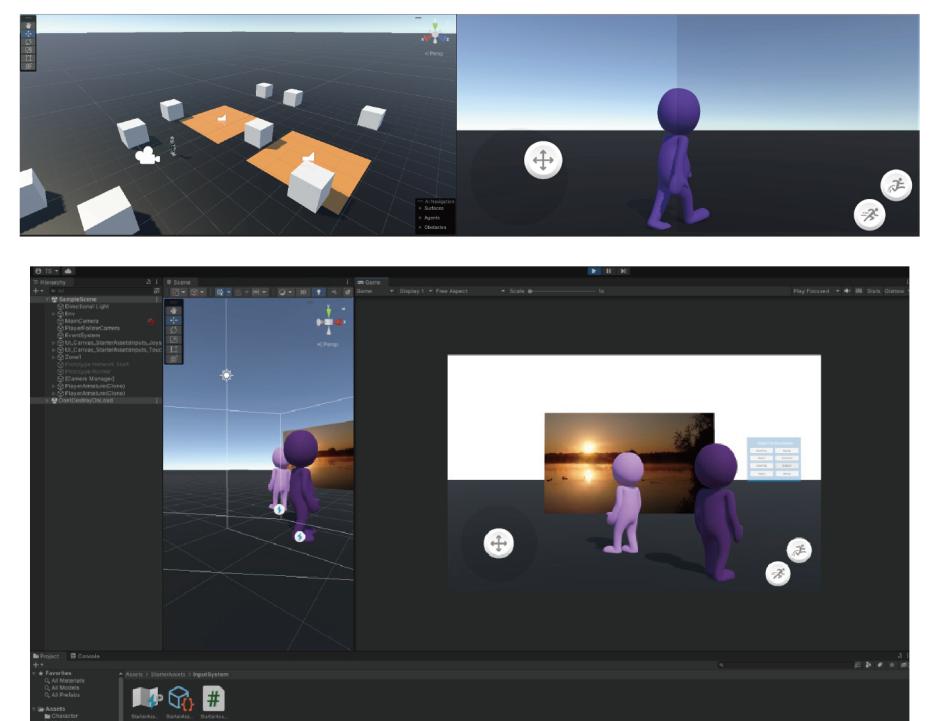


Fig 9: The Process of Prototype Building

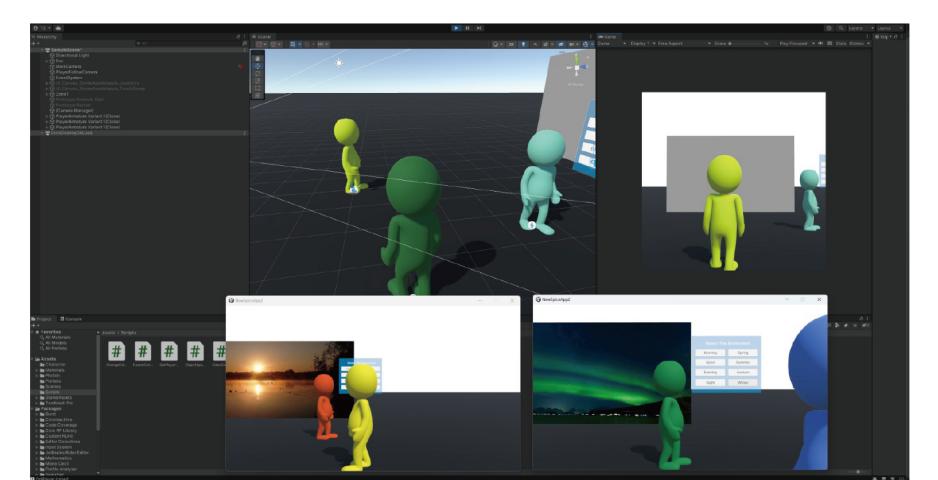


Fig 10: The Prototype: Multiplayer Perspective

The "Digital System Modeling" section focuses on realizing design elements. It involves simulating virtual spaces and interactive scenarios using Unity 3D software, creating controllable virtual characters and musical environments. Employing network connections and device simulations facilitates simple synchronous interactions among multiple users. This is used for simulating and testing the feasibility and functionality of the design.



At this stage, we also did 10 interviews to get key insights into music-sharing habits and preferences among urban young individuals:

1. Urban location positively affects offline music-sharing among peers with similar tastes.
2. While 30% share music weekly, 60% find existing apps unsatisfactory due to lack of cross-platform sharing and limited music resources.
3. Although 80% share multiple music genres, they tailor shared music to recipients' tastes.
4. Half meet musically like-minded friends at live events, indicating urbanites' higher chance of finding musical companions offline.
5. A notable 70% prefer apps with multiple sharing methods and cross-platform functionality, showing a demand for improved music-sharing platforms.
6. Target users are young, digitally savvy music enthusiasts seeking real-world connections over shared musical interests.