Improving Social Presence Through the Use of Technology

GROUP: Anti-Social Social Presence

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1 INTRODUCTION

1.1 TOPIC OVERVIEW

The purpose of this design exploration is to propose and develop solutions that elicit feelings of social presence and connectedness. The group Anti-Social Social Presence consists of five members, who have each created individual design proposals targeting these mobile and sociological issues. Thus, each design aims to incorporate feelings of social presence in order to reduce the barriers and problems faced by individuals in three distinct subdomains - music, education, and language barriers. The five concept proposals are as follows:

Crispian Yeomans

Social Radio: Explore ways to allow friends to share and listen to music together when they are not physically present.

Finlay Rodbert

soundtrak: Explore and improve upon challenges regarding creativity and collaboratively that musicians face whilst writing, recording, and producing in home studios.

Chris Smith

eduAv: Increasing the social presence experienced through social and mobile technology in an online learning environment.

Changhao Xi (Raymond)

Die Insel der Sprachen: Explore and evaluate design possibilities for a one-stop gamified language learning app that aims to cultivate and maintain motivation by enhancing the sense of connectedness.

Rachel Matterson

Lingual: Reduce feelings of isolation and improve user experience and connectedness through novel approaches to language learning.

This document will describe the social presence problem space, followed by an in-depth look into the individual concept proposals mentioned above. Following the description of each concept, the group members will provide a plan of work for their designs. Finally, a description of each member will be covered, showcasing their strengths and abilities in achieving these project goals.

1.2 PROBLEM SPACE

Humans have lived in the physical world for most of history. However, the emergence of digital technologies has, for the first time, granted people access to a virtual space - a space that allows for synchronous communication even when others are physically distant. This means social interactions no longer require physical proximity. The responsibility, then, is on digital technologies to replicate these social interactions, these usually physical experiences, in virtual spaces.

However, doing this can be difficult as virtual spaces cannot always replicate every aspect of social interactions, complete with every social cue and every verbal and non-verbal behaviour (Rettie, 2003). This means, in virtual spaces, each social cue and behaviour that the designer wants to represent must be specifically identified and built into the technology. The designer would have to create awareness. Conversely, in physical spaces, awareness already exists because every social cue and behaviour is already visible and can be easily monitored by others.

Underpinning this discussion is the idea of 'social presence'. Kim & Yang (2019) found that a technology's ability to create social presence was a predictor of whether a person enjoyed interacting in the virtual space. It also predicted whether they would continue to use that virtual space for social interactions. This suggests social presence is the means through which we can improve a person's experience in a virtual space.

However, the failure to foster social presence can have devastating consequences, including several negative mental health impacts. People who feel socially excluded (i.e. kept apart from others) can experience feelings of "depression, alienation, unworthiness and helplessness" and eventually cease being social altogether (Pancani et al, 2021). In the education domain, this might result in people not engaging with material inside or outside of class. In the language barrier domain, a person's inability to socialise with others might turn into an unwillingness to try, only enhancing feelings of loneliness and separation. In the music domain, people may attempt to share their musical tastes with friends, only to feel sidelined or rejected when their friends fail to respond.

In this project, each group member identified technologies that failed to elicit feelings of social presence and solve problems relating to social presence in their chosen domains. As such, each of our projects investigate aspects of social presence which would, if incorporated, improve user experience in our areas of research.

The five design proposals within this portfolio address a variety of key stakeholders. In general, our applications target a younger demographic. Younger age groups undergo 'transition periods' where social status and social connections play formative roles in developing their own personal identities (Pescott, 2020; Daniels, 2020; Lehtinen & Liikkanen, 2012). This would suggest younger groups value social presence more highly than other demographics, meaning a lack of social presence would affect younger individuals to a more significant extent.

Although our specific design solutions target a variety of demographics, some key experiences link these users. People are inherently anti-social, and incredibly so when attempting to embrace a new technology. This is a common barrier all five designs must overcome in order to achieve distributed environments with a strong social presence experience. Similarly, all five group members will go about achieving success in their chosen problem space by maximising social presence. This approach unifies the five proposals.

2 CONCEPT OF DESIGN

2.1 SOCIAL RADIO – CRISPIAN YEOMANS

Overview

My design opportunity is to develop an online platform that allows friends to listen to music together when they are not physically present.

I will be designing for young people (14 to 23) who enjoy listening to music and want to share their music with friends but are not yet solely focused on furthering their career. This demographic was chosen as young people who do not work full-time would have more time available for music sharing, young people tend to desire more social connection (Boyd, Adamson & Peardon, 2021), and the identity of young people incorporates their musical tastes (Lehtinen & Liikkanen, 2012). I interviewed three members of this demographic as part of my research, as discussed below.

Background

While music listeners have adopted online streaming services like Spotify for personal music listening, online music sharing services have not been adopted to the same extent. My own interviews with Boyd, Adamson & Peardon (2021), found listeners still prefer to share music when physically together with friends, like in homes or in cars. When asked why, one interviewee said:

> "I feel it's more personal. I guess it's a bit disconnected online, because you don't know if people are listening to it or not. Whereas in person, you're actually experiencing that song together. It's a bit more deep and personal." (Boyd, Adamson & Peardon, 2021)

Interestingly, this person's preferences changed depending on who shared the music. As the quote illustrates, this person valued being socially present (i.e. "together") when listening to their friends' music. However, when listening to acquaintances' music, this person said they wanted to be socially isolated, preferring online music sharing over in-person sharing because they could choose to ignore the music if things got 'weird' (Boyd, Adamson & Peardon, 2021).

Furthermore, two of the three interviewees said they would avoid sharing their favourite music with others, except for close friends with whom they already felt a deep interpersonal connection (Boyd, Adamson & Peardon, 2021).

These two insights highlight a very clear context-of-use for any technology designed for the music sharing space. The target demographic clearly wants to share music with existing friends, and they want to experience that music together (social presence).

Existing solutions

With this context-of-use in mind, my research found that existing online music sharing methods are ineffective or socially unengaging:

- Link-sharing. Friends might share music links to their friends through online direct messaging, but those who receive the links rarely open them to listen to the music (Boyd, Adamson & Peardon, 2021). Hence, link-sharing is ineffective.
- Collaborative playlists. Although these have been adopted by some as a contemporary way to share music among friends, they have not been particularly effective at fostering social connections. Most collaborative playlist users use Spotify, however this platform faces

significant ‘awareness’ and ‘visibility’ issues such that users do not know when friends are engaging with (i.e. listening or contributing to) the playlist, making it difficult for new collaborative playlists to gain traction among social groups (Park & Kaneshiro, 2021).

- Real-time randomised playlists. One study (Lie & Reimer, 2008) prototyped a shared music channel that would broadcast randomly selected music to several physically-distant friends at the same time. Although successful, researchers found users wanted to provide feedback and commentary on the kinds of songs selected to avoid negative feelings (i.e. if too many ‘bad songs’ were played) and misunderstandings from arising. I could not find any attempts to improve on these issues, nor any designs that approached music sharing in similar ways to this 2008 study, hence this study seems to be most up-to-date.

This shows the need for new music sharing technology that does a better job at creating social presence among friends.

Approach

My approach will be to adapt the broadcast radio model. Radio is interesting as it has the ability to build bonds with listeners and make them feel “virtually together”, despite the inherent “blindness” (i.e. lack of visuals) of the medium (Kim & Yang, 2019). In other words, radio manages to create ‘awareness’ (the ability for one to monitor the actions of others). This success is attributed to the ‘talk segment’ component of radio where radio hosts share personal experiences that “increases listeners’ feeling of social presence, and consequently leads to strong levels of enjoyment” and receptiveness to the host and their messages (Kim & Yang, 2019). The radio model excels at both sharing music and creating social presence and will form the foundation of my proposed solution.

