

Bubble Trigger

A systematic interactive installation using the bubble as a metaphor to explore the space in communication

Communication is one of the most important aspects of human society. This experimental installation series uses bubbles to shape the abstract concept of communication. Controlled by programming, different states and characteristics of the bubble are matched with the space for speaking, listening and thinking during real-time communication.

2023.5-2023.6 Individual Work

STARTING POINT

This project started from the **extrovert-dominated culture in the society, which refers to the environment where extrovert traits and behaviours are highly valued and encouraged while it may cause loss of personal growth and pressure to introverts.**

DESK RESEARCH

● Two perspectives

Public's perspective: There is a need to "help" introverts change themselves.

Introverts' perspective: Belief there is something wrong with themselves.

● A common error

There is a misunderstanding between **introversion and shyness**. Introversion is a preference, while shyness stems from distress.

● Influence

-Decreased productivity and creativity: Pushing introverts into constant social stimulation may hinder their ability to concentrate.

-Loss of personal growth opportunities: There is a risk of neglecting unique strength introversion has, such as deep thinking, active listening, and introspection.

-Emotional and mental stress: Forcing introverts to constantly engage in social activities or behave like extroverts can lead to increased stress.

MOTIVATION

Since introversion is not a personality flaw, and everyone should be allowed to act, behave and live in line with real innate abilities, desires, and thinking models, I'm seeking a way to create a mutually inclusive environment through design.

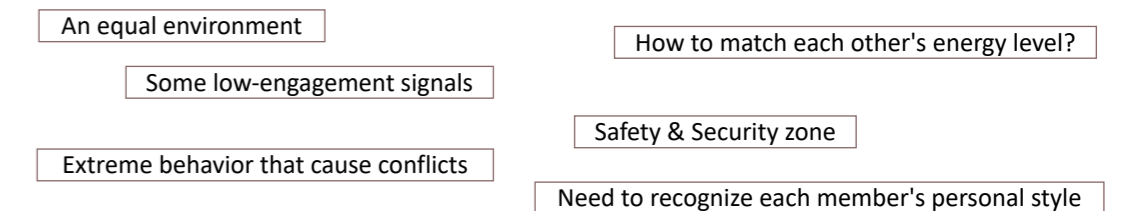
INTERVIEW

In order to get detailed insights, I narrowed down this question to a specific scenario, **workspace**, since it's one of the most common and normal social occasions and always **causes conflicts** due to the difference in personalities.

Behavior	Examples	Source
The target is excluded from social activities.	"I recently found out that my coworkers have a really rich social life together, they meet up often and have a great time. The issue is...I was never invited for anything ever... They believe I'm better off by myself, because I'm quiet and reserved that means I'd rather sit in a closed room all day."	Stokowy, Cezary 2017, para. 1-2
The target is made fun of.	"I said that my fun thing is leaving early and going to a restaurant alone. To that, one of the co-workers started to say different funny things about a person that goes alone somewhere. He said it sounds sad and boring. Then he made a joke about me staring at a wall in one of these corners with a small table...I was kinda offended."	Pepillo-Bianco 2017, para. 1
Others express their dislike for the target.	"...my wife (an extrovert) and I (an introvert) worked at the same place and our co-workers would say it to her: "Your husband seems like an asshole."	ThePixelMiner, 2017, para. 1
The target is treated rudely.	"As an introvert, I've lost count of how many times my quiet nature has been pointed out to me in the same manner you would call attention to someone who has lettuce stuck in their teeth, toilet paper attached to their shoe, or a giant purple seagull clinging to their head. In other words, "You might want to do something about that... It's embarrassing."	Van Alst, 2018, 2018, para. 1
The target is treated as though they are inferior.	"[Candy]...recalled a workshop she attended in which the presenter talked about different personality types. The presenter wrote the words "introvert" and "extrovert" on the board, and then...he drew a big huge X over "introvert" and circled "extrovert". His message was loud and clear: introversion is the inferior personality type."	Chang, 2016, para. 6-7
The target's work performance is highly scrutinized.	"Every performance review was pretty much the same and went along the lines of "You're a fantastic employee, you do everything and more. You're intelligent and can handle anything thrown at you...The only problem is that you're too quiet. You need to communicate better." So of course, I ask for specific examples and they could never give me any...Eventually, it came down to my boss basically telling me, "No, it's not that, you need to just be friendlier and socialize."	Dubinskas, 2013, para. 1
The target's performance is overlooked.	"...my manager never acknowledges that I'm doing well. In fact she hardly acknowledges me at all. It's not just that she's one of those people that doesn't give praise - she'll go on and on about how great this person is doing and how much improvement that person has shown, but she never gives me any feedback, positive or negative... It's so frustrating. I'm always worried I'm going to get fired. I know she likes loud, extroverted people and that's just not me."	Reisler, 2013, para. 1-2

