

DESIGN FOR THE BLIND AND VISUALLY IMPAIRED PEOPLE ON THE BUND

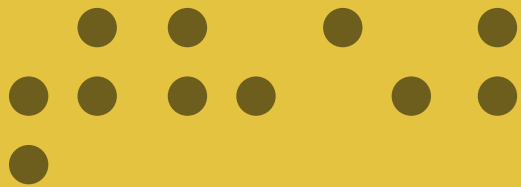
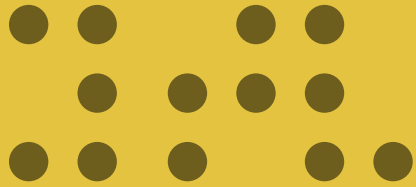


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Experience Design:
Interactions and Environments
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Executive Summary

Based on the design challenge given by Professor Kaja Buchanan, our group started a five-week project working on how to facilitate a more enriched experience for the blind and visually impaired people on the Bund. During the research process, we used the strategy of issue mapping to identify the issues and problem. We used the methods of phenomenological observation, semi-structure interview and role-play and we drew ideas from theories to develop the aspects of observations and interviews. We found the problem that there is a lack in both physical environment and devices for the blind and visually impaired people using touching to perceive information feel the Bund. After the problem statement was done, we generated a central idea of solving the problem based on John Dewey's theory of an Experience, and then developed it into a concept design named "Feel the Bund". Our project pays attention to the experience of the blind and visually impaired people. We hope our effort can call on more people to think and take blind and visually impaired people into consideration in the future environment planning, to help them better integrate back to society.

Design Challenge

Blind and visually impaired people have difficulty fully participating in social and cultural life. The challenge is how to help them make a transition back to society, so they can more fully enjoy life and have enriched experiences.

Purpose



To understand the experience of the blind and visually impaired people at the Bund, and to explore a way of facilitating a fulfilled experience for the blind and visually impaired people on the Bund.



History & Background



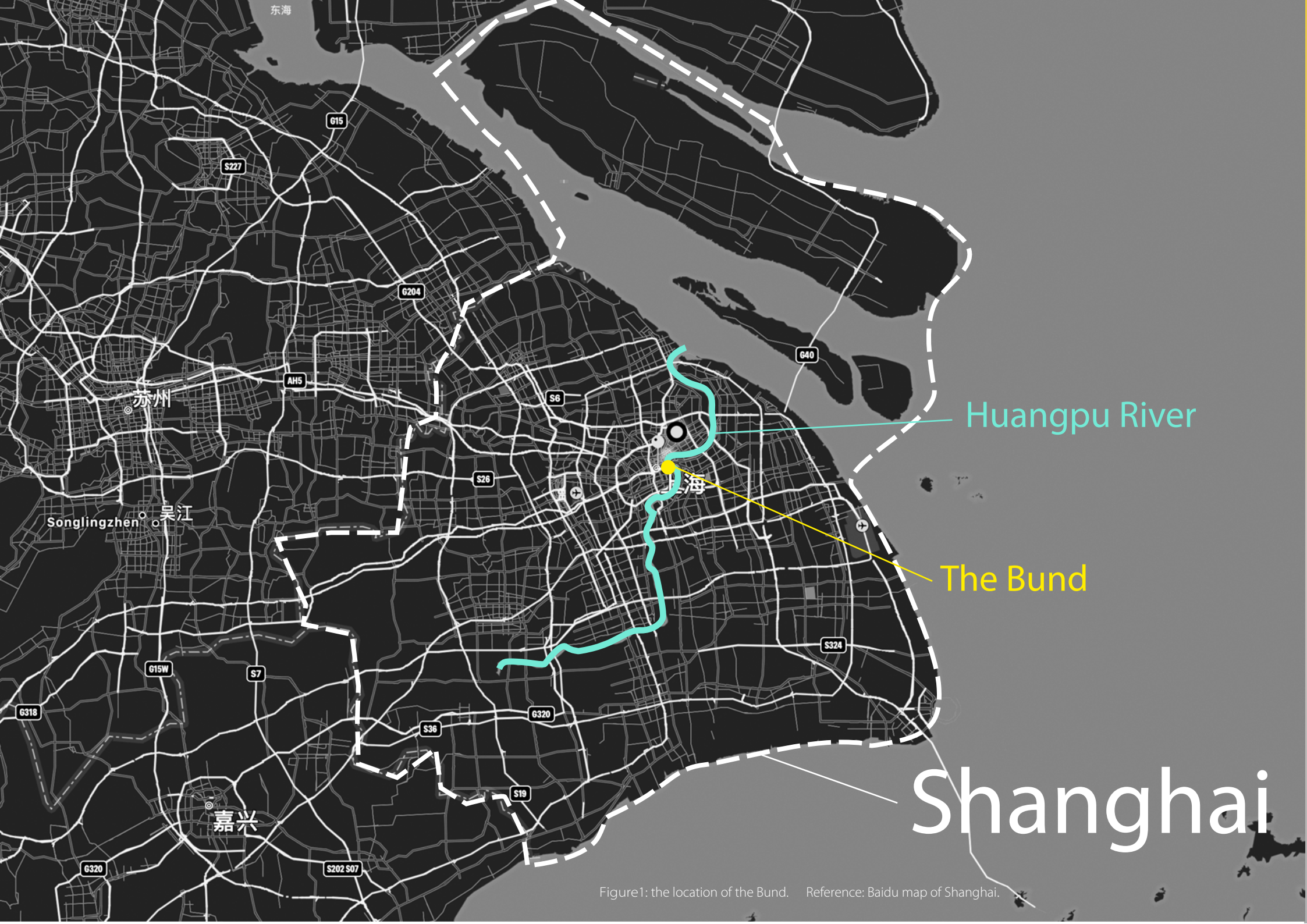
The Bund, also known as the Outer Huangpu Beach, is located on the bank of the Huangpu River in the center of Shanghai. Since 1844, this area has been designated as a British concession and it has become the starting point for the old Shanghai Concession Area.