I will also be applying the lecture concepts of ‘awareness’, ‘shared attention’ and ‘immediacy’ in my design. As Boyd, Adamson & Peardon (2021) pointed out, music sharers often “don’t know if people are listening to [the music] or not”, which is an issue of awareness. The music sharer could not monitor how their friends were interacting with the music, because the technology had not represented this information. Hence, the design must let users monitor their friends’ engagement with the music.

Furthermore, as Rettie (2003) points out, shared attention and immediacy contribute to feelings of social presence. Hence, having synchronous music listening (listening to the same may at the same time) is a must. Even though friends might be physically distant, broadcasting the same music to every friend at the same time means each friend listens with shared attention. Then, by incorporating talk segments between tracks, friends can react to the music played right after hearing it. This means auditory social cues like tone of voice and vocal inflections can be immediately relayed to friends listening, creating immediacy.

This approach complements other group members’ designs by exploring how existing models of communication (like radio) can be adapted and repurposed to improve social presence in virtual technologies. If successful, this could introduce an adaptive model-centred approach to improving social presence that other software engineers could use to develop their designs. My focus on synchronous but distant communication also complements the proposals that focus on asynchronous communication.

Proposed solution

My Research Critique (Yeomans, 2021) identified the following design recommendations.

- **R1 - Make and accentuate interpersonal connections** by directly connecting music sharers to their social network, and emphasising the experience of 'togetherness' in the listening and sharing of music.
- **R2 - Replicate the actions involved in-person listening experience** by providing ways to listen and react to music in real-time.
- **R3 - Accentuate the physical-ness of music sharing** such that access to the music is 'limited', and interfaces leverage perceptible affordances based on physical devices.
- **R4 - Provide flexible and nuanced playlist curation functionality** such that user can influence the music selection, and so that playlists 'flow' and feel well-organised.
- **R5 - Provide feedback mechanisms that improve visibility** such that users know when tracks have been heard and are able to communicate reactions to said tracks.
- **R6 - Prioritise resolving visibility and social presence issues** over other design values, like minimalism and single-issue design.

See the critique for an in-depth, research-driven justification for each recommendation.

These recommendations are reinforced by my additional research in the *Background Section*. In particular, that Boyd, Adamson & Peardon (2021) would predominantly share music with close friends shows the need for designs to accentuate existing interpersonal connections (R1). Also, one of the interviewees' complaints that "you don't know if people are listening to [the music] or not" reiterates the need for designs to provide helpful feedback mechanisms (R5). The interviewee also valued personal connection, and the ability to personalise playlists (R4) would foster this.

With these design recommendations and the discussed approach in mind, my proposal is as follows:

> I will prototype a Social Radio. Functionally, hosts will be able to select music and broadcast it to each person in the friend group for private real-time listening anywhere in the world (R1, R2). Hosts could collaborate on a temporary playlist (R3), or one person could choose every track (R4). The design will incorporate talk segments, perhaps between tracks such that friends can dial in and react to tracks in real-time (R1, R2, R5). Friends could also indicate their engagement through non-speech feedback, like 'text in' comment options, or 'like' / 'reactions' metrics (R5). Hosts could have control over a virtual studio panel (volume sliders, etc) or DJ desk (mixing, fade transitions, etc) for additional physicality (R3, R4).

This concept was received enthusiastically by Boyd, Adamson & Peardon (2021). Their keenness to try out the technology suggests it will, in their eyes, solve some of the problems they had identified with existing online music sharing technologies. As one interviewee said:

> "Yeah I'd use it... It would be really cool to in-person have a conversation with the person who sent me the song, or wanted to share the song with me, without having to meet up with them face-to-face or something like that. I like that it's both instant but also personal."

The target demographic being keen to adopt the technology is a great sign. It indicates the proposal is on track to address the needs of the target demographic and improve social presence in online music sharing.

2.2 EDUAV – CHRIS SMITH

Background

When identifying specific design opportunities in the chosen domain of online learning, my rationale focused on solving an issue prevalent in society that I was personally invested in with a social and mobile solution. My technology solution must utilise my current skill set and require me to learn new techniques to utilise in creating my final proof-of-concept prototype.

In my domain research I identified from Howley et al.'s 2014 paper that social presence is a crucial factor in facilitating successful education in distributed learning technologies. The most widespread solution to facilitating the required social presence for education has been online video conferencing platforms; this was discussed in Lord's 2021 paper Designing for Social Connectivity (Not Everyone Likes Webcams). From this paper I learned how webcams can easily detract from the social presence by creating psychological discomfort in students. It was from here I drew inspiration for my specific design opportunities.

I conducted interviews with high school graduates currently undergraduate students to corroborate the initial justification for my specific design opportunities. I attempted to diversify the cultural backgrounds and fields of studies of the participants. I would have ideally diversified the ages of my participants more; however, it was considered adequate to interview just undergraduate students to avoid the additional ethical cautions interviewing students of youth. As the project develops this is expected to become necessary and will be approached with staff guidance. The most significant quote and associated learnings from each of the conducted interviews have been identified below.

R1

Age: 21

Gender: Female

Demographic: Bachelor of Arts student, Scottish cultural heritage

> The most revealing quote given by R1 is "I feel way less connected, at least with the lecturers. I find all the students are just as good [at online learning] as I am". This revealed to me R1 had experienced a disconnect of social presence with her instructor. I also identified in this interview that students consider working collaboratively, which I connected to the social concept of 'shared experience' and will utilise in my solution.

R2

Age: 22

Gender: Male

Demographic: Bachelor of Information Technology student, Canadian and Israeli cultural heritage

> The most revealing quote from R2 is "the lack of connection felt with the teachers and students makes it difficult to feel engaged in the lesson." R2 has shared their experience with online learning platforms, which corroborates my domain research findings, and further justifies my chosen specific design opportunity.

R3

Age: 22

Gender: Male

Demographic: Bachelor of Engineering & Physics student, Australian cultural heritage

> The most revealing quote from R3 is "Questions are always answered with a significant delay, and any zoom questions require the lecturer to be actively monitoring the chat which is often neglected." This revealed to me that attempts to replicate the in-person environment when using video conferencing software ultimately fails students, due to both technological failures but also user failures.

After justifying my specific design opportunities, I focused on narrowing the age bracket of my solution. Through the peer critiques it was communicated to me there is too great a difference between school and university students to adequately design a solution for. From further research, I identified in Sir John Daniel's 2020 paper that the age demographic most at risk of suffering from online learning are those preparing for major transitions: primary to secondary school, secondary school to tertiary school, or tertiary into employment. Of these three age brackets, I have chosen to focus on students aged 8 - 11. My focus in simplistic design will best suit this age demographic. My solution will also thus have the widest impact, as full time online education is both a legal requirement, and a priority for development in students aged 8 - 11.

I determined in my domain research from Rettie's 2003 paper social presence is facilitated through three distinct social and mobile concepts. Thus, I must ensure my solution design revolves around these three concepts:

Immediacy: Conveyed through gestures and facial expressions

Intimacy: Behavioural interpretations to maintain a behavioural norm

Shared Attention: Focus on the same resource or task

Once these three main concepts were identified for my design, I investigated pre-existing solutions surrounding my chosen design space.