Reference: McCord, M.A. and Joseph, D.L., 2020. A framework of negative responses to introversion at work. *Personality and Individual Differences*, 161, p.109944.

Key points from 12 interviews with people who have rich experience in group work



CONCEPT DEVELOPMENT

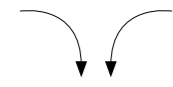
After analyzing the key points I got from the interview. I found all the elements are actually about the space and border between individuals in the communication.



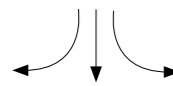
Communication
Space

Since personality is only one part of the communication, in the next stage, I expanded the focusing point to the space in communication.

HMW make people reflect on the current extrovert-dominated culture through empathy?



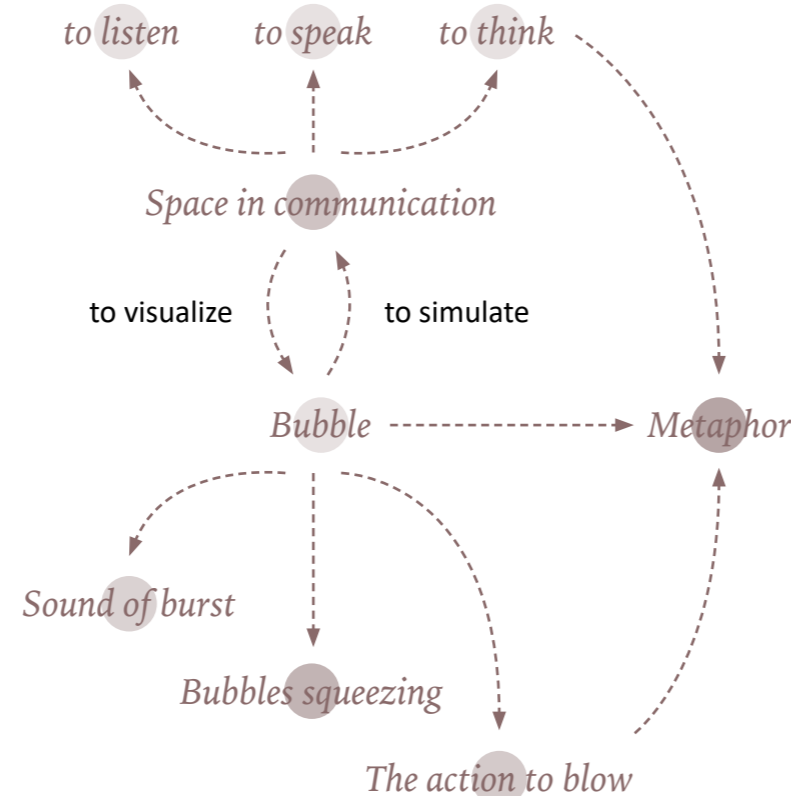
HMW create a work space that is conducive to collaboration between people with different personalities?



HMW provide an opportunity for people to explore the border of space during the communication while getting real-time feedback?