The Bund is 1.5 kilometers long, stretching from Yan'an East Road in the south to the Waibaidu Bridge on the Suzhou River in the north, with the Huangpu River in the east, and the center of the old Shanghai financial and foreign trade agency in the west. Since 1943, the official road to the Bund has been named Zhongshan East First Road.



After Shanghai opened up commercial ports, foreign banks, businesses, general associations, and newspapers began to gather here. The Bund quickly became the financial center of the country. In August 1943, the Shanghai public concession was returned to Wang Jingwei's regime, and the Bund ended its hundred years of concession period.

Since opening commercial ports of Shanghai, the Bund has become a financial and trading center in Shanghai and even in China. It is also a portrayal of old Shanghai capitalism and has been regarded as a typically place of Shanghai's iconic architecture and city history for a long time. The Lujiazui is at the opposite of the river from the Bund, with the Shanghai landmarks Oriental Pearl, Jinmao Tower, Shanghai Center, Shanghai World Financial Center, etc, has become a symbol of China's reform and opening up and also a epitome of modernization in Shanghai.



Huangpu River

The Bund

Shanghai

Figure1: the location of the Bund. Reference: Baidu map of Shanghai.



Theory & Concepts

“Facial engagement”_Erving Goffman

“Having an Experience”_ John Dewey

“Dominant, Residual, Emergent”_Raymond Williams

Based on the literature reading, we visualized some enlightening theories concerning about “INTERACTION” and “EXPERIENCE”.

Then based on the theory from Raymond Williams, we developed our own concept map of “CULTURE” and “IDENTITY” of the Bund.

We make a definition about our user targets, the blindness.