Existing Solutions

From both my domain research and primary research, it is clear there are many issues that are associated with simply replicating in-person education through online video conferencing software. It is clear my solution will need to incorporate technology elements other than these pre-existing solutions.

I identified the method already attempted in online learning platforms, personal virtual avatars. These avatars simulate a webcam video feed, which I will utilise in my design solution. I then investigated three pre-existing attempts at increasing social presence through the use of virtual avatars. Three pre-existing designs were identified as overlapping into my design solution space:

Mathletics is an online distributed platform for students to learn mathematics that features both synchronous and asynchronous social activities. Personalised avatars are a central theme in the learning activities, where students earn points allowing them to further customise their avatar. This is discussed in Phung's 2021 paper; through questionnaires completed by students aged 6 to 12, it was synthesised that 40% of the interviewed students selected "you like to gain points so as to change

your avatar's appearance" as a primary reason for using the Mathletics online platform. This paper focuses on the age bracket of my target audience; an interesting concept is discussed by Phung that opens an interesting avenue into a new subdomain inside social presence: "as children progress to grades 3 to 9 (approximately aged 7 – 14), irrespective of age and ethnicity, intrinsic motivations are often replaced by extrinsic factors." Thus, incorporating elements of extrinsic motivation into my avatar based design solution will be very useful for my online learning domain.

The extremely popular Nintendo video game console the 'Wii' also features personalised virtual avatars as a central theme. Users create their own avatar from pre-selected options, and then utilise their personal avatar in many different game titles from the console platform. The Wii was widely successful, outperforming its competitor consoles. In Jin's 2010 paper, she discusses what aspects of the personalised avatars are most appealing; in summary she found that users felt more "self-connection" with the users' ideal vision of themselves rather than the most accurate avatar to their appearance. When offering my student users personalisation options for their avatars in my design solution, I must ensure I am prioritising idealism over realism.

In recent years, augmented reality has become increasingly prevalent across social media in the form of camera filters that modify the user's appearance. I hypothesise this widespread increase could be a result of the users craving the experience of social presence and connectedness, however are hesitant to seek this out as their true selves. They instead rather utilise camera filter technology to modify their appearance to their liking, and present this form of themselves to the online platform to experience social presence and connectedness. Pescott investigates a similar concept in her 2020 paper "I Wish I was Wearing a Filter Right Now": An Exploration of Identity Formation and Subjectivity of 10- and 11-Year Olds' Social Media User. Pescott conducts a focus group with 40 children, from which she determined two reasons why the children used Snapchat camera filters: manipulation of mood (e.g. comforting a fellow user) or to make themselves look prettier. This shows children are utilising camera filter technology as a means to increase social presence and connectedness online. Pescott also corroborated my justification for the design age bracket 8 to 11 years by stressing the critical importance of the "transitional period" in young people.

Three successful use cases have been provided showcasing how avatars improve the social presence experienced by users of the platform. Mathletics highlights how virtual avatars can be utilised in an online learning domain.

Proposed Solution

In both of the following students, the instructor role will be synchronously video streamed on the online education platform.

My first proposed design solution is for virtual personalised avatars to replace video conference software, named the 'eduAv'. Utilising a webcam to measure facial expressions, augmented reality will be implemented to reflect these same facial expressions synchronously, facilitating immediacy. From the eduAvs, students gain a very appropriate level of intimacy and eliminate the psychological discomfort caused by live video. The shared attention from the community of eduAvs (possibly named an 'eduAvenue') will enable students to experience the required high level of social presence for successful online education.

My second proposed design solution is to create physical representations of eduAvs through 3D print technology. I was unable to find a single use case of physical avatars in an online learning domain, which strongly indicates my second proposed solution is branching into an exciting new design space for the online learning domain. The physical personalised avatars will be most suited for those students for whom even augmented virtual avatars create too much psychological discomfort. From an embedded NFC tag, students can sign into their online classroom with their physical personalised avatar, increasing the shared attention experience by simulating a common shared activity of entering the physical classroom. In the online classroom students can answer multiple choice quizzes using the buttons on their eduAv, further increasing the shared attention experienced by the students.

This second design solution however does not facilitate immediacy and intimacy as effectively as the first proposed design solution; immediacy however is still gained from the still image of a student's eduAv with the chosen personalised features. Intimacy will be partially facilitated through audio communication, yet to be determined if it is adequate for the students to experience the required social presence for effective online learning.

Rationale

All five group members are focused on designing a solution that increases the social presence (and more broadly the connectedness and awareness) experienced in our specifically chosen distributed social interaction. We are achieving this through a thorough investigation research process, followed by effective use of social and mobile concepts and technologies in our design solutions.

2.3 SOUNDTRAK – FINLAY RODBERT

Background and Motivation

In the modern day, more musicians and recording artists have access to the necessary tools (hardware and software) that are required to write, record, produce and create music from their own home, more so than ever before. As a result of this, as well as recent pandemic considerations, many musicians are now choosing to use the home studio environment as a place where they produce their music, as opposed to the more traditional "professional" recording studios.

With an increase in home studio usage, it is important to understand how musicians are using these spaces, how they are able to work in a way that fosters creativity, how they collaborate with one another and effectively work on a project together. This presents another challenge as many will often find themselves working in different physical locations, either synchronously or asynchronously on a project or perhaps even working asynchronously whilst in the same location due to physical limitations that come with working in a home and living space.

Initial Research Problem Identification

The problem space defined above in the *Background Section* identifies an area where new designs should be considered – to build some tool that can improve or allow for easier creativity and collaboration between musicians working in the home studio environment.

I will be using the name "soundtrak" as a working title for this tool's prototype.

The target audience will consist of amateur and professional musicians, producers and recording artists of any age group, specifically users of home recording studios. Musicians in this category will often have several projects in the works at one time or may be balancing their music with other work or careers; so, time considerations should not go amiss.

From conducting the initial domain research literature review exercise, I was able to identify several key pieces of information that will be used to point my design research in the right direction:

1. Importance of perceived legitimacy of a home studio space by its users and how it can affect its collaborative potential.
2. How pace and time constraints can affect the creative flow of a musical project.
3. Connectedness between collaborating artists should be as critical as the conveyance of information.
4. How the most important ingredient is the music itself, and that physical hardware limitations can often lead to new, creative approaches.
5. The cognitive load which is required by home studio musicians can differ greatly from a professional studio as they take on more responsibilities.
6. Each musician will react differently to working in a home studio environment and it is important to adjust the experience to their specific needs.
7. How collaborations can occur in many different ways and for different reasons and the communication that occurs between participants is crucial to its success.

Overview

To apply and interpret these above points as parameters which will help design soundtrak's requirements, the following broad design rules could be inferred:

1. soundtrak must be perceived as a legitimate tool by its target audience. Musicians and their collaborators must be able to believe that it is of high quality and will be able to produce good results for them.
2. To maintain creative flow, soundtrak needs to allow musicians to collaborate seamlessly whenever they wish to, at a pace that suits them best.
3. Collaborating artists must be able to feel connectedness, as well as experience social presence through the conveyance of information when using soundtrak in distributed locations.
4. soundtrak must not impinge on the musical creativity and craft of its users any more than necessary. Although, some musicians will always find new ways of being creative, soundtrak should not intentionally be restrictive.
5. soundtrak should facilitate different levels of access or privilege to users in order to match their individual roles within a project. This is to ensure the cognitive load taken on by each participant in a collaboration is appropriately limited to their duty's requirements.
6. Every feature, parameter, and option in soundtrak must be easily fine tweakable to meet a specific musician's requirements. They need to be comfortable and make themselves feel at home in the studio.
7. soundtrak should facilitate communication between collaborators in whatever form is best suited to their unique connection's needs and the project's needs as a whole piece of work. It must be inherently easy for musicians to use soundtrak in their preferred way, as a collaboration tool.

