

PORTFOLIO

Ningxuan Wang 2021

Contents

1 Be Heard. 1-8

2 War on Drugs 9-15

3 Can You Hear the Faraway Cry? 16-20

4 No Choice 21-26





Be Heard.

"I want to talk, I want to be heard, clearly."

95% of the Down's syndrome population have articulation defects, which make it hard for them to communicate with others and fit into the society.
However, 'articulation defects' doesn't equal 'impossible to articulate' , and this project is trying to take the equals sign away.

An Application with a device
An Independent Project
09/2020-02/2021

Background

How & Why I started

Bei Bei

I first knew Down's syndrome from the book *You're My Baby*. The protagonist Bei Bei is a child with Down's syndrome.

Reports

When working at a local newspaper, I found a series of reports on what difficulties people with Down's syndrome have in communicating with others.

More Information

After some research, I found that the difficulties the Down's syndrome people have to face when communicating were more than I had thought before.

As a English major, maybe there is something I can do...

A Few Facts About DS Population

1000

Each year, Down's syndrome occurs in about 1 in every 1000 babies worldwide.

95%

95% of the Down's syndrome population have articulation defects.

Down's syndrome children made more phonological errors than both normal children and subnormal non Down's syndrome children.

Most errors in speech are made in consnants by children with DS.

Phonetics Knowledge

1.Basic Knowledge

In the production of consonants at least two articulators are involved. The categories of consonant, therefore, are established on the basis of several factors. The most important of these factors are:

(a) the actual relationship between the articulators and thus the way in which the air passes through certain parts of the vocal tract, and
(b) where in the vocal tract there is approximation, narrowing, or the obstruction of air.

The former is known as the Manner of Articulation and the latter as the Place of Articulation (or the Place of Articulatory Gestures).

2.How to Determine Whether the Place and the Manner Are Right

(1) The distance between your tongue tip and palate

(2) The strength of the airstream through vocal tract

(3) Your mouth's opening extent

THE INTERNATIONAL PHONETIC ALPHABET (revised to 2005)

CONSONANTS (PULMONIC) © 2005 IPA

	Bilabial	Labiodental	Dental	Alveolar	Postalveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b			t d		ʈ ɖ	c ɟ	k g	q ɢ		ʔ
Nasal	m	ɱ		n		ɳ	ɲ	ŋ	N		
Trill	B			r					R		
Tap or Flap		ⱱ		ɾ		ɽ					
Fricative	ɸ β	f v	θ ð	s z	ʃ ʒ	ʂ ʐ	ç ʝ	x ɣ	χ ʁ	ħ ʕ	h ɦ
Lateral fricative				ɬ ɮ							
Approximant		ʋ		ɹ		ɻ	j	ɰ			
Lateral approximant				l		ɭ	ʎ	ʟ			

Where symbols appear in pairs, the one to the right represents a voiced consonant. Shaded areas denote articulations judged impossible.

Different Places of Articulation

Different Manners of Articulation

→ Different Speech Sounds

Preliminary Research

Where Children with DS Make Most Mistakes

Affricate
Lateral
Fricative
Nasal

(By manner of articulation)

Alveolar
Dental
Postalveolar
Labiodental

(By place of articulation)

What Types of Errors Children with DS Make Most

The phonemes that appear to be most error-prone

1. /z/
2. /θ/
3. /ð/
4. /ʃ/
5. /tʃ/
6. /dʒ/
7. /v/

(In descending rank order)

What Influences the Articulation Accuracy in Children with DS

The three main reasons are:

1. Phonological short-term memory
2. Oral motor skills
3. Articulatory muscular system
4. Hearing problems

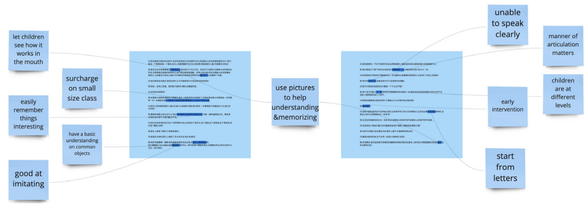
Primary Research

Shadowing

Working in an organization for Down's syndrome children for several days, I had a chance to observe them and communicate with them closely.

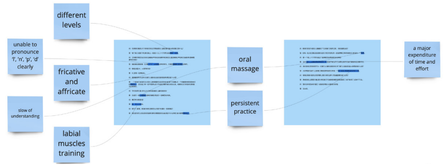
Expert Interview

Two teachers were interviewed on the importance of articulating, difficulties children with DS faced and speech capacity as well as existing language training methods used by teachers.



Interviewee: Zhang Chao (a special-education teacher)
Way of Interview: voice call
Date: 28th October





Interviewee: Ms. Yu (a speech coach for children with DS)
Way of Interview: QQ
Date: 7th November



Insights

Dilemma	Hope
Different levels in one class	Early intervention helps
	Knowledge of common objects
Surcharge on small class	Ability to imitate
Teachers' time insufficient to meet every child's need	Sensitive to pictures
	Interest in entertaining things

Secondary Research

The Difficulties Children with DS Have in Articulation

- Hearing loss
- Phonological short-term
- Memory deficit



Unable to establish fully phonologically specified lexical representations for words

- Neurological disorders
- Dental abnormalities
- Structural anomalies of the tongue
- Other oral fauces



Aetiological factors of the DS children's articulation disorder

Why Articulation Is Possible for Children with DS

1.The phonological development of the Down's syndrome is slow but have a normal sequence as normal children.

2. In articulation, Down's syndrome children make fewer mistakes in imitation than in spontaneous production. A model for improves DS children's articulatory ability.

3. Down's Syndrome group's speech capability relies on visual and kinetheic feedback to some degree.

4. Correcting DS children's inconsistency of word production enhance intelligibility.

Insights

Correction on the frequent phonetic errors is important.



Training on DS children's oral perception and articulatory organs can be more fun.

Parents should have more time for themselves and be freed from repetitive work.

Targeted one-to-one teaching is hard to achieve in rehabilitation center for children with DS.

Persona



Wu Liang

Wu Liang is a 35-year-old landscape architect, who has two sons. The younger son is a Down's syndrome child.

Frustrations
Every weekday, Wu Liang and his wife take turns to teach their younger son pronunciations and life skills, so there isn't enough time for him to draw sketches and attend meetings. Also, he feel sorry for his elder son for little company.

Wants and Needs
He hopes to have more personal time.
He needs to communicate more with his older son.



Jane

Jane is a speech training teacher in a rehabilitation center for children with Down's syndrome.

Frustrations
There are too many students in her class, each of different conditions, so she finds it difficult to take care of each student at the same time.

Wants and Needs
She wants an assistant in class.



Xiao Tong

Xiao Tong is a 4-year-old child with Down's syndrome, receiving speech training in a rehabilitation agency.

Frustrations
She often makes mistakes like substituting /d/ for /t/. Sometimes people cannot understand what she is saying. Also, her speech training teacher is too busy teaching other children to correct her pronunciation occasionally.

Wants and Needs
She wants to practice her articulation more.
She needs more attention in class.

Existing Solutions

Although DS cannot be cured, early speech therapy can help improve pronunciation skills.

Tools


Horn


Straw


Tongue Tip Lateraization
&
Elevation


Sensory Tools


Letter Cards

Methods Applied

- Oral perception training
  - Oral desensitization training
  - Oral massage
  - Chewing Exercises
- Functional training of articulation organs
  - For lips
  - For tongue
- Learning letters
  - Using letter cards to help DS children learn the alphabet
- Learning simple words and phrases
  - Give children models for imitation
    - Learn basic category terms
    - Learn adjectives

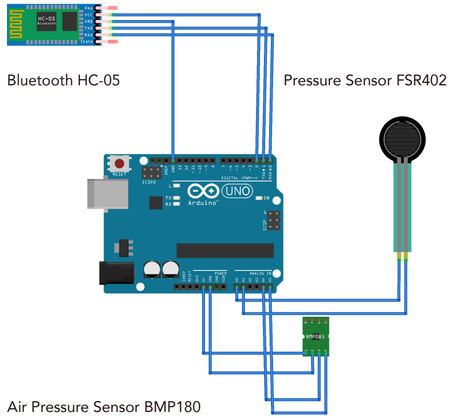
Though these are all helpful tools, they all need teachers or parents to operate.

Technical Support

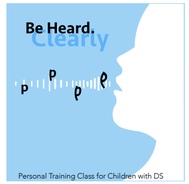
- EPL (Chinese programming language)
  - E4A(Platform)
    - Android Application
- Infrared Sensors
- Pressure Sensor
- Air Pressure Sensor
  - Arduino
    - Installation

Android Application + Installation → Articulation Training APP

Wiring



Icon

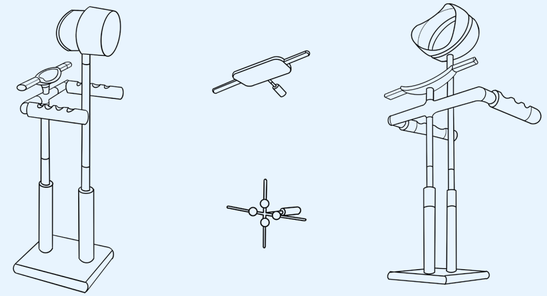


A child is holding up his or her head, full of hope.

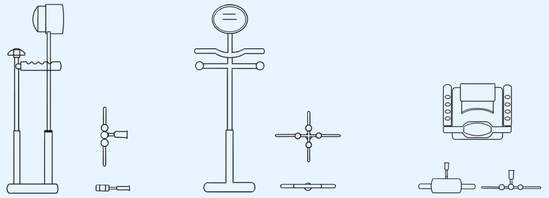
He or she is practicing pronunciation, with the letter 'p' no longer twisted, his or her pronunciation gets clear.

'Be Heard' is like the calls for not only comprehension of words but also understanding in inner thoughts.