Enlightening Theories

"Facial engagement", Erving Goffman

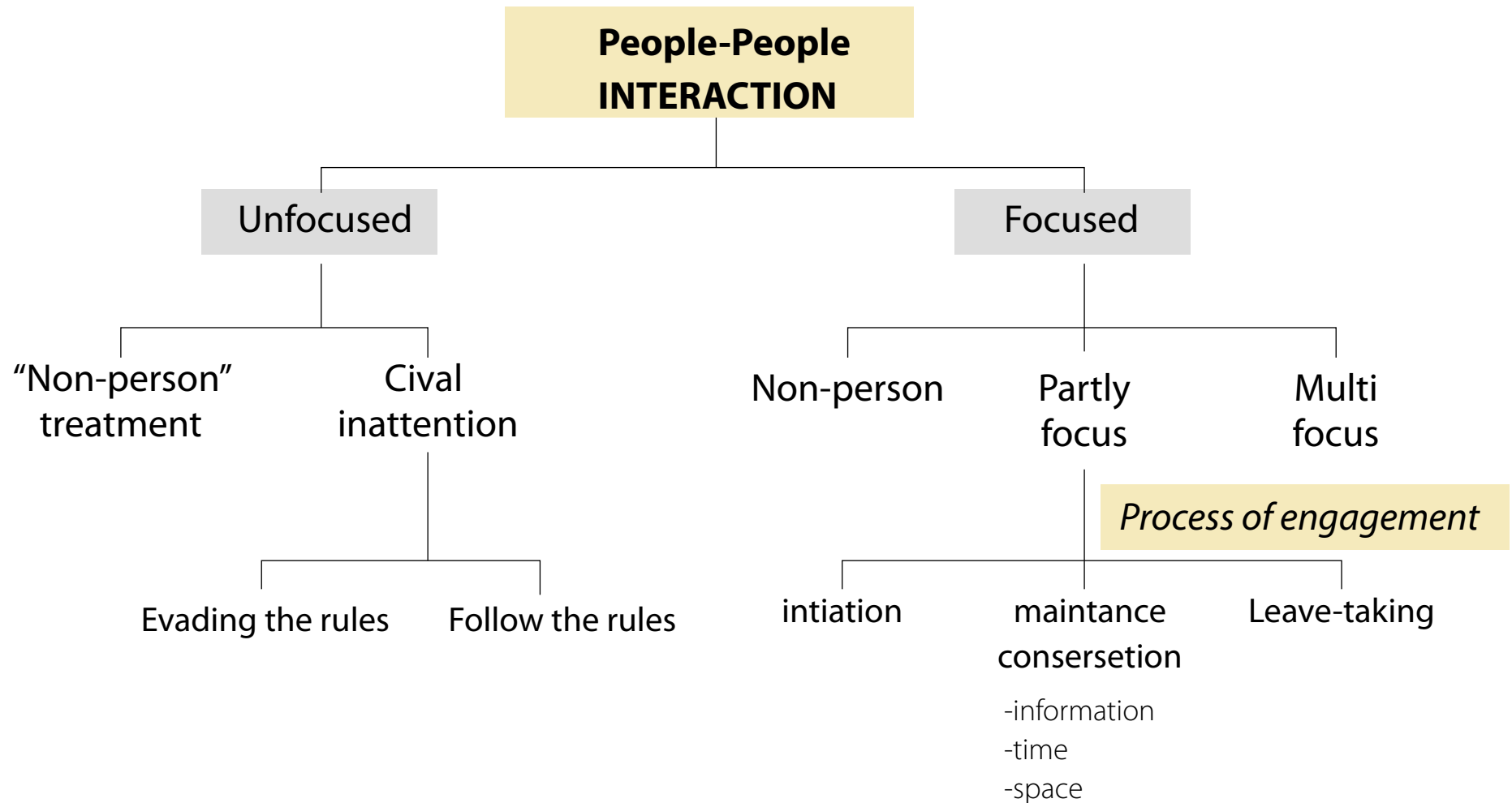


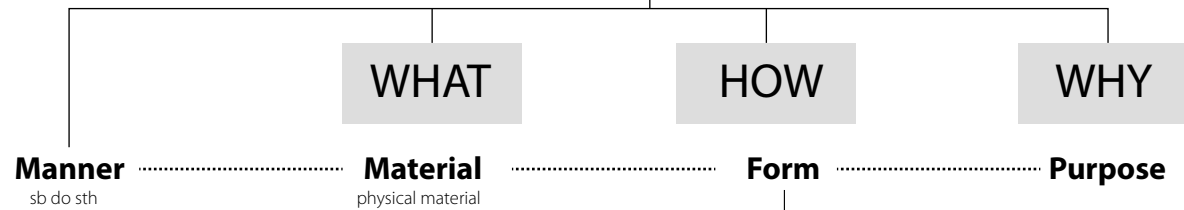
Figure2: Illustration of "Facial engagement" from theory of Erving Goffman. Reference: "Facial Engagement", Erving Goffman. Lecture recording from Kaja Tooming Buchanan