My initial thoughts and impressions as a hobbyist recording musician myself, is that soundtrak would most likely resemble a DAW (Digital Audio Workstation) or DAW -adjacent piece of software or collaborative platform.

The DAW is the program in which the vast majority (if not all) work on recording and producing music gets done. It is where different instruments, tracks and parts are recorded and arranged, effects are added, mixing and mastering takes place, then the finished song can be exported as a sound file.

soundtrak could be a platform that allows distributed collaboration on a project through synchronous access to the DAW. A cloud-based means of sharing a project that can be worked on by many, this may not be too dissimilar to what sharing collaborative Google docs (or similar) has done for the word processor for example.

In terms of existing solutions, there are a variety of different ways through which musicians currently collaborate. One of the more common ways is through current cloud storage services (e.g., Google Drive, Dropbox, OneDrive etc.), where written or recorded music can be uploaded, stored, and downloaded in order to be worked with. There is also online communication between parties that would typically take place through traditional social media, this includes services for instant messaging as well as calls (Messenger, WhatsApp, Discord, Zoom etc.).

As far as DAW's go, none of the most popular and widely used options that are available today, offer any remote collaboration tools out of the box that are similar to what soundtrak could be.

There are a number of smaller alternatives who offer some level of collaborative workflow; however, these are simpler in their design and are targeted towards more of a dabbler rather than a serious home studio user (the targeted audience).

The Social and Mobile Approach (Furthering the Design and Prototyping)

The next step going forward will be to complete the initial interview process, collecting data that will paint a clearer image of what soundtrak both is, and is not, based off the requirements identified through interviewing a selection of home studio users. Through the interviews, and again in the prototype testing iteration, I will find out more about how musicians currently may be working and collaborating in order to further uncover their underlying goals and values that would be worth consideration when designing soundtrak.

I will also need to assess their opinions on the design and features of other existing collaborative tools that they may not currently use in order to identify the strengths and weaknesses that each may bring to the table. This data will also guide the design of the first soundtrak prototype.

As a prototype, soundtrak will almost certainly not be fully explored in a developmental sense. To build an entire, fully functioning DAW, fleshed out with extra creative and online collaboration tools would be frankly impossible within the scope of this course alone. Therefore, I believe that solidifying the set of ideas, features and constraints that define what soundtrak is, as well as assembling a set of rough mock-ups that demonstrate what these features may look like in some implementation of soundtrak, would comprise of the current scope of soundtrak as a prototype. The goal of the prototype being, to test the idea with the target audience, this format should be able to yield data which describes how the audience feels about soundtrak, and how effectively it meets the design goal of improving/easing the collaborative and creative experiences of home studio usage.

Summary and link to group domain

soundtrak aims to connect musicians, producers and recording artists in a way that eases and improves upon current collaborative methods. Social presence will be a means to this result in that it will be used in conjunction with connectedness in order to provide an effective channel of collaboration for users of soundtrak. This element of social presence and connectedness is important as a tool as it allows users to feel like they are together, even when they are physically apart (Rettie, 2003), which in the context of this subdomain will allow for fruitful collaborations between artists, yet in other subdomains in this group it would manifest in a way that produces different results (namely: overcoming language barriers, sharing music and online learning).

2.4 DIE INSEL DER SPRACHEN – CHANGHAO XI (RAYMOND)

Background

With the development of long-distance communication technologies and the costs of traveling internationally become more and more affordable, the connection between people around the world are becoming closer, which also makes the chance of having cross-cultural communications with individuals from a different nation higher. Because of the accuracy and reliability issues resulted from the nature of machine-based translation software, the need of learning foreign languages is becoming more and more noticeable.

Limitations of machine-based translation software -> Needs of learning language in various situations -> using language learning apps -> insufficient effectiveness of existing solutions due to lack of motivation in the long run -> 'connectedness' is effective to build and maintain the social bonds, which provides fundamental motivations for people to achieve their goals -> enhance 'connectedness' to maintain motivation of language learning -> improve learning outcomes to deal with challenges related to language barriers.

Interviews

Additional interviews were conducted as part of the primary research, to get language learners' feedback and their attitude towards existing solutions that are available in the market. For the purpose of evaluating whether they are effective to maintain and strengthen the motivation

of learning new languages via web-based or mobile-based platforms, and if not, what can be done to potentially serve the goal of enhancing the level of 'connectedness' for better language learning experience and outcomes.

Summary of interview sessions conducted are presented below:

R1

Age: 18

Gender: Female

Demographic: University student who was born and raised in China

Languages: Apart from her mother tongue Chinese, she has been learning English and German for 3 years and 1 year respectively.

> Summary of interview session:
>
> She had experiences of a wide variety of language learning apps for both German and English, including several machine-based translation software. Based on her past experience of using language learning apps, she commented: "From my point of view, the most important factor to consider is a diverse range of functionalities that are integrated into one single application, so I can improve my skills of listening, speaking, reading and writing by using one software, instead of using multiple of them at the same time, which is a bit annoying to be honest."
>
> She proposed the suggestion above because all language learning apps that she used/uses normally only support training one or two specific skills and all available features are designed to improve that one or two chosen skills, which made her had to switch to different apps

constantly. This made the process of language learning even more complicated and easier to feel frustrated.

She liked a feature called "listening and repeating" in DailyGermanListening app, which allowed her to listen to pronunciation of words and then tried to pronounce by herself. It is repeatable and hence she can return and practice at any time. This is helpful for her to get familiar with the correct pronunciation and then improve her own pronunciation.

At the same time, her least favourite feature was the machine-based translation function, since it lacks flexibility and reliability when it comes to translating long sentences instead of a single word, due to the mechanism of how it works.

Based on her experience of using Tandem, she said it has advantages and disadvantages. On the one hand, it provides opportunities to communicate with native speakers, which is helpful for her to improve her speaking skill. But on the other hand, she felt a lack of motivation to use Tandem because of the passive attitude of learning. "There are many new faces starting new conversations every day, but they (those conversations) won't last too long in most cases. The fact that it is hard to find a long-term language exchange partner that I can practice my spoken English with really made me feel demotivated." This is the reason why she thought Tandem is not good for serious language learners in the long run.

R2

Age: 20

Gender: Female

Demographic: University student who was born and raised in Australia

Languages: Apart from her mother tongue English, she has been learning Japanese for 8 years.

Summary of interview session:

She had experience of using two different language learning apps, Language Perfect in high school and Duolingo more recently. She used Duolingo to go through all the tests at the very end of each Japanese learning module, in order to see how much knowledge that she retained. Unfortunately, she did not like the way that learning modules in Duolingo are structured. This is because they require no knowledge of the foreign language for her to get the correct answer as too many hints are given. Therefore, Duolingo was not useful for her Japanese learning at all.

In her opinion, tests should be taken under a formal testing environment where the probability for users to get the correct answers by cheating is relatively low. This will be helpful for the retention of knowledge after finishing those learning modules, leading to a more positive attitude of learning and better learning outcomes.

On top of that, she commented that language learning apps should focus more on the delivery of knowledge in the way where the difficulty level is increased progressively. All fundamentals should be covered first then more challenging contents. In her opinion, the

progressive learning structure will also decrease the probability of cheating and increase users' confidence and motivation of learning.

She ended her answers by proposing a one-stop solution with wide coverage of skills that could be improved, with repetition of contents for better knowledge retention.