Sketches

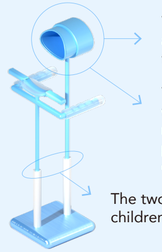


Perspective Drawing



Side View | Front View | Top View

Modeling



There will be an infrared sensor and an air pressure sensor fixed at the bottom of the cylinder.

The air pressure sensor is used with the APP's 'Learn' module, measuring whether the child pronounce the phonetic alphabet correctly.

The two rods are flexible, fitting children of different ages.



The two units are removable.



The unit will be used with the APP game 'A Rabbit in The Field'.

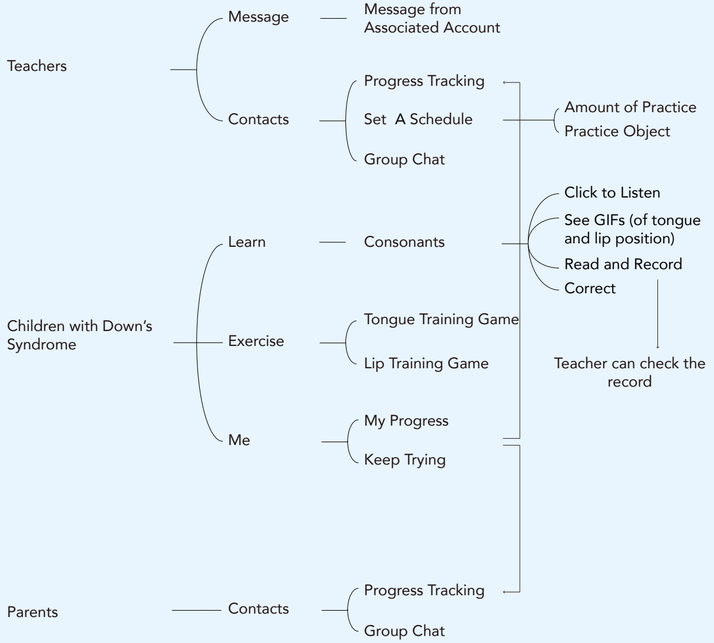


The unit will be used with the APP game 'A Bird in The Sky'.



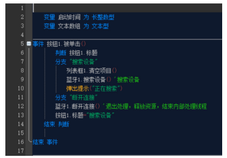
There is a pressure sensor hiding in the unit.

Function Flow

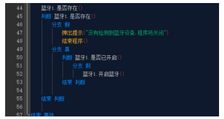


Coding

EPL



Start time: long int
Text array: string
Search for Bluetooth devices



If the right Bluetooth device (HC-05) is detected, the application will be connected to Arduino via Bluetooth.



Keycode: int
Var: boolean
Users can press the return key to exit the application.



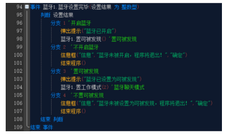
This step is mainly to set the background color and the font used in these pages.



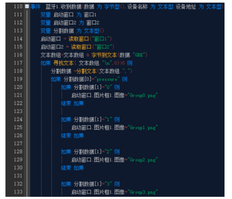
Device address: string
Whether connected: boolean
The application will check Bluetooth connectivity.

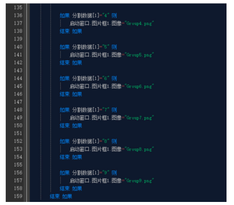


If the Bluetooth connectivity succeeds, go to the page of navigation.
If not, it shows 'Connection Fails'.



You'll be reminded to open your mobile's Bluetooth if it is off.





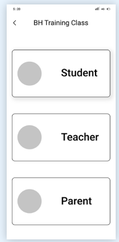
The mobile's Bluetooth receives data.
The air pressure data, as text data, is transferred to digital data, which will be divided into different levels according to their intensities. Different levels are expressed as different numbers of blue stripes.



The bird will be in different positions according to the digital data of stress.

Low Fidelity

Home Page



Associated Account:
Students' and teachers' /parents' accounts can be associated as long as both sides add the other side as their associated account.
Associated account allows supervision and guidance from teachers and parents.

Chat Group:
A chat group includes a teacher and at least a family of the student.

Student Flow

Type in your associated number



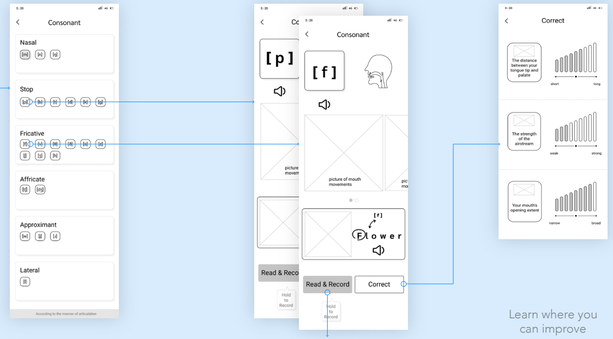
Login/ Signup



Each user will be given a number, making the association process convenient.



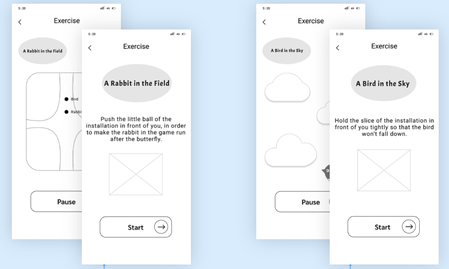
Learn



Learn where you can improve

The record can be replayed by teachers and parents.

Game



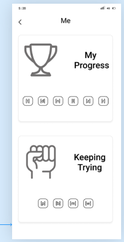
Game1

Instructions

Game2

Instructions

Me

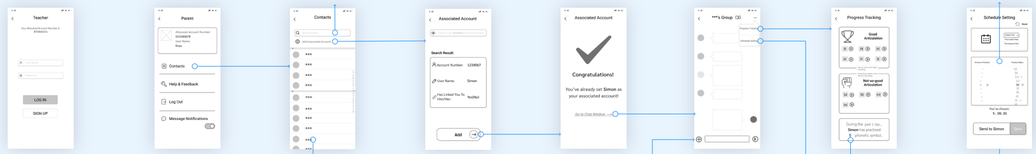


Feedback on your practice today

Teacher Flow

Type in the student's name to search for the corresponding chat group

Set a schedule for the student



Login/ Signup

Start Page

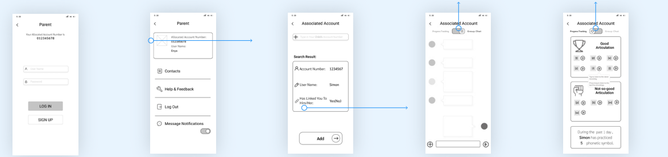
Chat Box

Updated Daily

Parent Flow

Parents associate with their child's account the first time using this APP

Switch between two pages



Login/ Signup

Chat Box

Progress Tracking

Once the connection is established, the page will no longer be displayed

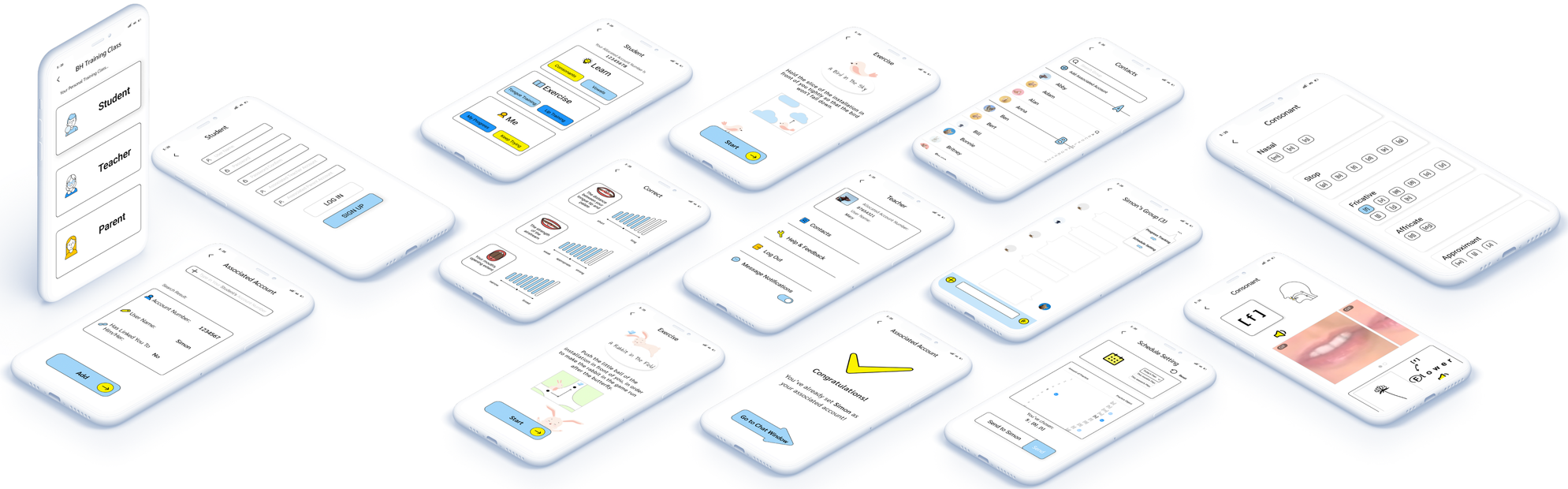
High Fidelity

Navigation:
I used vertically-oriented navigation for most first-class and second-class navigation in the student flow, because its structure is clear and easy to understand. While in the teacher and parent flow, I also used dropdown navigation and segmented navigation, because they are space-saving.

Button:
I mostly used round corner buttons, because they are soft and neutral.

Color:
I used blue, light blue, yellow and orange to make the screen bright and conspicuous.

I avoided moving between screens in the way of scrolling or sliding, because these two ways are difficult to control for children with Down's syndrome, who have abnormal fingers.