Enlightening Theories



"Having an Experience", John Dewey

four elements



Perspectives

- eg. artists create
- eg. audience reconstructive doing

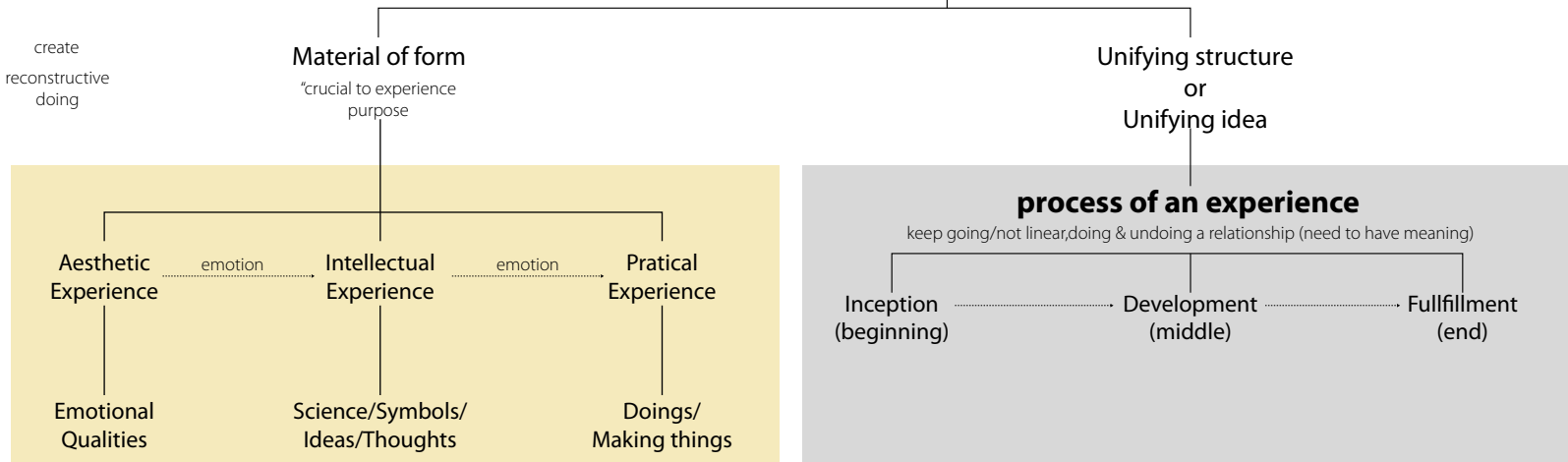
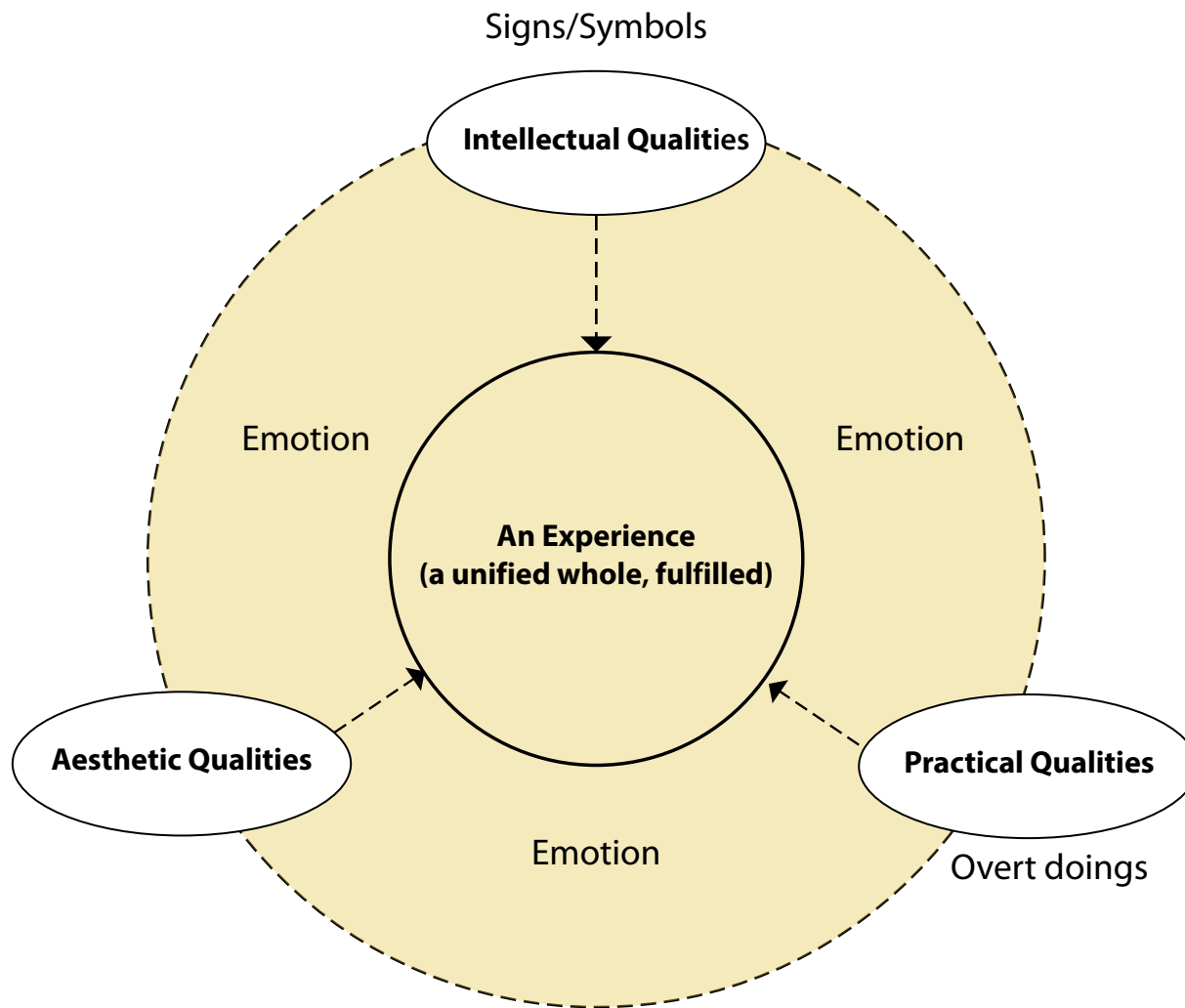