Existing Solutions

With summary notes of interview sessions in hand, for the purpose of identifying advantages and disadvantages of existing solutions, additional primary research regarding solutions available in the market were conducted and combined with findings on the same topic from previous domain research. Findings are summarised down below:

Tandem, mentioned by one of the interviewees, is an online language exchange community that opens to the general public. Users are required to specify the language(s) that they are native in; they can speak, and they are learning when setting up their profile in Tandem. Then, the system will match users based on their language settings, for instance: Native English speakers who are learning Chinese will be matched with native Chinese speakers who are improving their English.

Once they are matched, users will be able to pick language partners in the pool of all individuals who matched with them. Language partners can communicate with each other and improve together in various ways, including texting, send audio messages, have audio call/video call, or even meet in person if they are from the same city. Each user can have as many language partners as they wish to.

Additionally, machine-based translation service is also integrated in Tandem to resolve potential issues occurring in the process of language exchange due language barriers.

Tandem is great, but not perfect, while filled in the gap with ability to help users improve their speaking and communication skills effectively, because of the fact that it is open to the general public, a large portion of Tandem users may not have the need for serious language learning or language exchange. They might use Tandem only for casual chat or making friends, in that case, they are not likely to show up regularly and only talk to a small group of fixed users. This explains why the interviewee felt that there are many people trying to initiate new conversations everyday, but the majority of conversations are barely small talks instead of longer conversations that will be beneficial for serious language learning. As a result, the motivation of improving speaking skill via Tandem will be significantly influenced in a negative way, as is mentioned previously in the *Interview Section*. In worse case scenarios, inappropriate behaviours from casual users will cause impacts to language learners' attitude to learning new languages. This is a problem that must be dealt with by the proposed solution.

Duolingo is another mobile-based language learning app that was mentioned by another interviewee previously. Based on research conducted by Karjo & Andreani (2018), it was specifically designed with features for translation and pronunciation correction.

The downside of Duolingo is it does not provide additional explanation regarding how to use the vocabularies and expressions covered outside of the given examples and context, which means users must rely on additional external sources to thoroughly understand how to use them correctly (Karji & Andreani, 2018).

Furthermore, Karji & Andreani (2018) also noticed that Duolingo has some drawbacks too. Firstly, it is not suitable for learners who have a more serious purpose of language learning such as dealing

with exams. Because the learning structure of Duolingo decided that it only had a very limited coverage of language related skills (Karji & Andreani, 2018). Secondly, it lacks communication among language learners (Karji & Andreani, 2018), which is exactly why Tandem was designed for.

Karji & Andreani (2018) concluded that Duolingo could be a good starting point for language learners without previous knowledge, because the intensive interaction and instant feedback between users and the system provide motivation for continuous active engagement.

In terms of machine-based translation software, according to research conducted by Sujiyama et al. (2010), due to the fact that translation of text is completed word-by-word, when dealing with long paragraphs, the accuracy and reliability of outcome will be reduced significantly. This is exactly the reason why one of the interviewees selected machine-based translation function to be her least favourite feature, as is mentioned in the previous section.

Proposed Solution

Therefore, based on domain research and research on existing solutions conducted, plus new findings gathered from interview sessions. The proposed solution will be a gamified language learning application named ‘Die Insel der Sprachen’ (The island of languages).

Essentially, ‘Die Insel der Sprachen’ will be designed as a one-step solution with a wide coverage of training on different language related skills (listening, speaking, reading, and writing etc.). Because even though various web-based or mobile-based language learning applications are already available in the market, the majority of them chose to focus on a few certain aspects of language learning and design & implement all features around the specific chosen aspect. Being excellent from one perspective is great for users whose learning objective matches with the focus of the app, but this is not always the case. For many more language learners whose goal is to improve their language skill in a more general way, this only indicates that they cannot only rely on any of the single solutions but need to combine multiple of them for the expected learning outcomes (Karji & Andreani, 2018). It has been approved that switching between multiple different apps makes the challenging learning process even more difficult. This is why both interviewees mentioned that they were seeking for a one-stop solution for language learning. ‘Die Insel der Sprachen’ will fill in the gap in the market and try to be the one-step solution that many language learners are looking for.

The targeted audience of ‘Die Insel der Sprachen’ are language learners who are in the age group of 15-25. This is because Allen et. al (2018) found that there is a trend that the number & portion of international students from Non-English-speaking countries, who are studying in universities and other institutions in the U.S. are continuously increased. This indicates that even under the general

It will aim to cultivate and maintain motivation of learning by enhancing the ‘connectedness’ from two perspectives: between the system and user, as well as between users. As Rettie (2003) found, the sense of ‘connectedness’ plays a very significant role in the formation of social bonds, which are recognised as a source of fundamental motivation for people to achieve their goals, in the case of language learners, the long-term goal of continuously improving their language skill.

In the previous *Interview Section*, answers from both interviewees indicated that there is a correlation between the learning outcomes and motivation. For the first participant, lack of motivation changed her attitude towards Tandem, which may eventually make her quit. For the other participant, being able to enhance motivation is the reason why she suggested the application of progressive learning. Similarly, Karji & Andreani (2018) recognised Duolingo as a good starting point of the journey since

it can keep users motivated. Hence, it is crystal clear how significant the motivation is for language learners.

The core feature of the proposed solution is the progressive learning process suggested by one of the interviewees.

Inspirations for designing features that are included 'Die Insel der Sprachen' is mainly from World of Warcraft (Wow), which is an online multiplayer RPG game. In World of Warcraft, players are allowed to explore the fantasy world by travelling to different areas and complete series of quests & missions. At the same time, each of the region has a suggested minimal entry level based on the level of enemies in that area and difficulty of missions offered by NPC from that region. This provides inspiration for the way that progressive learning process. Additionally, In World of Warcraft, player will be warned if they enter an area without meeting the requirement of minimal entry level. By completing missions and tasks, players will be rewarded with a wide range of in-game assets & currencies, as well as growth of attributes & characteristics. Players will also be able to unlock achievements and new chapters of the storyline by completing tasks. The storyline as well as the achievement system will be updated with new releases of the game.

Rationale

Rettie (2003) suggested that because the definition of social presence could be various in different contexts and specific scenarios, the ways of build and strengthen the sense of 'connectedness' could also be diverse, not only limited to in-person communications and interactions (Rettie, 2003). In that case, the possibility to find alternate ways of forming and maintaining the sense of 'connectedness' to enhance 'social presence' still exists. Especially when it's not under an in-person situation.

2.5 LINGUAL – RACHEL MATTERSON

Overview

My proof-of-concept prototype "Lingual" will test how effective speaking a language is in order to retain words and sentence patterns, as well as if it contributes to reducing fears of communicating and connecting with others. Additionally, this application will test how individuals feel communicating with a virtual "robot". Topics will be categorised to optimise language learning and familiarise the learner with certain concepts, as well as the sentence patterns that go along with them. Users can then practice these concepts with the robot in responding to sentences out loud. The effectiveness of the design will be gauged through surveys and user testing.

The target user group for this application are individuals aged 18-36 years old who are living in a new country or are learning a new language. As mentioned in *Section 1.2 Problem Space* above, younger individuals are a key stakeholder in relation to the issues this domain poses. This was showcased through interviews and research, which typically focused on younger travellers and international students and the barriers they faced abroad. Through this research, it was determined that individuals have a higher motivation to learn a language when they have little to no other choice (Kremenska, 2007). For example, moving to a country where you do not speak the language increases your motivation and the need to learn the language. These experiences can be incredibly isolating for individuals, and as such, these are the situations in which we want to ensure individuals feel comfortable communicating, in order to form connections and develop feelings of social presence.