Final Display

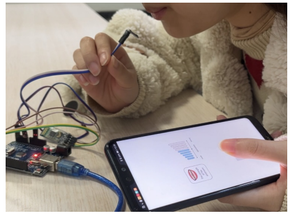
Without the Model



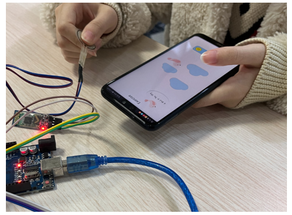
Opening the application



Connecting the Bluetooth

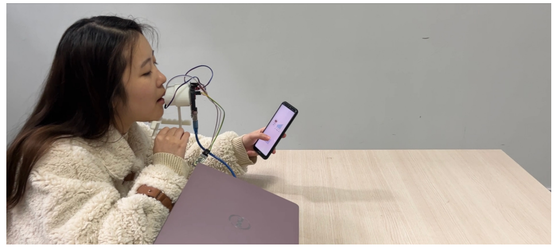


Using the ‘learn’ module



Trying the ‘Game’ module

With the Model



Correcting her pronunciation errors.



Exercising her oral muscles.

Reference

[1]Borghi, R.W., 1990. Consonant Phoneme, and Distinctive Feature Error Patterns in Speech. In: Clinical Perspectives in the Management of Down Syndrome. Springer US, New York, NY, pp. 147–152.

[2]Buckley, S.J. ,1993. Developing the Speech and Language Skills of Teenagers with Down's Syndrome. *Down Syndrome Research and Practice*, 1(2), pp.63-71.

[3]Daneman, M., Hulme, C. and Mackenzie, S., 1995. The Nature of Memory Span Deficits in People with Severe Learning Difficulties. *The American Journal of Psychology*, 108(3), p.464.

[4]Dodd, B., 1976. A Comparison of the Phonological Systems of Mental Age Matched, Normal, Severely Subnormal and Down's Syndrome Children. *International Journal of Language & Communication Disorders*, 11(1), pp.27-42.

[5]Dodd B., McCormack P. and Woodyatt G., 1994. An Evaluation of an Intervention Program: the Relationship Between Children’s Phonology and Parents’ Communicative Behavior. *American Journal on Mental Retardation*, 98, pp.632-645

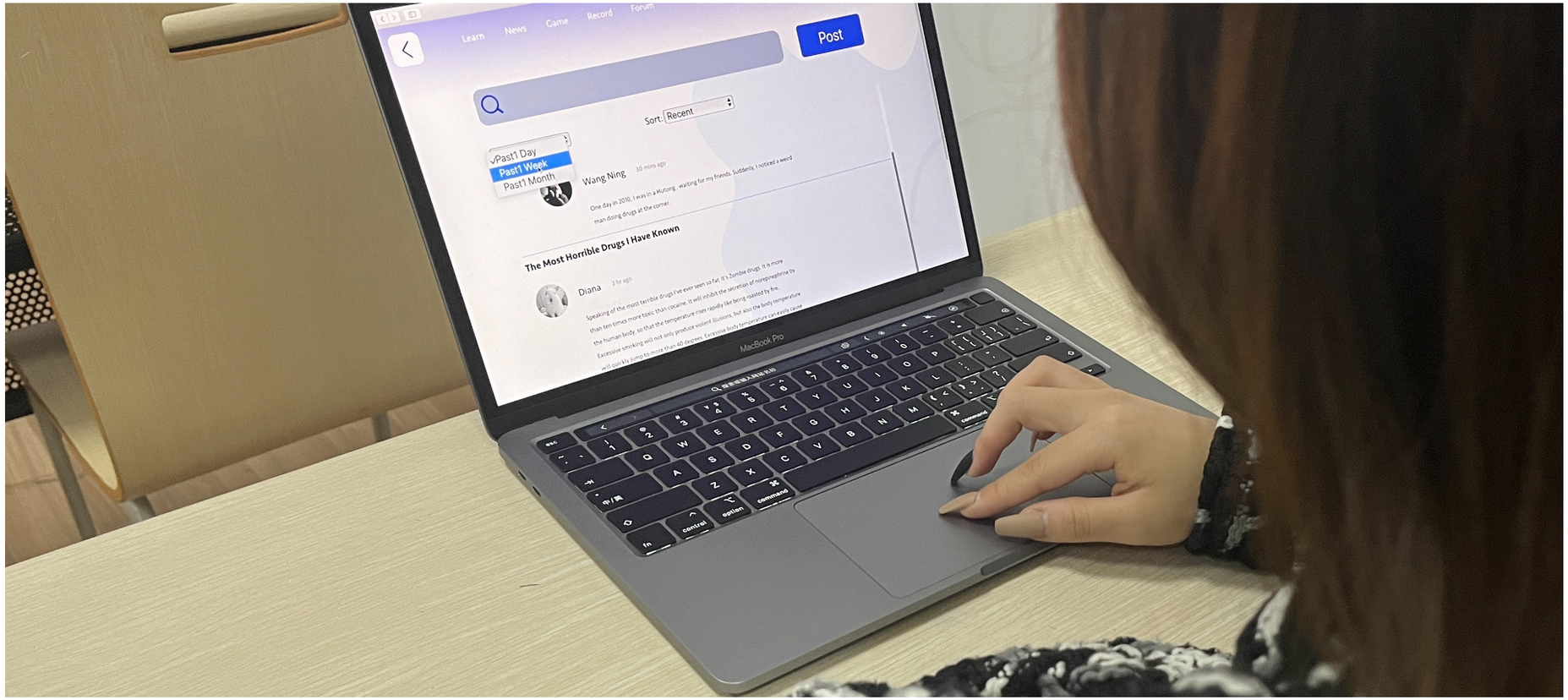
[6]Dodd, B. and Thompson, L., 2001. Speech disorder in children with Down's syndrome. *Journal of Intellectual Disability Research*, 45(4), pp.308-316.

[7]Frith, U. and Frith, C. D.,1974. Specific motor disabilities in Down's Syndrome. *Journal of Child Psychology and Psychia -try*, 15, pp.293-301.

[8]Jarrold, C., Baddeley, A. and Phillips, C., 1999. Down Syndrome and the Phonological Loop: The Evidence for, and Importance of, a Specific Verbal Short-Term Memory Deficit. *Down Syndrome Research and Practice*, 6(3), pp.61-75.

[9]Lenneberg, E., 1967. The Biological Foundations of Language. *Hospital Practice*, 2(12), pp.59-67.

[10]Rondal J. A., 1993. Down’s Syndrome. In: Language Development in Exceptional Circumstances, Lawrence Erlbaum Associates, London, pp.165-176.



War on Drugs

"A detox clinic helps those who have been entrapped, I help those who may be entrapped. "

By 2020, there had been up to 10,000,000 people doing drugs in China, a large proportion of them entrapped into drug-taking. This is a website helping young people stay away from drug traps.

A Website
An Independent Project
03/2021-08/2021

Why I Started

2019

In one of my favourite book, *Artificial Paradise*, Baudelaire, who died of marijuana, described the horrorible scene only drug addicts can see.

2020

Anti-drug police told real-life stories of drug traffickers on social media. It was shocking that so many people were taking illicit drugs.

2020

I watched a series of documentaries that recorded drug addicts' life as well as their deaths.

2021

Eventually, I decided to do something to help people stay away from the drug trap.

Background

What Is Illicit Drug

A drug can be used as medication, and it can also be used in other ways. For example, there is also recreational drug use. In China, a drug for any use other than medical use falls under illicit drugs. In general, illicit drugs refer to addictive recreational drugs in China.

Types of Recreational Drugs

- Depressants
- Antihistamines
- Analgesics
- Tranquilizers
- Stimulants
- Euphoriants
- Hallucinogens
- Inhalants

Common Recreational Drugs in China

(lump crystal liquid powder tablet)

- Opium — Morphine — Heroin
  - Demerol
- Cannabis
- Cocaine
- Methamphetamine
  - MDMA
- Ketamine

About People Doing drugs

1. The number of people doing drugs in China

Headcount: 1.8 million (by 2020)

Real number: 10 million (by 2020)

2. Age structure



of these people are between 18yrs and 35yrs.

3. Age of doing drugs for the first time

Average: 13yrs - 16yrs

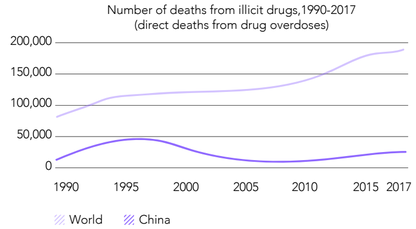
4. Percentage of collage students who don't know what drugs are

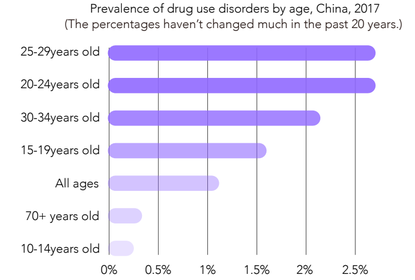
About 38.8%

5. Percentage of collage students who don't know new psychoactive substances

About 71.1%

6. Data on illicit drugs





Conclusion:
There are a large number of people taking drugs in China, and among them young people take a large proportion. Also, Chinese young people has little understanding of drugs.

Reference

1.Criminal Law of the People's Republic of China
2.Annual Report on Drug Control in China (2018)
3.China Drug Situation Report (2019)
4.IHME, Global Burden of Disease

Anti-drug Education

What are the existing anti-narcotics education like in China? Why does the education seem 'boring and inefficient' for young people nowadays?