Figure3: Illustration of "having an experience" from theory of John Dewey. Reference: "Having an Experience", John Dewey. Lecture recording from Kaja Tooming Buchanan.

Enlightening Theories



Emotion integrates these elements into a unified whole.

An Experience

"Having an Experience", John Dewey
(3 elements in an Experience)

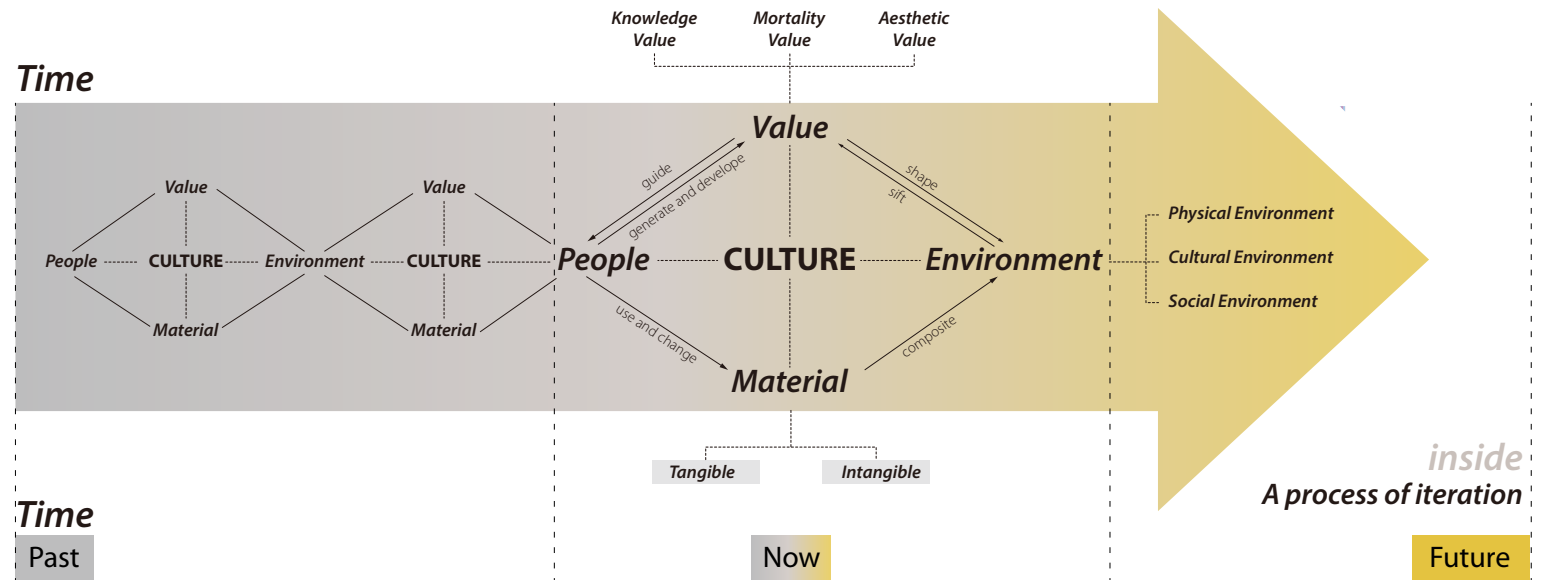


Concept Maps

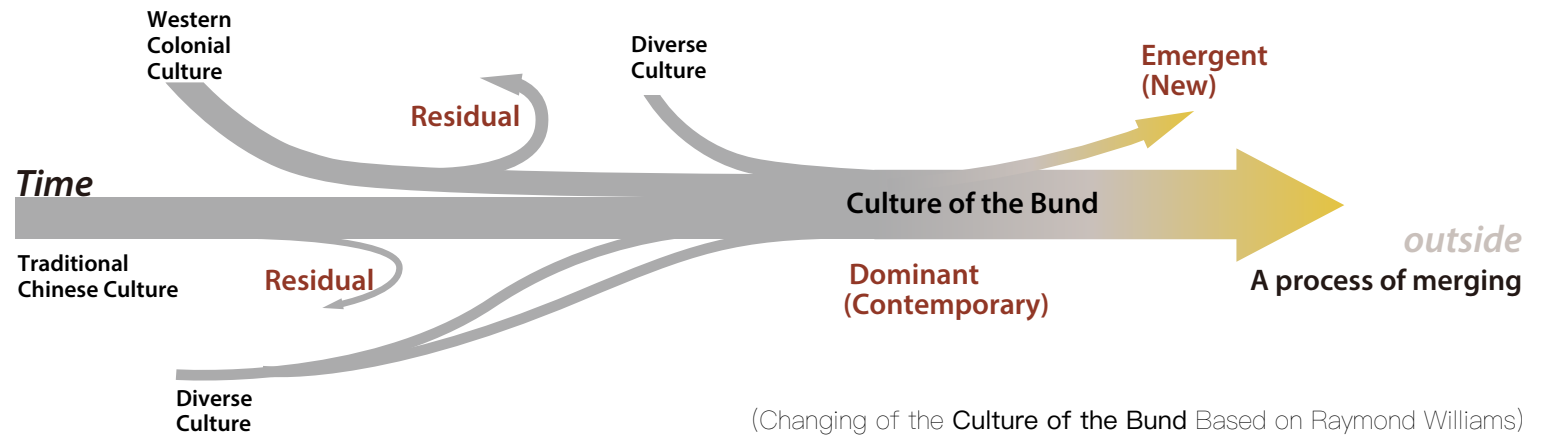
CULTURE

"The complexity of a **CULTURE** is to be found not only in its **variable processes** and their **social definitions - traditions, institutions, and formations** - but also in the **dynamic interrelations**, at every point in the process, of historically varied and variable elements. In what I called "epochal" analysis, a cultural process is seized as a cultural system, with determinate dominant features: feudal culture or bourgeois culture or a transition from one to the other."

- Raymond Williams
Marxism and Literature



CULTURE : is a complex and interactive system emerging with the origin of human being (**People**) - a dynamic trigger who use **material** and generate **value** to composite and shape the **environment**. In the **Existed Environment** (what place), **People** (who) are influenced by **dominate value** (what factors) sifted from **existed Environment** use **material** (what) to do things or activities to achieve the goals (**dominate or emerging value**). These things or activities together with the output (**material**) of them, in turn reshape the **value (emerging or back to residual)** and **environment**. Together with **TIME**, the culture undergoes a process of iteration inside itself with the influence from other culture.