Background

As a result of the development of technology, global transience has become a normality. However, despite the ease in which individuals can travel the world, language barriers still pose a major threat to our ability to make connections abroad. These connections are interrelated to social presence and are reported by Rettie (2003) to be an essential motivator for us as human beings, and connections can additionally improve the "success in life or mental health" for individuals. The paper also describes how feelings of social presence, as has been covered in detail above, can be elicited through verbal and nonverbal communication, as well as through technology (Rettie, 2003). Social Presence is a crucial consideration when it comes to language barriers, as it can have positive benefits for individuals through influencing the communication outcomes, understanding and attitudes (Oh et al., 2018). Moreover, the impact of language barriers is widespread, and aside from the mental impacts, there are also major repercussions that can be caused by miscommunication, such as misunderstanding healthcare advice (Meuter et al., 2015). In light of this, it is crucial that we find ways to reduce language barriers through technology, in order to allow these individuals to improve mental outcomes and understanding, through communicating, creating connections and experiencing feelings of social presence.

However, it is said that the "more high technology around us, the more the need for human touch" (Naisbitt, 1982). We cannot rely solely on technology for connectedness and there may be an increased demand for in person contact and social presence that can be enhanced through the use of technology. In considering both language barriers, as well as a potential desire for balancing connectedness and social presence with technology, my solution will aim to target how we can use technology as a means to improve the communication of individuals in-person, whilst reducing the language barriers faced.

In understanding how connections can be formed, one must first look at the process of how communication occurs. The Shannon and Weaver Model of Communication is widely regarded as the most successful in describing this phenomenon.

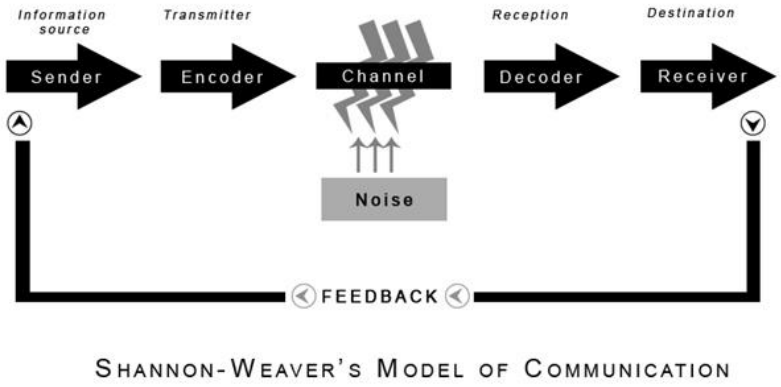

Figure 1 - A diagram displaying the Shannon-Weaver Model of Communication (Communication Theory, N.D.)

Taking a closer look, this diagram highlights key areas where communication can break down. For example, the sender or receiver can cause a breakdown if either a person, or device, incorrectly encodes or decodes the message from either end. In terms of language barriers, it is clear that this model falls apart where the receiver cannot decode the original sender's message, or the sender cannot encode the message (Abuarquob, 2019). It seems apparent then that the most obvious way to address issues of language barriers is through language learning. By communicating in the same language, encoders and decoders have a better chance of properly portraying and interpreting the message.

Connectedness then, as Rettie (2003) suggests, is a feeling that can be elicited through communication, as well as through affordances. Additionally, it may be a case of being aware of another (Rettie, 2003). Social presence, on the other hand, is the feelings of intimacy and immediacy that can arise through communication (Rettie, 2003).

Through this research it is clear that both the ideas of connectedness and social presence are interrelated and are both crucial, arising through communication. However, as noted, there are barriers prevalent that pose a threat to this ability to communicate. My aim is to conduct interviews that determine ways in which these language barriers can be reduced, in order to allow communication, and by extension connections and social presence, to develop.

Interviews

Four interviews were conducted in order to gain a deeper understanding of the domain and identify particular pain points experienced by language learners.

R1

Age: 23

Gender: Male

Demographic: non-native English speaker, living in home country (Philippines) but working in an Australian/English speaking company

> R1 suggested that speaking language out loud was the best way to learn a language. However, as a result of the interconnected nature of the world, working in an English-speaking company has meant there are certain expectations over his language speaking ability. This can mean people are not always patient and do not want to provide consideration for the language barriers that exist. This lack of patience in itself, can lead to a breakdown of communication.

R2

Age: 27

Gender: Female

Demographic: Australian born but have travelled to Spain and Germany and Austria to speak and learn German and Spanish

> R2 suggested that having English as a first language can be a benefit, as it is often possible to revert back to English and assume a listener will understand. However, the same cannot be said for all languages. Additionally, respondent 2 stated conversational flow was the most difficult part of learning a language, as learning just vocab was not enough. R2 also noted the impact immersion learning had on her ability to learn Spanish.

R3

Age: 23

Gender: Male

Demographic: Born and raised in China but currently studying abroad in Australia. He has been living in Australia now for 3 and a half years.

> R3 noted some of the cultural differences which may play a part in how people of different cultures communicate and connect. Another crucial point made was that the biggest struggle faced was a lack of an English-Speaking environment. This allows skills, such as speaking skills, in a language to fall behind. Additionally, language barriers can contribute to feelings of loneliness, as they made it difficult to connect well with others when he first moved. However, this is not just a result of the language barrier, but as mentioned, cultural differences and a lack of understanding can impact this connection as well.

R4

Age: 26

Gender: Female

Demographic: Born in Germany, but has been living in Australia for the past 6 years.

> R4 detailed her experience living in a country that did not speak her native tongue. Despite learning English in school in her home country, she was not prepared for the difficulty of living abroad. R4 found the thing that helped her the most was having the opportunity to talk to friends and practice her English. She also noted the positive impact having a companion who could assist in translating had on her experience in another country. This ultimately enabled her to feel more at ease and comfortable communicating.

It is clear that a common theme arose in the interviews, being that speaking a language had far more benefits for the language learning journey. Another point to note was the lack of ability to practice these skills outside of a foreign language speaking environment. And, even in such an environment, concerns were still raised about the ease in which individuals could communicate. Additionally, in the situation highlighted by R1, it was clear that individuals are often less patient with a non-native speaker when communicating verbally, as this is more time sensitive. This may indicate that the issue of a lack of connectedness more often arises in verbal communication, where there is less time to construct a response. I think it is crucial to consider then how speaking can be leveraged to improve language learning, in order to target these situations, as well as find ways in which the foreign language speaking environment could be harnessed through technology, to provide an alternative way to learn without judgement or time pressures.

With that said, it is also clear that the notion of connectedness is mentioned as an issue far more than social presence. For example, R2 was able to get by in Spain speaking her native language, through leveraging non-verbal communication as well. This idea suggests that communication may be possible with social presence through gestures, even if connections are not formed. Thus, the issue of connectedness is significant in this domain, as it can contribute stronger to feelings of isolation and loneliness, as was evidenced in the interviews.

Observations and Existing Solutions

I have observed reactions others have had into existing language learning solutions, in order to determine where pain points lie. For example, I had a friend of mine use Duolingo while I observed. I noticed that this individual was able to quickly move through tasks, without really recognising what she was learning, as she could deduce the answer through the English words provided by arranging them in the correct order. Additionally, Karjo & Andreani (2018) stated that Duolingo typically focuses more on the translation of phrases, without providing any explanatory information regarding the use of grammar. It is clear that without this knowledge, learners can only achieve the ability to memorise grammar exactly, rather than understand the reasoning behind why it is a certain way. Another clear observation was the lack of emphasis on practicing speaking. Duolingo could be used without uttering a single word out loud, ultimately allowing a user to memorise vocabulary without knowing the pronunciation. The factors likely contribute to why most individuals I am aware of do not find Duolingo to be a good long term language learning solution.