In school

	Books about drugs	Commercial anti-drug films
Advantage	Comprehensive	High penetration rate
	Information	Entertaining
Disadvantage	Low penetration rate	Focusing more on plots than knowledge about drugs
	Not portable	Unreal
	Boring	

Out of school

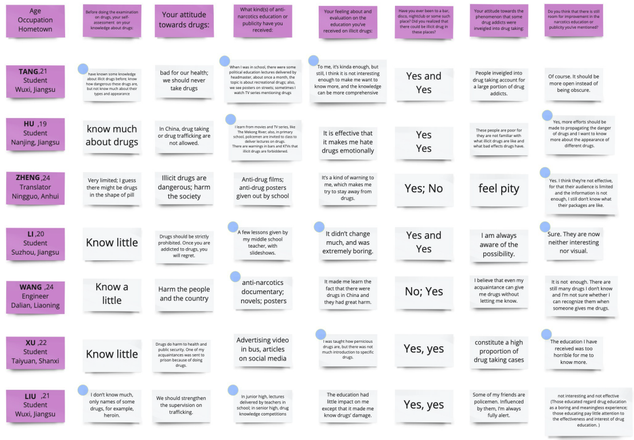
	Anti-drug posts	Museums	Anti-drug week
Advantage	strong visual effect	professional	abundant information
Disadvantage	low penetration rate	boring	short duration
		small quantity	low penetration rate

User Research

Interview

Seven people were interviewd, focusing on their understanding of drugs and the anti-narcotics education they received.

Method: Wechat, Miro, face-to-face interview
Date: 4th May - 12th May



Test

The seven people also did a small test on their knowledge about drugs.

Tool: Miro
Date: 5th May - 11th May

1.Put a ▲ below the picture if you are able to tell whether it belongs to drugs or not.



Tang ▲
Hu ▲
Zheng ▲
Li ▲

wang ▲
Xu ▲
Liu ▲
Zhao ▲

2.Please label the names of the plants in the picture.

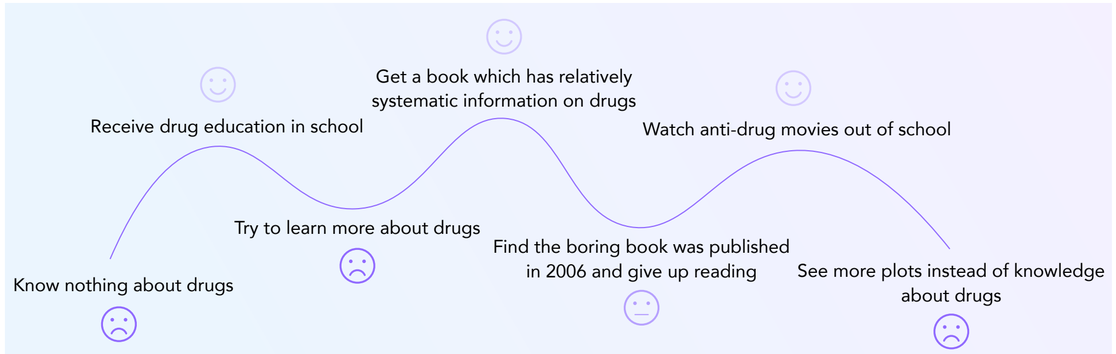


don't know	don't know
mint leaf	don't know
✓ cannabis	don't know
✓ cannabis	✓ don't know
don't know	don't know
✓ cannabis	coca
ephedra	don't know

miro

Conclusion
Due to limited and boring education on drugs they received, most of them know that drugs are harmful, but know very little about drugs, including their appearances, their types and the newest drugs.

Journey Map

Emotional Experience & Doing	
Painpoints	Can't find ways to learn about drugs Knowledge about drugs is complicated and disordered Can't get updated information from publications; can't stick with learning from boring publications Interest and knowledge cannot be met at the same time
Strategies & Opportunities	A platform with accessible information on drugs Systematic information on the types, origins, appearances and variants of drugs Updating information whenever a new type of drug comes out; something that brings the audience sense of participation Interesting games that teach professional knowledge

Current Situation

Illicit drugs are comparatively prevalent among young people between 20yrs and 29yrs

The average age of them to start doing drugs is 13-16yrs

These young have little knowledge about drugs

Opportunities

An educational game

A platform with updated information

A platform with information on drugs

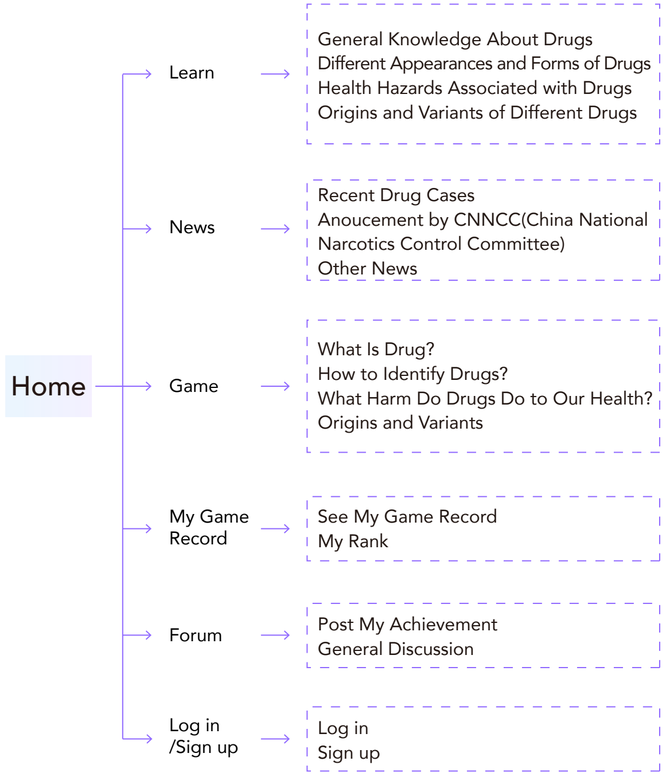
An interesting and interactive platform

A platform with several modules, including drugs' appearances, origins and types

↓

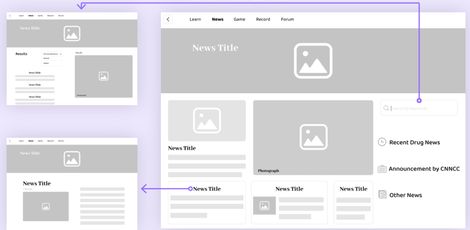
An Anti-drug Website with a Collection of Interactive Games !

Function Flow



Low Fidelity

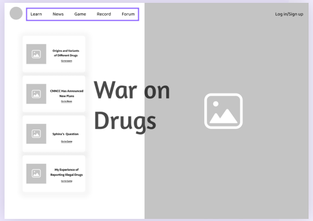
Search for news you are interested in



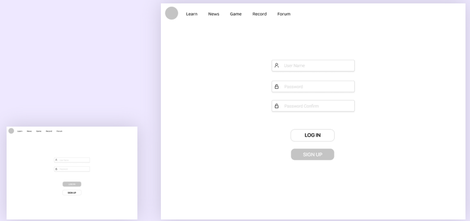
News Page

View recent news

Choose any module to start your journey

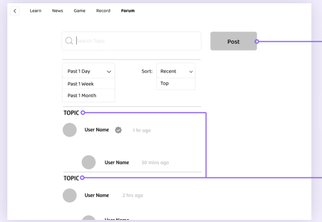


Home Page



Log in/Sign up

You can also choose to be a tourist only

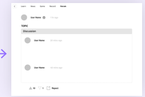


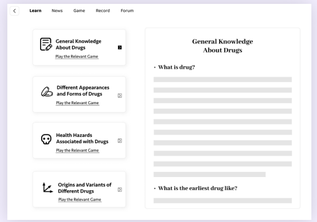
Forum Page

Join discussions

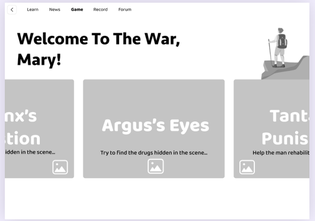


Give your opinions on drug topics





Learn Page



Game Page

Remember, coin helps!

If you don't know the answer, you may choose to open the 'Learn' page to earn some coins