CONNECTION WITH BUBBLES

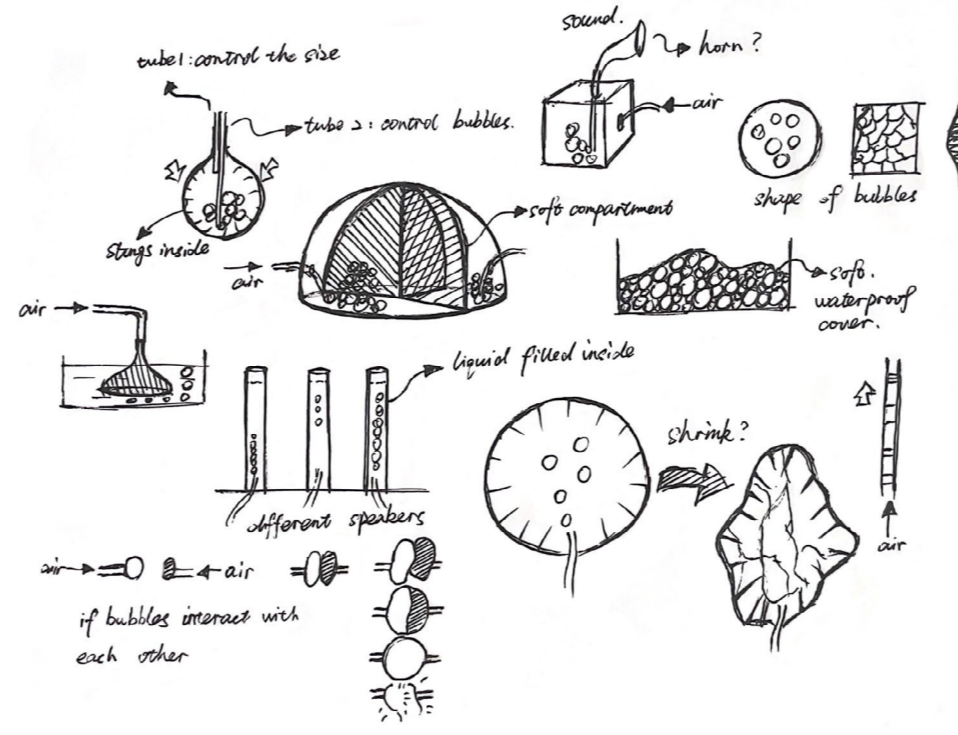
Bubble is the air we blow when we speak, which made it a suitable way to give the communication a shape.



In order to better visualize this intangible concept, I chose the bubble as a metaphor.

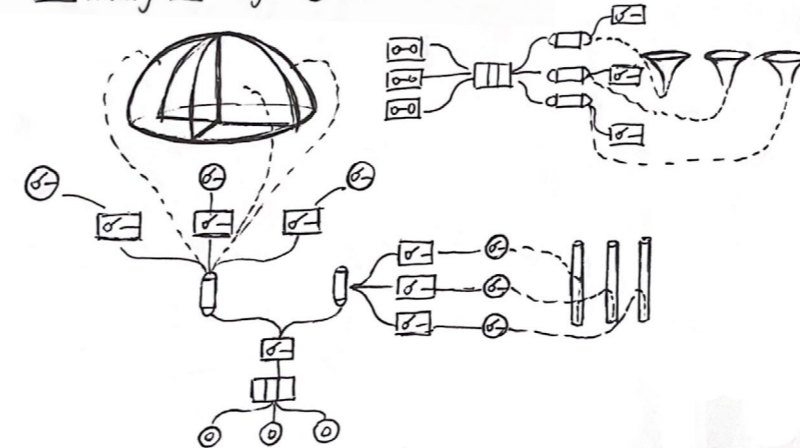
The space in communication is further divided into three parts, the space to listen, to speak and to think.

SKETCH



Component Connection

air pump --- tube ultrasonic sensor @ voice sensor.
~ wire ||| battery relay @ solenoid valve.