Another learning application, Memrise, on the other hand was found to lack flexibility, potentially speeding up the time taken for users to lose motivation. An example was that only flashcards were used to study. (Karjo & Andreani, 2018). This may highlight that providing content in different ways could be beneficial to the language learning experience.

Tandem is another language learning solution that aims to connect language learners across the globe. While this application is a great example of providing connectedness virtually, I also observed some downfalls of this application. For example, users of the app noted that many individuals on the application did not respond back, and certain cultural demographics were also less likely to be responsive.

The downfalls of some of these existing solutions indicate that, despite their popularity, there is still room for improvement. Additionally, the lack of speaking practice within the first two applications, Duolingo and Memrise, is surprising, as through the interviews above, speaking a language was unanimously agreed to be one of the most effective learning methods. Finally, a reliance on other individuals has also proven to be unsuccessful, as in some cases, users are unresponsive and less willing to help others learn.

Proposed Solution

Thus, based on the background research and interviews, the proposed proof-of-concept prototype "Lingual" will aim to test how effective speaking a language is in order to develop a later application. The virtual "robot" as mentioned in the Overview above, will help users practice responding to longer sentences in order to put their understanding to the test. This reduces the issue users face where people do not always reply and do not want to engage with other language learners, sometimes resulting from cultural differences.

The application would also use AI analytics to pinpoint the areas a speaker needs to improve most. This would analyse their speaking throughout the day or while training with the application. The aim of the design is to reduce language barriers and improve how users connect with others in social situations, through improving their speaking ability.

Current language learning applications tend to have a strong focus on listening, reading and translating to/from your native language, however when it comes to speaking and actually connecting with others, these applications fall short. Learning to read a language, for example, can help you engage with newspaper articles or books, however, this does not teach you how to interact with others or participate in conversation. This can lead to a hesitancy and fear for individuals to actually speak the language aloud (Yamisha, 2021). Additionally, for languages such as Japanese or Chinese that use a range of logographic symbols, it can become easy for individuals to read a language without knowing how to pronounce the characters, which again poses a barrier to communication and connectedness (Ho & Bryant, 1997).

Proof-of-Concept

As mentioned, the proof-of-concept prototype will test how effective speaking a language is in order to retain words and sentence patterns, as well as reducing fears of communicating and connecting with others. A virtual "robot" will also prompt the user to respond to sentences, in order to engage in a simulated conversation. This will test the users' reactions to interacting with the interface and "robot", and ultimately prove if incorporating a real AI robot could be a viable option in the future. Additionally, ideas of social presence and connectedness can be enhanced through the virtual "robot",

such as through emotions and reactions, in order to improve the users' experience and motivations whilst using the application.

Language topics will also be categorised to optimise language learning and familiarise the learner with certain concepts, as well as the sentence patterns that go along with them. Effectiveness will be gauged through surveys and user testing. The reasoning behind this is to test the efficacy of the proposed solution and extend upon the research and interviews conducted.

In the future, the application would test all four macro skills, however many language applications were found to not have a strong focus on speaking. Thus, this is the main focus and will be tested in order to determine if this is a missing link in current language learning applications. Additionally, speaking is the biggest barrier when it comes to communicating effectively and creating connections, so it is a crucial focus within this domain.

Rationale

This design complements the other solutions within the group, as it provides an insight into another adjacent area to the domain at hand. While social presence is a fundamental basis for the application, ideas of connectedness are at the forefront of the design. As a result of the interviews, I discovered that social presence can still be achieved in situations where language barriers are present, however connectedness is often more difficult to form in these dynamics. For this reason, I decided to focus on how connectedness can be enhanced, as opposed to focusing solely on ideas of creating social presence.

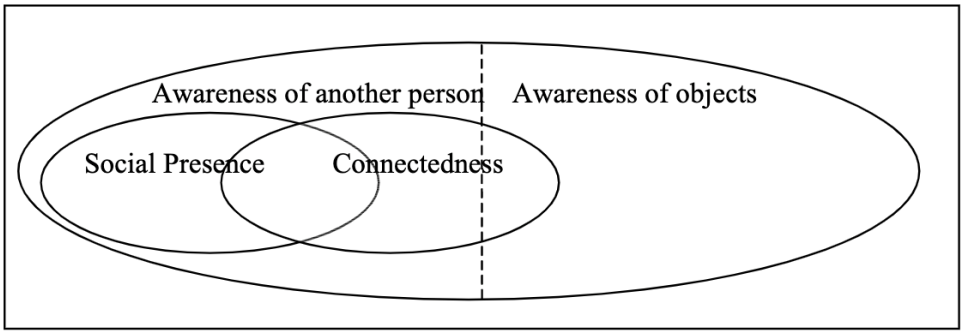

Figure 2 - A diagram of the relationship between the concepts of social presence, connectedness and awareness (Rettie, 2003).

As a result of this overlap, as shown in Figure 2 above, it is clear that the focus of connectedness still compliments the overarching domain of social presence. Additionally, I have decided to move the focus away from creating these feelings within the technological or virtual space, but instead, how we can leverage these spaces to allow feelings of connectedness and social presence to foster in-person. The reasoning behind this shift is largely due to the interviews conducted, which made clear the need for physical interactions and conversations.

The difference in angle, as mentioned above, will pose a fresh perspective within the space and will also display how interrelated ideologies may play a different role of importance in different contexts. Furthermore, it will demonstrate that while connectedness and social presence within an application are important, such as through my virtual "robot", these feelings are also much more crucial within in-person interactions and can be formed and enhanced through the use of technology.

3 PLAN OF WORK

3.1 PREAMBLE

Below are the project plans for the five proof-of-concept designs. The plan of work is designed to give a high-level view of requirements and milestones that must be reached in order to produce an effective prototype. Additionally, this will keep group members on track and ensure designs are completed by deadlines.

3.2 SOCIAL RADIO – CRISPIAN YEOMANS

Timeline	Plan of Work
Phase 1: Research (week 7)	Finalise primary research, interviews. Finalise design requirements based on interviews. Identify and design core functionality of prototype.
Phase 2: Prototype (week 8)	Design a set of possible secondary functionalities. Sketch out interface wireframes. Identify how evaluations will be conducted.
Phase 3: Evaluate (week 9)	Conduct user evaluations of prototypes with target demographic. Describe refined design requirements. Identify changes and sketch a refined interface wireframe. Document this.
Phase 4: Iterate (week 10)	Select platform for the prototype. Begin implementing core functionality. Begin finalising documentation.
Phase 5: Finalise (week 11)	Finalise core functionality. Implement key secondary functionality. Begin designing promotional materials and posters.
Phase 6: Present (week 12)	Complete troubleshooting. Finalise documentation. Finalise posters and promotional material.

3.3 EDUAV – CHRIS SMITH

Rettie in her paper "Connectedness, awareness and social presence" gives an example of how cultural influences are a hugely significant factor in how a user perceives social presence. It is thus important for my design to be subjected to at least two rounds of user evaluation, for as wide a range of users as possible. This will be critical in ensuring technology acceptance.

It has been decided that an initial round of in-depth interviews will facilitate analysis of my low fidelity prototype, and a user evaluation workshop will facilitate the analysis of my medium fidelity prototype.