Answer the questions on question cards to enter the next level





Try to find the drugs hiding in different scenes



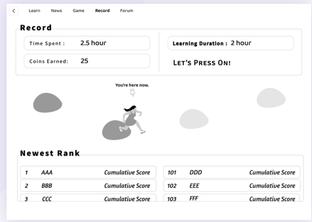


Browse on the forum, in order to help the drug addict get rid of drugs



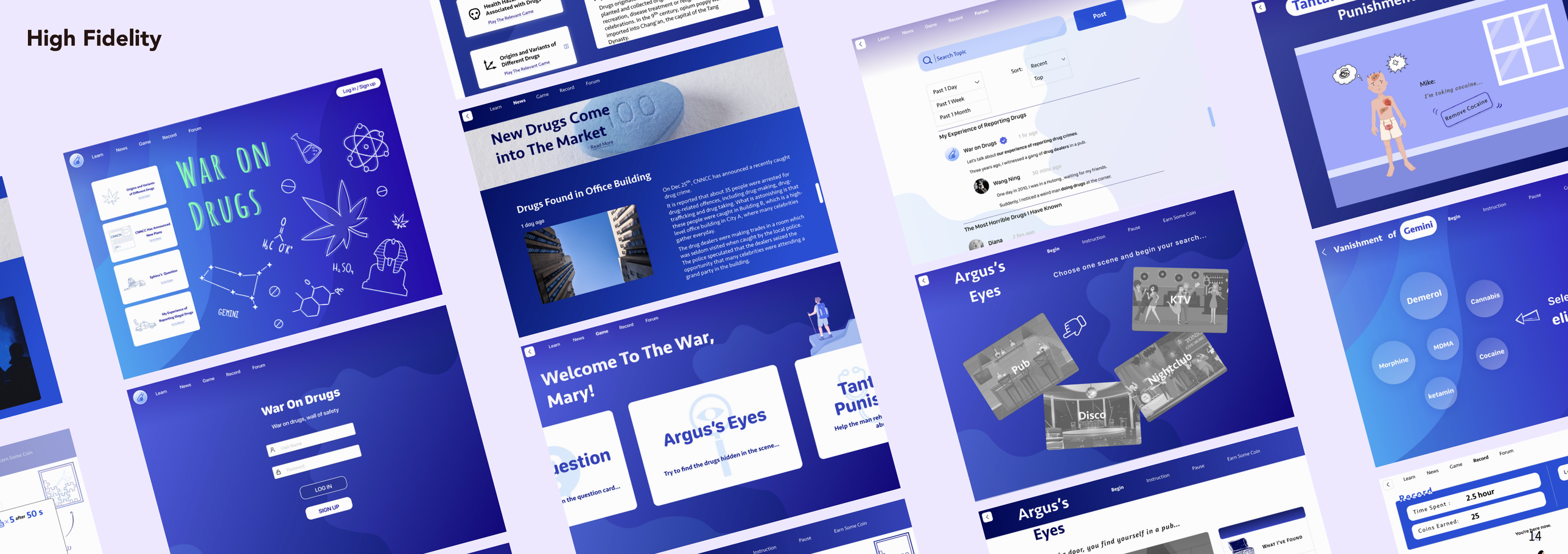


Select two drugs that have relation with each other



Record Page

High Fidelity



Language for Web Pages

HTML

```
<html>
<head>
    <title></title>
    <link href="css/style.css" rel="stylesheet" type="text/css" />
</head>
<body id="home">
    <div style="padding: 10px;">
        <header>
<div class="logo">
<a href="index.html">

<img src="images/logo.png" />
</a>

</div>

<div class="nav">
<ul>
<li><a href="learn.html">Learn</a></li>
<li><a href="#">News</a></li>
<li><a href="game.html">Game</a></li>
<li><a href="#">Record</a></li>
<li><a href="forum1.html">Forum</a></li>

</ul>


</div>
```

```
<div class="btns">
    <p>
        <button onclick=" location.href='login.html'">
            LOG IN</button>
    </p>
    <p>
        <button class="sign" onclick=" location.href='reg.html'">
            SIGN UP</button>
    </p>
</div>
```

```
<div class="btns">
    <p>
        <button onclick="location.href='login.html'">
            LOG IN</button>
    </p>
    <p>
        <button class="sign" onclick="location.href='reg.html'">
            SIGN UP</button>
    </p>
</div>
```

```
<dl>
    <dt>· What is drug?</dt>
    <dd>
    According to Article 357 of the criminal law of the people's Republic of China, drugs refer to opium, heroin, methamphetamine, morphine, marijuana, cocaine and other narcotic drugs and psychotropic drugs that can make people addicted.</dd>
    <dd>
    According to China National Narcotics Control Committee, drugs are divided into 3 categories, including traditional drugs, synthetic drugs and new psychoactive substances (also known as new drugs). Among them, the most common drugs are cannabinoids, opioids and cocaine.</dd>
</dl>
<dl>
    <dt>· What is the earliest drug like?</dt>
    <dd>
    Drugs originated in Germany. In slave society, people planted and collected original plants of drugs for recreation, disease treatment or religious and tribal celebrations. In the 9th century, opium poppy was imported into Chang'an, the capital of the Tang Dynasty.</dd>
</dl>
```

```
<dl>
    <dt>· What are the sources of drugs in the world?</dt>
    <dd>
    One of the three major drug sources in the world is the "Silver Triangle" in South America.</dd>
    <dd>
    The "Silver Triangle" is a newly emerging drug base in Africa, including the border areas of Nigeria, Ghana, Kenya, Sudan and South Africa. Its "1st product" is marijuana. The area of cannabis cultivation in South Africa alone exceeds 820000 hectares.</dd>
    <dd>
    In addition, Africa is also the main transit point for world drug trafficking, and Morocco is the main distribution center for transporting cannabis from Africa to the European drug market. Whether cannabis from the "Silver Triangle" in Africa or opium, heroin and other drugs from the "Golden Triangle" in Asia, most of them are transported to Europe and other parts of the world through seaports, airports and roads in African countries.</dd>
    <dd>
    Another major drug source in the world is the "Golden Triangle" in Southeast Asia.</dd>
</dl>
```

```
<script src="js/jquery.js" type="text/javascript"></script>
<script src="js/jquery.bxslider.js" type="text/javascript"></script>
<script type="text/javascript">
    $('.box-slider').bxSlider({
    controls: false,
    });
</script>
```

```
<script>
    var timeClock;
    document.getElementById("button1").onclick = function () {
        var num = 50;
        document.getElementById("dialog").style.display = "block";
        timeClock = setInterval(function () {
            num--;
            document.getElementById("time").innerHTML = num;
            if (num == 0) {
                clearInterval(timeClock);
                document.getElementById("dialog").style.display = "none";
                document.getElementById("time").innerHTML = 50;
            }

        }, 1000)
    }
</script>
```

```
<script>
    document.getElementById("button1").onclick = function () {
        var timeClock1;
        document.getElementById("p4").style.display = "none";
        document.getElementById("p5").style.display = "none";
        var num1 = 2;
        timeClock1 = setInterval(function () {
            num1--;
            if (num1 == 0) {
                clearInterval(timeClock1);
                document.getElementById("dialog1").style.display = "block";
            }

        }, 1000)

    }
    document.getElementById("close").onclick = function () {
        document.getElementById("dialog1").style.display = "none";

    }


    document.getElementById("talk").style.display = "none";
    var timeClock;
    var num = 5;
    timeClock = setInterval(function () {
        num--;
        if (num == 0) {
            clearInterval(timeClock);
            document.getElementById("talk").style.display = "block";
        }

    }, 1000)
</script>
```

CSS

```
* {
    margin:0px; padding:0px;}
ul{
    line-height:1.5;
    font-family:Arial;}

.clear{clear:both;}
li{ text-decoration:none;}
a, li {list-style:none;}
#LOGO {width:150px; margin:0 auto;}
#body{ background:#E3E3E3 url(../images/bg1.png) no-repeat; background-size:100% 100%; height:100%; }
#header{ background:#1e2f3d url(../images/bg.png) repeat-x; background-size:100% 50px; height:50px;}
#top{ background:#1e2f3d url(../images/topic.png) no-repeat; background-size:100% 100%; height:100px;}
#center { overflow:hidden;}
#center .back{ float:left; background:url(../images/bg.png); width:80px; height:80px; background-size:100% 100%; text-align:center;}
#center .back img{
    width: 26px;
    height: 26px;
    margin-top: 22px;
}
```

```
*{ margin:0px; padding:0px; }
ul{ list-style:none; }
.switch{ padding:15px 30px; font-size:24px; width:200px; border-radius:10px; outline:0; }
.switch .cf{ float:left; width:400px; }
.switch .cf .flash{ float:left; }
.list { margin-top:30px; }
.list ul{ height:850px; overflow:auto; }
.list li{ border-top:1px solid #1e2f3d; padding-top:10px; }
.list li .name{ float:left; overflow:hidden; }
.list li .name .time{ font-size:16px; color:#1e2f3d; line-height:40px; margin-left:20px; }
.list li .img{ float:left; }
.list li img{ width:80px; }
.list li .cf{ float:left; line-height:80px;font-size:24px; margin-left:30px; }
.list li .cf .intel{ margin-top:30px; overflow:hidden; margin-bottom:20px; }
.list li .cf .intel .time{ float:left; }
.list li .time .left{ padding-left:20px;line-height:1; font-size:16px; color:#999; width:640px; }
.pp{ position:absolute; top:100px; right:0px; width:300px; }
.ew-support margin-top:15px; text-align:center; }
.hidden{ width:27%; float:left; }
.pp .hidden .left{ float:left; }
.intel .left{ width:100%; margin:0 auto; background:#fff; text-align:center; padding:20px 0px; position:relative; border-radius:10px; }
.intel img{ width:60%; height:200px;}
.intel .left2 .assistant{position:absolute; left:78px; width:130%; top:14%; z-index:9999;}
.intel .left2 h2 font-size:42px; color:#7c7c7c; max-width:50%; margin:0 auto;}
.intel .left2 p{ font-size:30px; color:#7c7c7c; margin-top:40px; max-width:50%; margin:0 auto;}
```

```
.login{ float:right; margin-right:20px; color:#2711a8;
        background: #fff;
    text-align: center;
    padding: 5px 30px;
    position: relative;
    border-radius: 40px; font-size: 22px;
    margin-top:20px;
    overflow:hidden; }
.login a{ color:#2711a8;
    font-size: 22px; }
```

```
.qu1{ cursor:pointer; position:absolute; top:-10px; left:206px;}
.qu2{ cursor:pointer; position:absolute; top:246px; left:0px;}
.qu3{ cursor:pointer; position:absolute; top:90px; left:585px;}
.qu4{ cursor:pointer; position:absolute; top:246px; left:246px; }
.qu5{ cursor:pointer; position:absolute; top:370px; left:467px; }
.qu6{ cursor:pointer; position:absolute; top:460px; left:164px;}
```

(Not all the language is displayed due to space limitations.)

```
@-webkit-keyframes move
{
  0%, 65%{
    -webkit-transform:rotate(0deg);
    transform:rotate(0deg);
  }
  70% {
    -webkit-transform:rotate(6deg);
    transform:rotate(6deg);
  }
  75% {
    -webkit-transform:rotate(-6deg);
    transform:rotate(-6deg);
  }
  80% {
    -webk
    trans
  }
  85% {
    -webk
    trans
  }
  90% {
    -webk
    trans
  }
  95% {
    -webk
    trans
  }
  100% {
    -webk
    trans
  }
}
```

```
@keyframes move
{
  0%, 65%{
    -webkit-transform:rotate(0deg);
    transform:rotate(0deg);
  }
  70% {
    -webkit-transform:rotate(6deg);
    transform:rotate(6deg);
  }
  75% {
    -webkit-transform:rotate(-6deg);
    transform:rotate(-6deg);
  }
  80% {
    -webkit-transform:rotate(6deg);
    transform:rotate(6deg);
  }
  85% {
    -webkit-transform:rotate(-6deg);
    transform:rotate(-6deg);
  }
  90% {
    -webkit-transform:rotate(6deg);
    transform:rotate(6deg);
  }
  95% {
    -webkit-transform:rotate(-6deg);
    transform:rotate(-6deg);
  }
  100% {
    -webkit-transform:rotate(0deg);
    transform:rotate(0deg);
  }
}
```

Final Display



Browsing the home page.