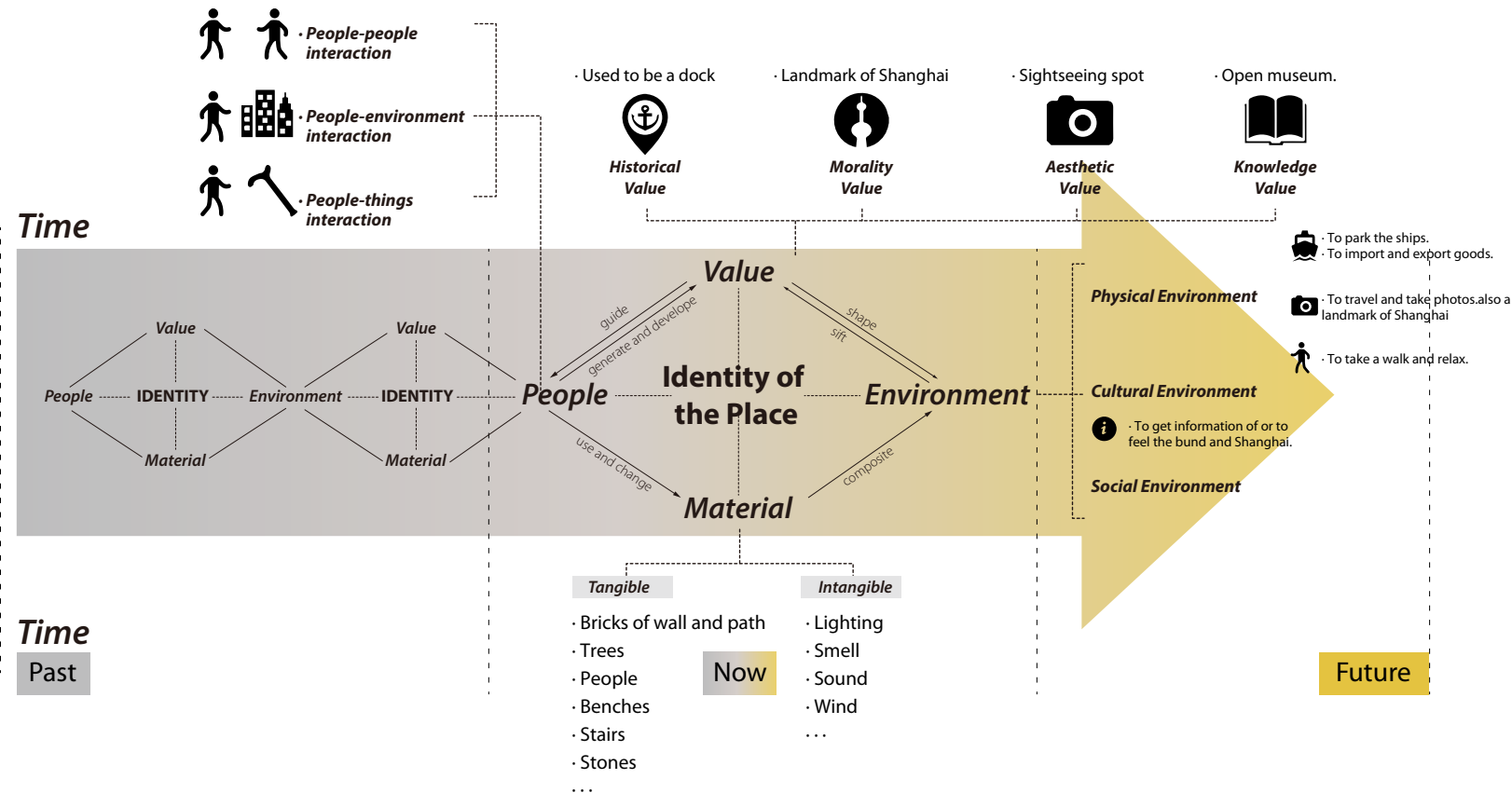


(Changing of the Culture of the Bund Based on Raymond Williams)

Figure5: Illustration of the concept map of "Culture".

Reference: "Marxism and Literature", Raymond Williams. Lecture recording from Kaja ToomingBuchanan.

IDENTITY



The word "identity" means two things (Jacobson Widding, 1983): sameness (continuity) and distinctiveness (uniqueness), and therefore the term "place identity" should incorporate both aspects. In the first meaning "identity" refers to the term "place" and means a set of place features that guarantee the place's distinctiveness and continuity in time.

Here is the most relevant entry for identity" in the OED (2nd edition, 1989): The sameness of a person or thing at all times or in all circumstances; the condition or fact that a person or thing is itself and not something else; individuality, personality."

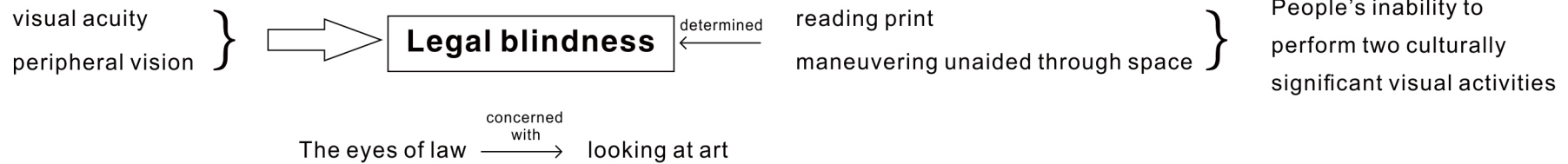
The identity of the Bund is socially constructed and historically contingent. It used to be a dock where the goods were imported and exported. Now it is a landmark and famous sightseeing spot in Shanghai, people often go there for taking photos and walking. In the future the Bund might become an open museum for people in it to get information about and feel the culture and history.

After understanding 3 kinds of interactions happened related to people on the Bund, we could get to know how the culture and the identity of the bund are felt by people right now.

Figure6: Illustration of the concept map of "Identity of the place" based on the Bund. Reference: "Marxism and Literature", Raymond Williams. Lecture recording from Kaja Tooming Buchanan.