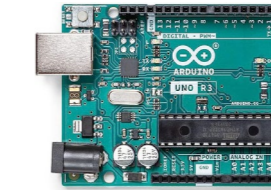


TECHNICAL SUPPORT

- Data collection
- Bubble creation



- Main control



Arduino Uno

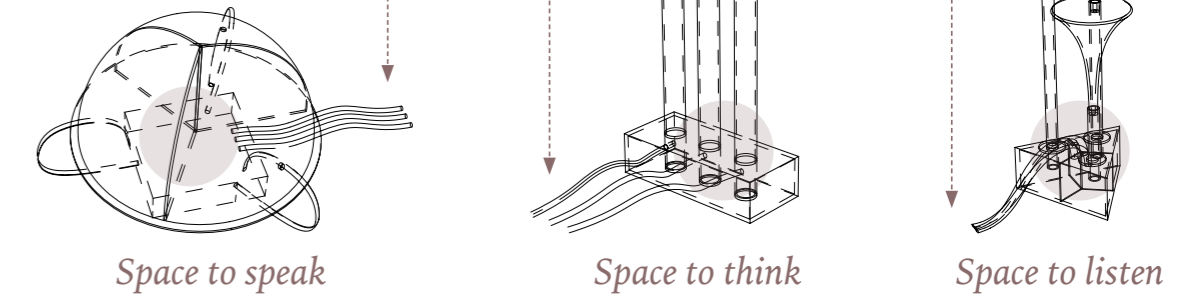
```

digitalWrite(Trip2, LOW);
delayMicroseconds(2);
digitalWrite(Trip3, HIGH);
delayMicroseconds(10);
digitalWrite(Trip3, LOW);
long t1 = millis();
long t2 = (t1 + 100) % 1000;
if (t1 < t2) {
  digitalWrite(13, HIGH);
  digitalWrite(19, HIGH);
  delay(1000);
  digitalWrite(13, LOW);
  digitalWrite(19, LOW);
}

if (cbs < 20) {
  digitalWrite(13, HIGH);
  digitalWrite(19, HIGH);
  delay(1000);
  digitalWrite(13, LOW);
  digitalWrite(19, LOW);
}

if (cbs > 80) {
  digitalWrite(13, HIGH);
  digitalWrite(19, HIGH);
  delay(1000);
  digitalWrite(13, LOW);
  digitalWrite(19, LOW);
}

```



- **Video:** <https://youtu.be/sZEMypqMF7w>

Bubble trigger is a systematic interactive installation, which allows every three people to join together to explore the different aspects of communication space.

Through combining into one system, if you find something does not seem right in one part, you can always find clues from the other two.



Bubble Trigger combines interactive installation with behavioural experiments and behavioural research. Unlike most interactive installations used to convey the designer's concepts, the final outcome of Bubble Trigger is entirely participant-driven and gives participants an opportunity for exploration and self-reflection.



Space to speak

The interior is separated into three incomplete spaces by soft dividers.

When participants are speaking, the bubble inside will expand, squeeze, fuse with each other or even extend into the other two spaces.

Just like the invisible space among communicators.



A provided topic booklet for easily starting a conversation.



Space to listen

Using ultrasonic sensors to determine whether the participant is still focusing on the conversation.

Bubble will be created in the bottom container. The sound of bursting will be amplified through the horn structure.

Like a reminder, are you still listening?



Microphone with built-in sensors to capture data.

-Speak -Pause -Focus point



Space to think

The action of speaking triggers the bubbles to rise from the bottom and naturally float to the top.

If someone exports the ideas for a long time without pause, bubbles will be crowded inside.

Are you leaving enough space for others to think about and reflect on your opinions?

● It is not

A tool for judging engagement

● It is

An experience to explore the most appropriate communication pattern

FEEDBACK

- It made me think about the conversation itself.
- It's interesting to see how the bubbles blended into each other, it was like our ideas were combining.
- I can feel this installation is becoming part of our communication.
- I subconsciously paused when I saw the tube was full of bubbles.

POTENTIAL

Through using bubbles as a metaphor and combining with educational goal and fun, more meaning and aspects of communication can be explored, such as the communication pattern of people from different cultural backgrounds and genders.