Learning from the 'Learn' module.



Choosing from games.



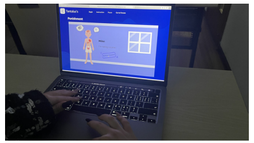
Reading the questions on the question cards.



Answering questions on the question cards.



Choosing from scenes.



"Remove Cocaine".



Closing the pop-up window.



Browsing through the forum.



Can You Hear the Faraway Crying?

"Infinite faraway, countless people are all connected to me."

They say globalization is the topic of the 21st century, but fragmentation is what I see.
In such a fragmented society, can people see others' pain? Can people feel the sufferings of people faraway?

An Interactive Installation
An Independent Project
07/2021-09/2021

Background

What touched me?



Do you know the civil war in Ethiopia?

In literature class, the teacher asked if anyone in the class knew the ongoing war in Ethiopia. There were 81 students in class that day, and no one knew that there was a war going on in the faraway Africa.



Is it normal that we don't know?

Then I raised a question online: Is it normal that young people know little about important international affairs? Many netizens said that it was normal to know nothing far from us.

Is it?

What is the issue?

Fragmentation

Global fragmentation refers to the absence or underdevelopment of connections between the world community.

The bond between global citizens is not so strong nowadays.

Inequality

Inequality is not just about wealth. There is also inequality in safety and health, materials and resources worldwide.

People in the world have quite different living conditions.

create conditions for young people not to concern themselves with distant affairs and see pain of faraway people.

Armed conflict

Armed conflict is a suitable subject to research 'young people and distant affairs'.

Two main reasons why armed conflicts are a representative type of 'distant affair': Firstly, armed conflicts are typical international affairs that are far away from most people's life, especially the young people. Secondly, armed conflicts are an aggregation of miseries (such as violence, slaughter, rape and poverty) that ever beset mankind.

Preliminary Research

Survey

300 Chinese young people participated in the survey, which tested their knowledge about armed conflicts. Respondents were asked how often they read international news, how they reacted to reports on armed conflicts and whether they had once got involved in fund-raising for refugees or anti-war demonstrations or anything alike.
The results were analyzed with SPSS.

Reliability and Validity

The reliability and validity of the effective questionnaire are analyzed to measure the consistency and reliability of the results of the questionnaire.

Table 1 Reliability analysis of pre questionnaire

Research Dimension	Number of Questions	Cronbach α	Evaluation
Understanding Level of Wars/Armed Conflicts	3	0.738	Good Reliability
Degree of Concern for Wars/Armed Conflicts	3	0.756	Good Reliability

The Cronbach α is greater than 0.6, which shows that the measurement of this questionnaire is reliable and the internal consistency of the measurement results is high.

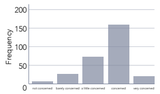
Table 2 Exploratory Factor Analysis of pre questionnaire

KMO-value		0.872
Bartlett test of sphericity	chi-squared approximation	588.438
	df	15
	P-value	0.000

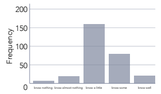
The KMO-value is 0.872>0.6, which means the questionnaire has good validity; The P-value is 0.00<0.05, which means the questionnaire has good construct validity.

Descriptive Analysis

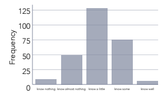
1.Degree of concern for international affairs



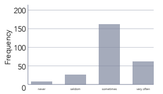
2.Knowledge about armed conflicts



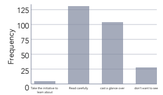
3.Knowledge about Geneva Conventions



4.Frequency of seeing information on armed conflicts



5.Reaction to information on armed conflicts



6.You think people in war zones are related to you



7.You once participated in activities for people in war zones



Insight

Chinese young people know the fact that there are armed conflicts in many parts of the world.

They realize that fragmentation and inequality do exist at a global level.

They do have empathy for situations of those who are in war zones.

They think that their passions are conducive to actions.

However, they pay little attention to the affairs, the people and their sufferings, and the reasons are as follows:

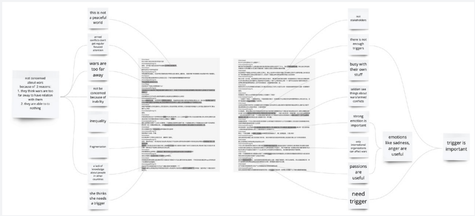
They regard their concern as 'meaningless' and feel that they cannot make a difference.

They need a trigger to remind them to concern themselves with international issues such as armed conflicts.

They are busy with their own stuff.

Semi-structured Interview

The dialogue has been simplified.





Interviewee: Pang Songyuan (student)
Age: 22
Method: Face-to-face interview





Interviewee: Zheng Yi (student)
Age: 24
Method: Face-to-face interview

Conceptual

My Voice

In the context of global fragmentation and inequality, can we still hear the faraway crying?

I'm not going to propagate my opinion. Instead, I hope to

(a)prompt the target audience to reflect on their relationship with ongoing armed conflicts;

(b)help the target audience realize the present fragmentation and inequality;

(c)prompt the target audience to ponder what they can do.

Theoretical Background

Why is it likely that the audiences will have feelings for the content of the video?



Firstly, Simulation Theory.
Parts of humans' brain in the medial prefrontal cortex show overlap of activation for both self-focused and other-focused thoughts and judgments.
Secondly, Theory of Mind.
Humans can use cognitive thought processes to explain the mental state of others.

Why is it likely that there will be thinking, self-examination and action in the interactive process?



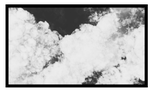
It's hard for people to forget how they feel, and the feelings can be conducive to thinking and action.

How can we use 'feeling' effectively?



Firstly, people need to see how their action will contribute to the issue. If people believe they have the power to produce results, they will attempt to make things happen. Also, people need to know how to do the thing.

What others have done to ease the sufferings of people in war zones is also likely to be accomplished by us ordinary young people.

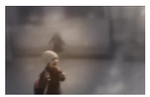


Secondly, tell better stories. Great stories leave space for the audiences, allowing them to put the pieces together for themselves.

The video about how others involve in peacebuilding work in war zones is composed by several fragments, which leaves space for imagination.

Concept

Symbol



The video about war
-Violence, slaughter, rape, poverty in the world
-The sufferings of others



The blank screen
-People's choice of not caring about the sufferings of others



The video about people making a difference to war
-The possibility of our concern & actions making others' life better

Interaction

Input		Output	
	Scenario 1: You don't care about people's sufferings in wars, so you say 'I don't care', and the speech sound sensor detects your words.		The screen is off.
	Scenario 2: You have passions when watching the video about war, so you squeeze the ball, and the pressure sensor collects the pressure data.		The video about how people made a difference to war starts to play.

Storyboard

1



Audiences watch the video about armed conflicts, hearing the sound of gunfire and children crying for mama.

2



Audiences are reminded that they can say 'I don't care' if they don't quite care about what is being shown.

3



Audiences say so.
/Audiences find it hard to say so.

or

4



Strong passions make audiences squeeze the ball in their hands, and the video about how people made a difference to war starts to play.

Technical Support

Hardware



Pressure Sensor

FSR402



Arduino Uno



Speech Sound Sensor

Adapted LD3320

Coding

Processing

```
import processing.video.*;
import processing.serial.*;
Serial port =new Serial(this,"/dev/cu.usbmodem142401",9600);
Movie movie1;
Movie movie2;
int state = 0;
char ch;
void setup()
{

  size(1920, 1080);
  background(0);
  frameRate(60);
  movie1 = new Movie(this,"M1.mp4");
  movie2 = new Movie(this,"M2.mp4");
  movie1.loop();

}

void movieEvent(Movie mov) {
  mov.read();
}
```

To import libraries.

To set the serial port.

To set one state: State 0, let movie1 (the video about war) start to play.

To create two new objects: video1 and video 2.

To set their sizes and forms.

```
void draw()
{
  //if(port.available()>0)
  {
   ch = port.readChar();
   if(ch == 'a' && state == 0)
   {
     state = 1;
     movie1.stop();
     background(0);
   }

   else if(ch == 'b' && state == 0)
   {
    state = 2;
    movie1.stop();
    movie2.play();
   }
  }
```

To set two states.

State 1
To let the screen become all black once the speech sound sensor detects you saying 'I don't care' .

State 2:
To let movie 1 (the video about war) stop, and let movie 2 (the video of how people make a difference to war) start to play once the pressure reaches a specific level.

```
if(state == 0)
{
  image(movie1,0,0);
}
else if(state == 1)
{
  background(0);
}
else if(state == 2)
{
  image(movie2,0,0);
}
}
```

movie 1 — 'I don't care.' → black screen

movie 1 — pressure → movie 2

Arduino

```
int pressureAnalogPin = 0;
int pressureReading;


void setup()
{
  uint8_t ASRMode = 1;
  Wire.begin();
  Serial.begin(9600);

#if 1
  WireWriteDataArray(ASR_WORDS_ERASE_ADDR,NULL,0);
  delay(60);
    ASRAddWords(1,"ai don t ke er");
  if(WireWriteDataArray(ASR_MODE_ADDR,&ASRMode,1)){}

  else{}

#endif


}
```

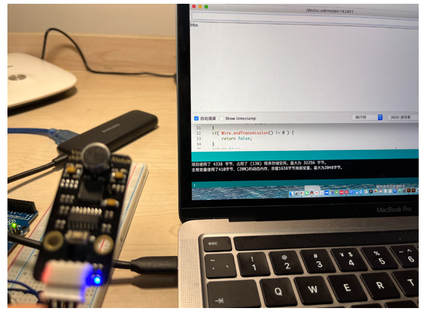
In mode 1, to set what speech sound ('I don't care.') you want the sensor to identify (the sound can only be set in the form of phonetic transcriptions).

```
void loop()
{
  unsigned char result;
  delay(1);
  WireReadDataArray(ASR_RESULT_ADDR,&result,1);
  if(result)
  {
  Serial.write('a');
    }

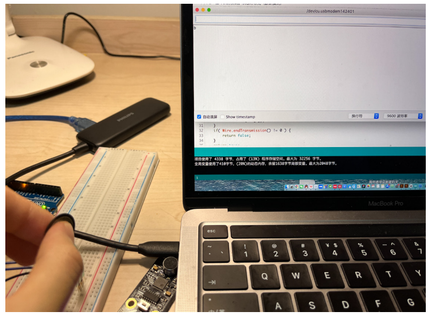
  pressureReading = analogRead(pressureAnalogPin);
  if(pressureReading>100)
  {
    Serial.write('b');
    delay(1000);
  }
```

To send bytes.
What the speech sound sensor detects is represented by 'a', while what the pressure sensor collects is represented as 'b'.