BLINDNESS

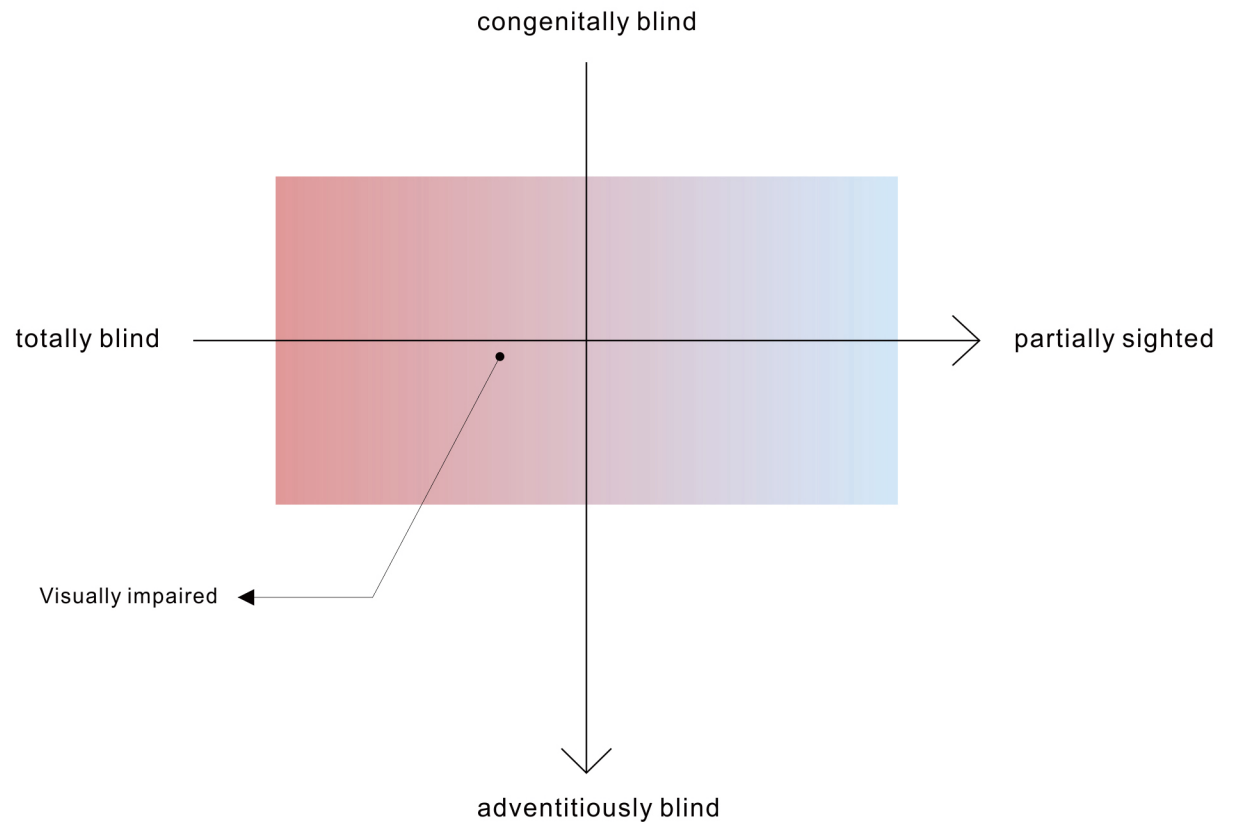
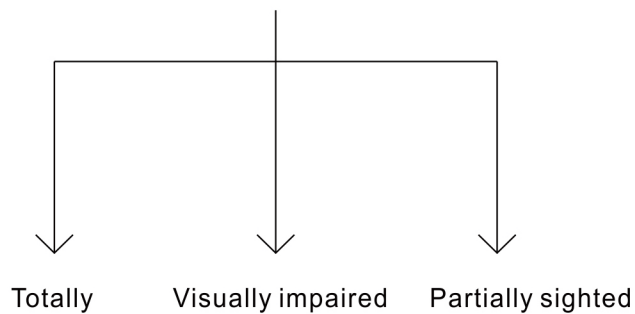
"It's worth noting the definition of legal blindness that turns on two specific facets of visual functioning—visual acuity and peripheral vision. In effect, blindness is determined according to the person's inability to perform two culturally significant visual activities—reading print and maneuvering unaided through space. The eyes of the law are not concerned with the person's ability to perceive color, light, or form, visual skills that might have more to do with looking at art."



△ clarification

- Totally, congenitally blind (who not only had no prior experience of art or history but also little or no knowledge of visual terminology)

- Adventitiously blind



(From Georgina Kleegle *More than meets the eye*)

Issue Mapping Definition:

"Issue Mapping is a strategy for an unfolding discovery process for the purpose of discovering problematic situations and places for issues that finally discloses the central problem based on evidence."

- Prof. Kaja Tooming Buchanan



Issue Mapping Strategy

GOAL

To discover the issues and the problem that hinder the blind and visually impaired people at the bund to achieve a fulfilled experience.