Timeline	Plan of Work
Phase 1: Research (week 7)	Continue eliciting initial requirements from research, interviews, and observations Commence conceptual drawings of my initial design
Phase 2: Prototype (week 8)	Complete all details my initial design Construct a low fidelity prototype of my design; paper prototyping to simulate software, cardboard and foam modelling to simulate hardware.
Phase 3: Evaluate (week 9)	Conduct my low fidelity prototype evaluation interviews. Analyse this new collected data and determine the required prototype update
Phase 4: Iterate (week 10)	Create my medium fidelity prototype, a"proof-of-concept" level prototype with software functionality and 3D printed hardware. Prepare for my medium fidelity evaluation user workshop
Phase 5: Finalise (week 11)	Conduct my medium fidelity evaluation user workshop Analyse this new collected data and determine required prototype updates
Phase 6: Present (week 12)	Create my final "proof-of-concept" prototype for showcase night Prepare pitch and relevant materials for showcase night Collate and complete final project documentation

3.4 SOUNDTRAK – FINLAY RODBERT

Timeline	Plan of Work
Phase 1: Design (weeks 7 - 8)	Finish screening potential participants and conduct initial interviews. Once interview data has been collected, it must be interpreted from a designer's perspective and translated into requirements for the initial prototype.
Phase 2: Iterate (week 9 - 10)	Compile ideas from the requirements into the initial conceptual prototype (which may include visuals where necessary). Test the prototype with participants in demonstration/discussion sessions whilst collecting their feedback.
Phase 3: Present (week 11 - 12)	Process the feedback provided, make necessary improvements to the prototype according to the recommendations. Prepare the prototype and pitch for the final demonstration. Prepare other assessment items for submission (design documentation, poster, promotional material).

3.5 DIE INSEL DER SPRACHEN – CHANGHAO XI (RAYMOND)

Timeline	Plan of Work
Phase 1: Research (week 7)	Conducting more interviews on the chosen target user group of language learners; Generating transcripts and analysing findings; Eliciting requirement for initial conceptual design; Updating and refining the initial conceptual design accordingly.
Phase 2: Prototype (week 8)	Finalising the initial requirements for the conceptual design; Developing a set of UX goals for the prototype; Constructing a low-fidelity paper-prototype; Planning for the first round of user evaluation and constructing testing protocol; Documenting.
Phase 3: Evaluate (week 9)	Conducting qualitative user evaluation via the combination of Think Aloud method and pre-designed walkthrough; Conducting follow-up interviews; Gathering feedback; Identifying key findings and refining the conceptual design & UX goals accordingly; Documenting.
Phase 4: Iterate (week 10)	Constructing a medium fidelity web-based prototype based on updated conceptual design & UX goals. Iterating the qualitative user evaluation via the combination of time on task method and newly designed walkthrough; Conducting follow-up interviews; Gathering feedback; identifying key findings and finalising the conceptual design & UX goals accordingly; Documenting.
Phase 5: Finalise (week 11)	Updating the medium fidelity prototype based on the finalised conceptual design & UX goals, Designing the A2 poster for the showcase; Finalising documentation.
Phase 6: Present (week 12)	Finalising the prototype for the showcase; Preparing a pitch for the showcase; Finalising the A2 poster; Checking and updating documentation if required.

3.6 LINGUAL PROJECT PLAN – RACHEL MATTERSON

Timeline	Plan of Work
Phase 1: Initial Design (week 7)	Conduct further interviews and domain research into language barriers and ways these can be minimised Elicit Requirements for the proposed solution Design the paper prototype Testing will be conducted on the paper prototype. Some tests to be used will be time on task and A/B testing
Phase 2: Consolidate Design (week 8)	A medium fidelity prototype will be developed in Figma Testing on the medium fidelity prototype will be undertaken, with a particular focus on UX design. Short answer, semi-structured interviews will be used for qualitative analysis. Likert scales will be used for quantitative analysis. The purpose of these methods is to determine how stakeholders initially perceive the functionality and design, before the final prototype is created Start documentation in gitlab - describe requirements, interviews, key insights and design choices
Phase 3: Iteration and Evaluation (week 9)	Continue documentation Develop final design using web frameworks, html and css Conduct user testing on stakeholders to determine how users interact with a higher functional system. Determine any errors to be fixed and any changes to be made. User testing will take the form of observations while a user interacts with the design. Also, interviews will be conducted afterwards to gain greater insights into some of the comments made whilst interacting with the system. Finally, I will make adjustments to the design as directed through the testing
Phase 4: Finalise Design (week 10)	Make any last minute adjustments to the prototype design Design A2 Poster for the Expo Prepare a pitch for Lingual Finalise documentation Finalise prototype

4 TEAM

4.1 CRISPIAN YEOMANS

Hey! I'm Crispian and I'm studying a Computer Science and Journalism dual degree. I am very comfortable conducting interviews and background research, and compiling that information into an easily-readable format. I have a good understanding of HTML/CSS, Javascript, Python and Java, but beyond building a couple of interactive websites, I've never used these skills in any major projects. I'm very keen to put these skills to the test in this project, and in particular find ways to streamline the software-building process. I'm also keen to build confidence in software design so I know what I'm actually doing. I chose to work in the music sharing subdomain as I do radio announcing on the side, and have a keen interest in sharing undiscovered local music with as many people as possible.

4.2 CHRIS SMITH

Hello I am Chris Smith, I am an undergraduate studying a Bachelor of Mechatronics Engineering and a Bachelor of Information Technology. My strengths are drawn from my practical experience from engineering projects in my mechatronics studies. Building physical test models and prototypes is a key strength of mine; my industry experience in 3D print design will be especially useful for this project. I however lack industry experience writing programs larger than small scale tools, this is an identified weakness of mine. I am eager to utilise this project to become more familiar with software elements of a larger scale project. I am also excited to follow through an investigation from issue identification through to a developed final technology that incorporates my personal design flair.

4.3 FINLAY RODBERT

Hi, this is Finlay and I'm currently studying Software Engineering. Over the past few years, I have gained experience in a variety of programming languages, as well as user interface/experiences and design methodology. I have applied some of these skills in designing and building frontend web interfaces for previous team projects. For this project, I would like to be able to apply my research and requirements elicitation techniques in order to create designs that are useful and could make real improvements in the domain of music and home recording studios. I have chosen to study within this domain as I'm involved in, and know other musicians, who work on projects that face similar challenges (Creativity and Collaborating in the home studio environment).

4.4 CHANGHAO XI (RAYMOND)

Hello, this is Changhao, also known as Raymond. I am currently studying my degree of Bachelor of Information Technology majoring in Enterprise Information Systems. Throughout years of learning, I have built a solid background in the area of User Experience and User Interface design. I have the skills of using Adobe Software including Illustrator, InDesign, Photoshop for graphic design & editing; XD for interactive prototype building; Premiere Pro for video editing. I'm familiar with front-end web programming in HTML, CSS & JavaScript and database engineering via MySQL. Lastly, I'm also keen and capable of creating pixel art via pixel studio.

4.5 RACHEL MATTERSON

Hi, my name is Rachel and I am an aspiring Business Analyst. I am currently studying a Bachelor of Information Technology majoring in Enterprise Information Systems, alongside a Diploma of Languages in Japanese. Throughout my studies I have also dedicated time to exploring the field of user experience and user-centred design. I have skills in the Adobe Suite, including Adobe Illustrator, Photoshop and XD. I also have experience coding backend websites with PHP and firebase, as well as deploying websites on the cloud through Docker, AWS and the Google Cloud Platform.

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