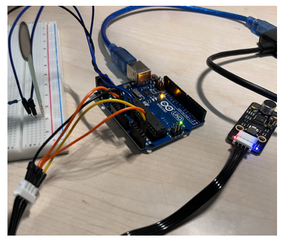
Final Test



Testing the speech sound sensor



Testing the pressure sensor



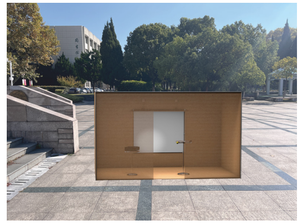
Before I put it in public, I had to make sure that it can perform well.
And I also have to find ways to project the videos onto the huge screen.



(I used HDMI to realize the projection.)

Exhibition of Scene

As long as I get permission from our school to set up the huge installation...



Material

The installation is built out of cardboard, which is easy to get in daily life.
The cardboard is supported by metal rods.
(The front of the installation is translucent only in the picture, in order to let people see the interior.)

The Interior

There is a projector, a screen and a box with two sensors in it.



Location

The installation is placed on the playground in front of the library and academic buildings, which a lot of students pass by every day.

Final Display



Watching the video about war.



Squeezing the ball.
Video of how people are making a difference starts to play.



Speaking out 'I don't care'.

Design Evaluation

Yes ✓
No ✗

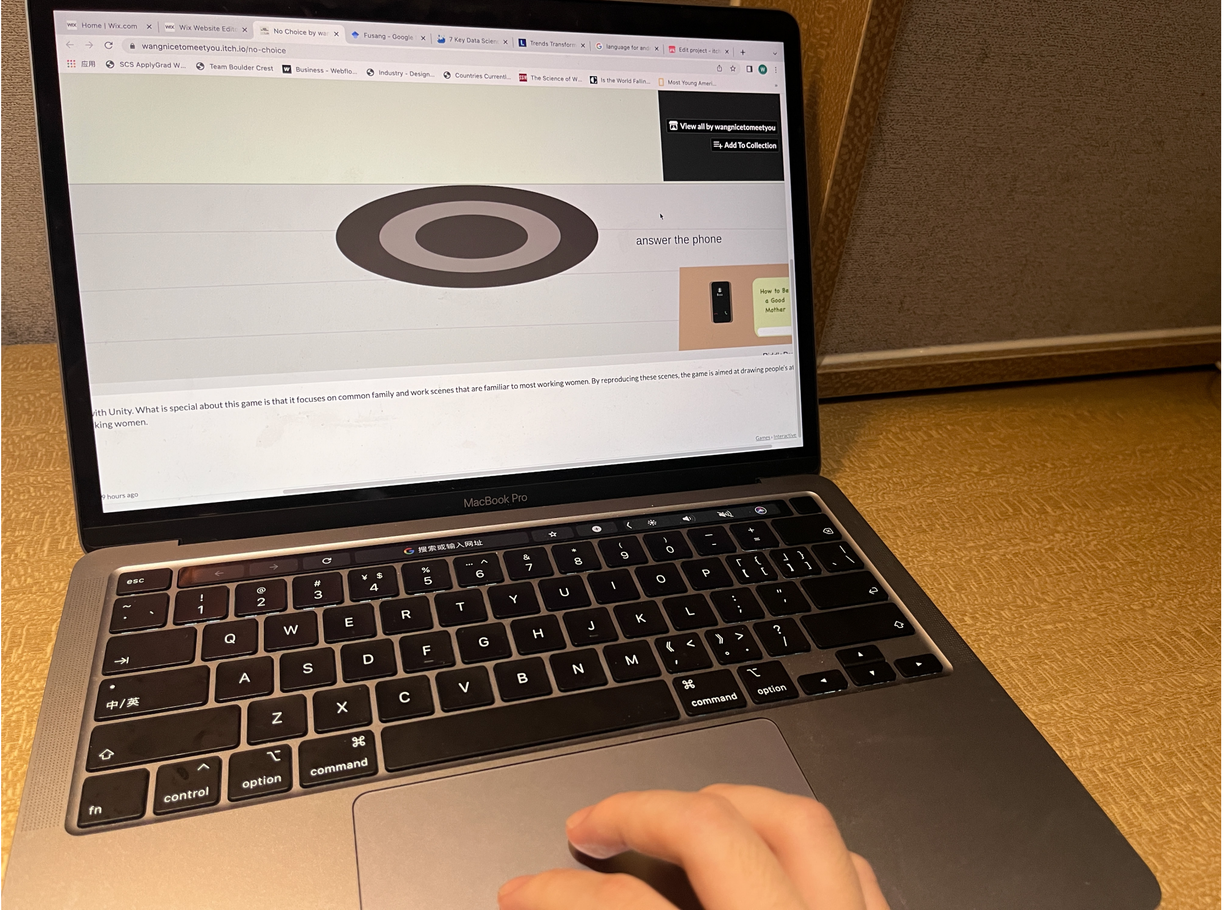
Name	Whether it was impressive	Whether it evoked your feelings	What your feeling was	Whether you said 'I don't care'	Why or why not	Whether you have something to say
Hu	✓	✓	I felt guilty, shocked and sad. I felt happy that there were people doing things for others.	✗	I may feel guilty if I say so.	What is the relation between people in different parts of the world? Is it really true that "one world, one dream"?
Julia	✓	✓	Why are there so many people suffering in the world?	✓	I just wanted to have a try.	Maybe people all have their own destinies.
Henry	✓	✓	anger, sadness, wanting to help	✗	It was hard to say such cruel words when someone saw a video like that.	In some way, I may be concerned with others faraway.
Qin	✓	✓	I feel sorry for people in war zone. Also, I felt full of power. I was very inspired.	✗	I couldn't because I did care.	It is not good that I only think about myself.
Wang	✓	✓	Shocked, caring, feel capable	✓	I was told to, and words wouldn't hurt anyone.	I feel lucky that I am who I am, but it doesn't mean that I don't care about others far from us.

Conclusion

The interaction did prompt a large proportion of audiences to reflect on their relation with armed conflicts, and some audiences even started to think about their concern for distant things and people.
However, some audiences were misled by the function of the speech sound sensor and thought that saying 'I don't care' was a necessary step.
I think there is room for improvement.

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No Choice

"A feminist is anyone who recognizes the equality and full humanity of women and men."

——Gloria Steinem

This is a first-person perspective video game developed with Unity. What is special about this game is that it focuses on common family and work scenes that are familiar to most working women. By reproducing these scenes, the game is aimed at drawing people's attention to the Family/Work Role Incompatibility confronting working women.

A Video Game
An Independent Project
11/2021-12/2021

What Stirred My Thought

Ignorance of Middle Class Women's Dilemma

Last year, the book *Women from Lower Class* led to hot discussion. We saw violence, poverty and loss of voice in a low-class woman's marriage through the book.

Many people expressed their view that low-class women's economic dependence on their husbands is the root of all the sufferings in these women's marriages.

They say:"As long as a woman earns enough **money**, she will have a **happy** marriage."

They also say:"**Economic** capacity solves **every** problem for a woman in her marriage."

However, this is not the case. Economically independent middle-class women are **not** as happy as we thought.

In this context, 'middle class women' refers to those whose physiological needs and safety needs are met. They mostly engaged in mental work or physical work based on simple technique. They mainly rely on wages for a living and are generally well-educated.

Research

Middle Class Women's Predicament is "Hidden"

In lower-class families, male chauvinist husbands tend to act in a direct and violent way, while in middle-class families, in a veiled way.
Middle-class women and their spouses, though more likely to be well-educated, not always have advanced gender or family perception.
Hidden laboring by women are more likely to appear in middle-class families, which means these women have to worry about trifles in their families.

Middle Class Women in China Have a Tough Time in the Home

Housework

Housework refers to a series of unpaid labor done to meet the needs of family members or maintain family relations and family property.

In the US, the time of housework reported by wives is generally 2-3 times that of husbands.

In China, the average proportion of housework reported by wives aged 18-64 is 73.4%, and that reported by husbands is 30.5%.

In China, the average daily housework time of wives is 3.9 hours, while that of husbands is only 1.6 hours.

Sense of Guilt

When dedicated to their work, these women tend to bear the pain and anxiety that that they fail in "motherhood" or "wifehood".

Pregnancy

Women's golden ages of childbirth often conflict with their golden ages of professional development.

Inferiority

In middle class families, husbands' careers are supreme, and enjoy the privilege of guaranteeing their careers.

Middle Class Women Also Have a Tough Time in the Workplace

Occupational Gender Segregation

Men and women are concentrated in different occupations and jobs because of their gender, which affects not only their payment (generally, the higher the proportion of women, the lower the income level), but also their promotion opportunities and life styles.

Unequal Pay for Equal Work

Sometimes men and women get different pay for equal work in the workplace.

Middle Class Women's Major Predicament——Family/Work Role Incompatibility (Family-Work Conflict)

Family-work conflict comes from tension caused by the incompatibility between work and family. There are three types of family-work conflicts, including time conflict, pressure conflict and behavior conflict.

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Development

What Concrete Vexation Working Women Have

To understand in what form Family-Work Conflict exists in real life and objectify the so called 'tough time in both home and workplace', I had in-depth conversations with some working women in my family and some of the professors in our school, all of whom were married.
(The answers have been simplified and merged.)

Do you think the world of work is friendly to female, especially those who are married and are with children?

Not really.

Have your identity of being a mother or wife ever bothered you when you are at work?

When my daughter was preparing for the CEE, I had to ask for frequent leave to take care of her.

My scientific research ability and teaching ability were once questioned just because I had a 2-year-old baby.

I once gave up a promotion opportunity because of pregnancy.

To support my husband's career, I chose a position with more free time.

As a working women, is there anything in your family that has ever made you a little comfortable?

It seems that picking up our son from school, feeding him, and playing with him are all my duty, not my husband's.

There are always elders saying that the nanny is 'my' assistant, which makes me a little confused. Am I supposed to do the housework?

Insight

The reasons why married working women feel uncomfortable both in the workplace and the home are as follows.

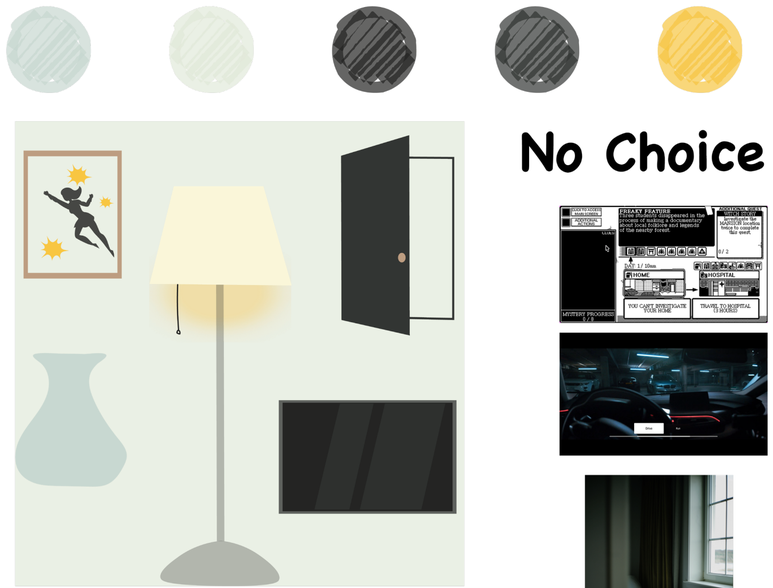
Their troubles are overlooked. Unlike physical violence and poverty, what troubles these working women is oftentimes something that seems small. Helping people face up to the problems is the foundation of solving them, and amplifying these problems may be a good way to do so.

They are misunderstood. They don't get enough understanding and empathy from those who are not married, those who are not female or those who are not working. Transporting someone to the same scene is the most efficient way to let him or her to understand.

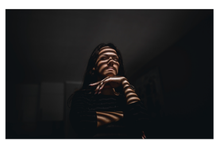


The No Choice project was developed with Unity. It is a first-person perspective video game that creates impressing experiences for the players by allowing them to make their own choices which shape the development of the main character's life. What is special about this game is that it focuses on common family and work scenes that are familiar to most working women. By reproducing these scenes, the game is aimed at drawing people's attention to the Family/Work Role Incompatibility confronting working women.

Mood Board



No Choice



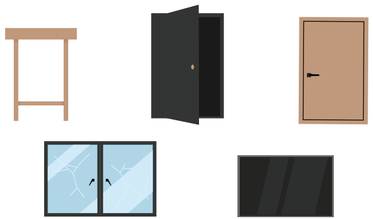




Main Objects

To creat a depressing and cold atmosphere, there isn't any human characters appearing in the scenes. Also, the decoration is in cool colors.

Furniture



Decoration



Electronic Device



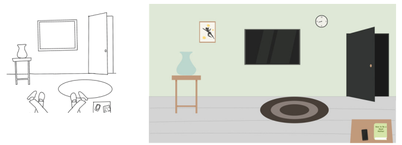
Mom is Superwoman



Most of the objects are animated.

Main Game Scenes

There are three main scenes in the game, and all the matters develop on the basis of these three sinces.



Scene One: Home



Scene Two: Break Room in the Workplace



Scene Three: Conference Room

Interactive Mode

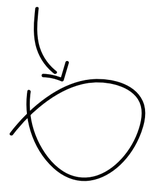
Click

What Interaction the Player Will Experience

blabla

albalb

Making Choices

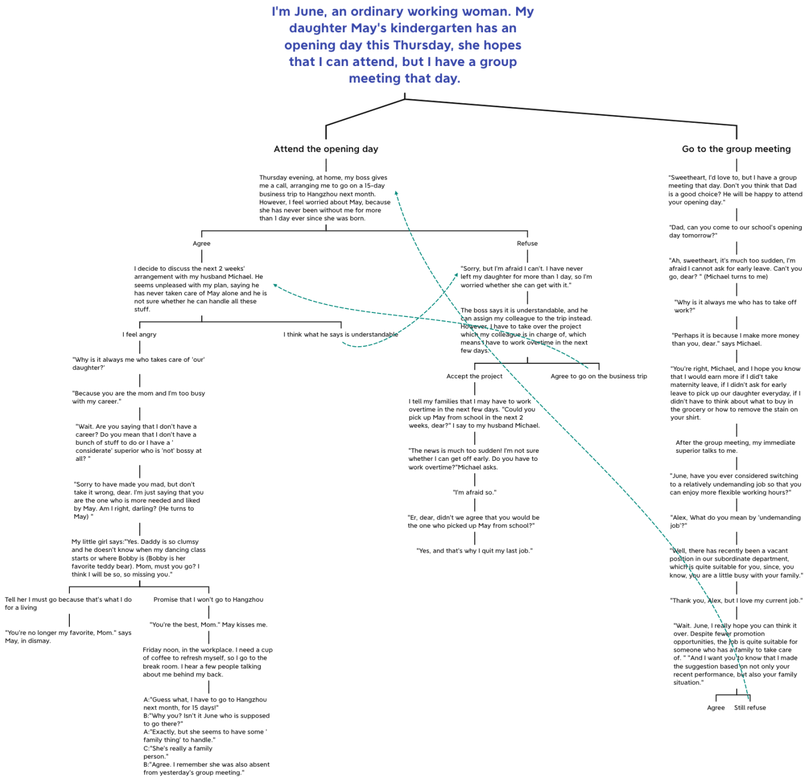


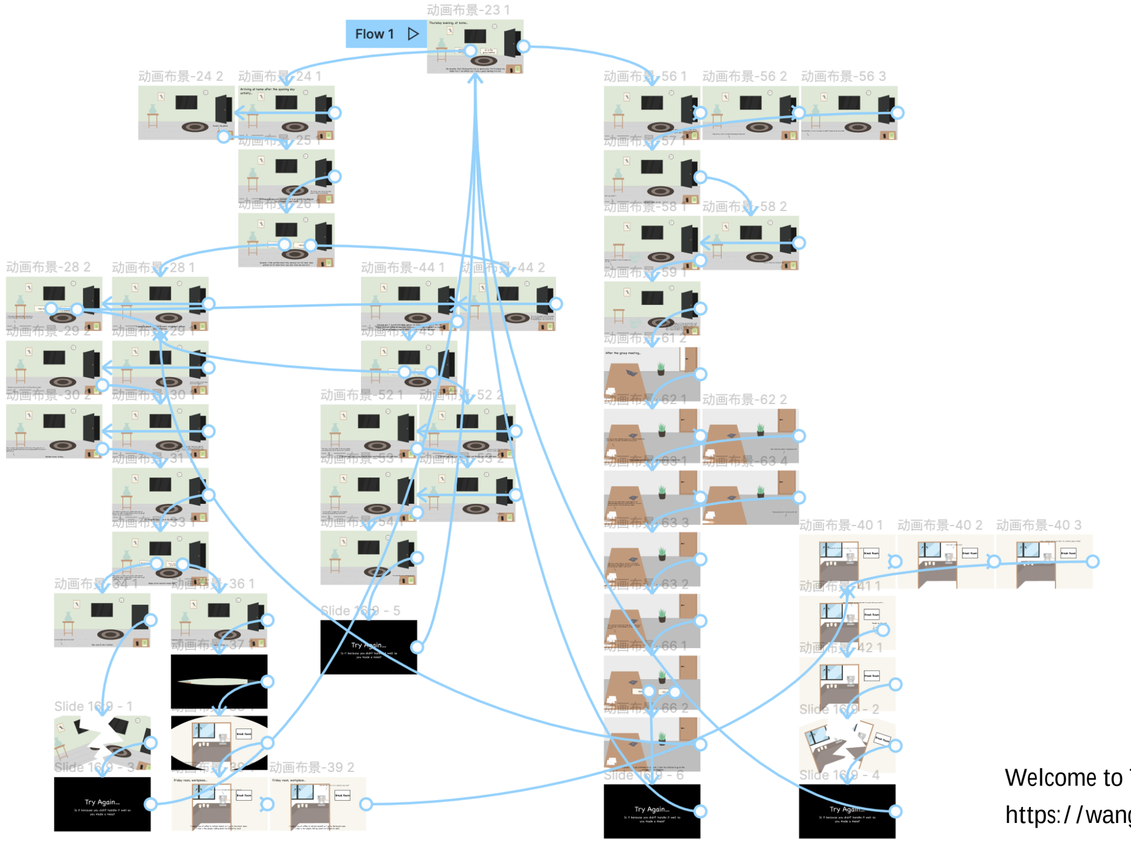
Following Action Command

Why the Interaction

Letting the players make choices for the main character (a working woman) and act for her will give them a sense of participation.

Game Flow





It is worth mentioning that, whatever choices the players make, they will find that they are put in a tight spot.
Whenever the players find themselves on a road that leads nowhere, they will be given another chance to start over. However, they will finally find that, it is the social environment, instead of their choices, that decides the unhappy ending, just like it is in real life.

Welcome to Try the Game:
https://wangnicetomeetyou.itch.io/no-choice