STRUCTURE OF ISSUE MAPPING

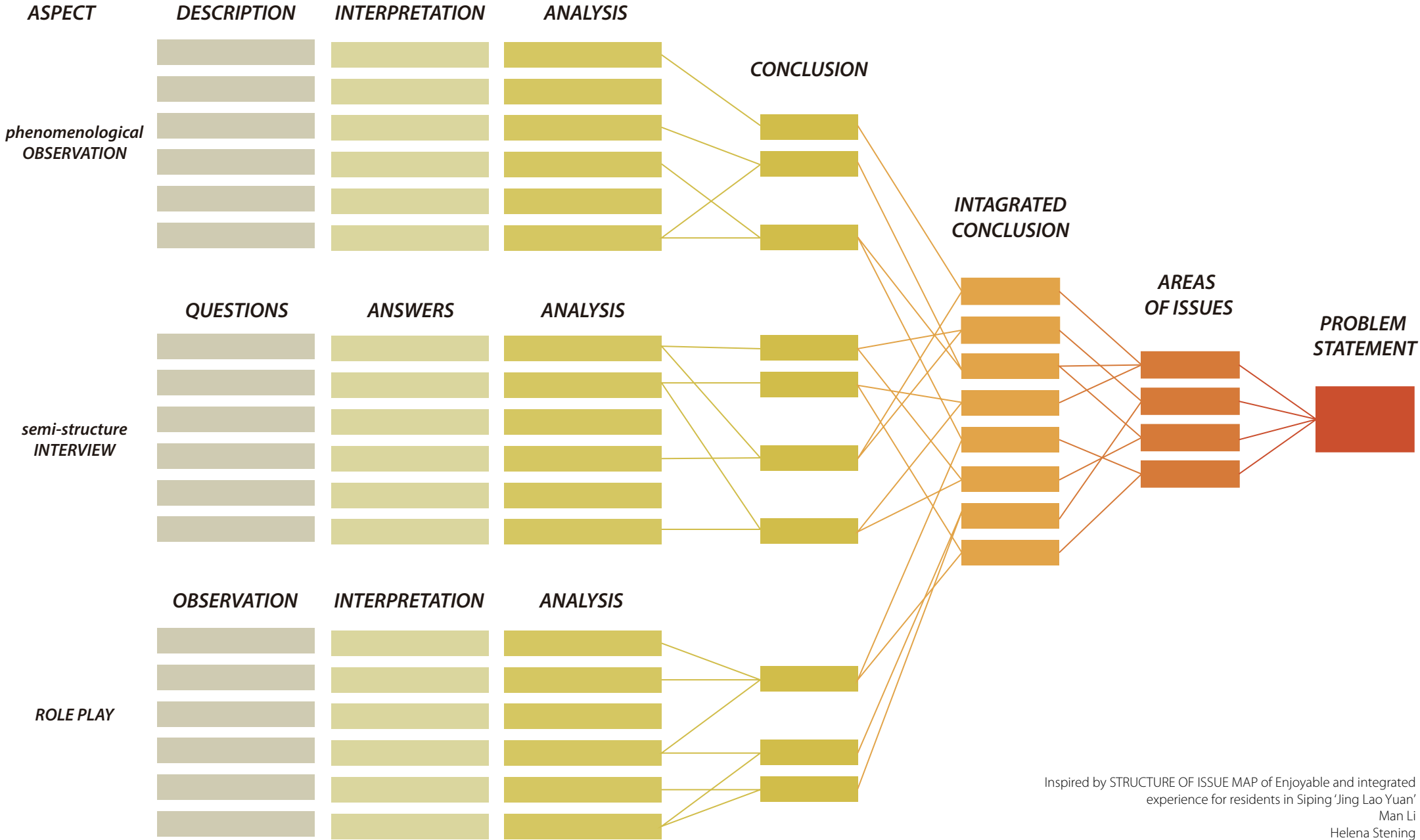


Figure7: illustration of the structure of issue mapping.

Inspired by STRUCTURE OF ISSUE MAP of Enjoyable and integrated experience for residents in Siping 'Jing Lao Yuan'
 Man Li
 Helena Stening
 Bingyi Yan
 Yuanxing Zhao



ISSUE MAPPING: THE BUND

Current purpose: To identify better environmental and cultural aspects of the Bund

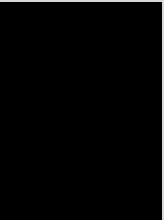
PHENOMENOLOGICAL OBSERVATION

GOAL: To gain better understanding of three different kinds of interaction in Bund especially the Bund in The Bund

	DESCRIPTION	INTERPRETATION	ANALYSIS	CONCLUSIONS
PEOPLE - PEOPLE INTERACTION				
PEOPLE - ENVIRONMENT INTERACTION				
PEOPLE - OBJECTS INTERACTION				



Image7: Process of issue mapping and identifying concepts about the Bund.



PHENOMENOLOGICAL OBSERVATION

To gain a better understanding of people's interactions concerning people-people, people-environment, people-things interactions happened on the Bund.



Image8: Professor Kaja Tooming Buchanan teaching observation on the Bund.

ASPECTS OF PHENOMENOLOGICAL OBSERVATION

Focusing on people's behaviours and daily activities in different physical environments.

Experience type

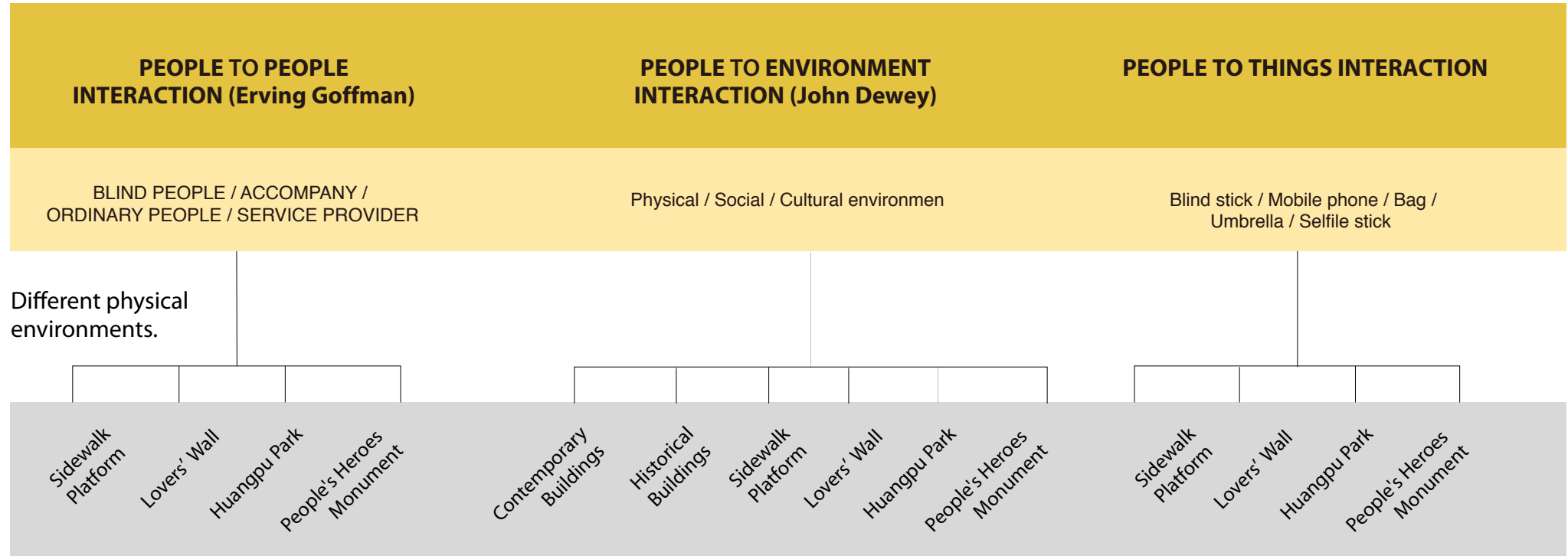


Figure8: illustration of aspects of phenomenological observation inspired by theories of John Dewey (Having an Experience) and Erving Goffman (Facial Engagements).

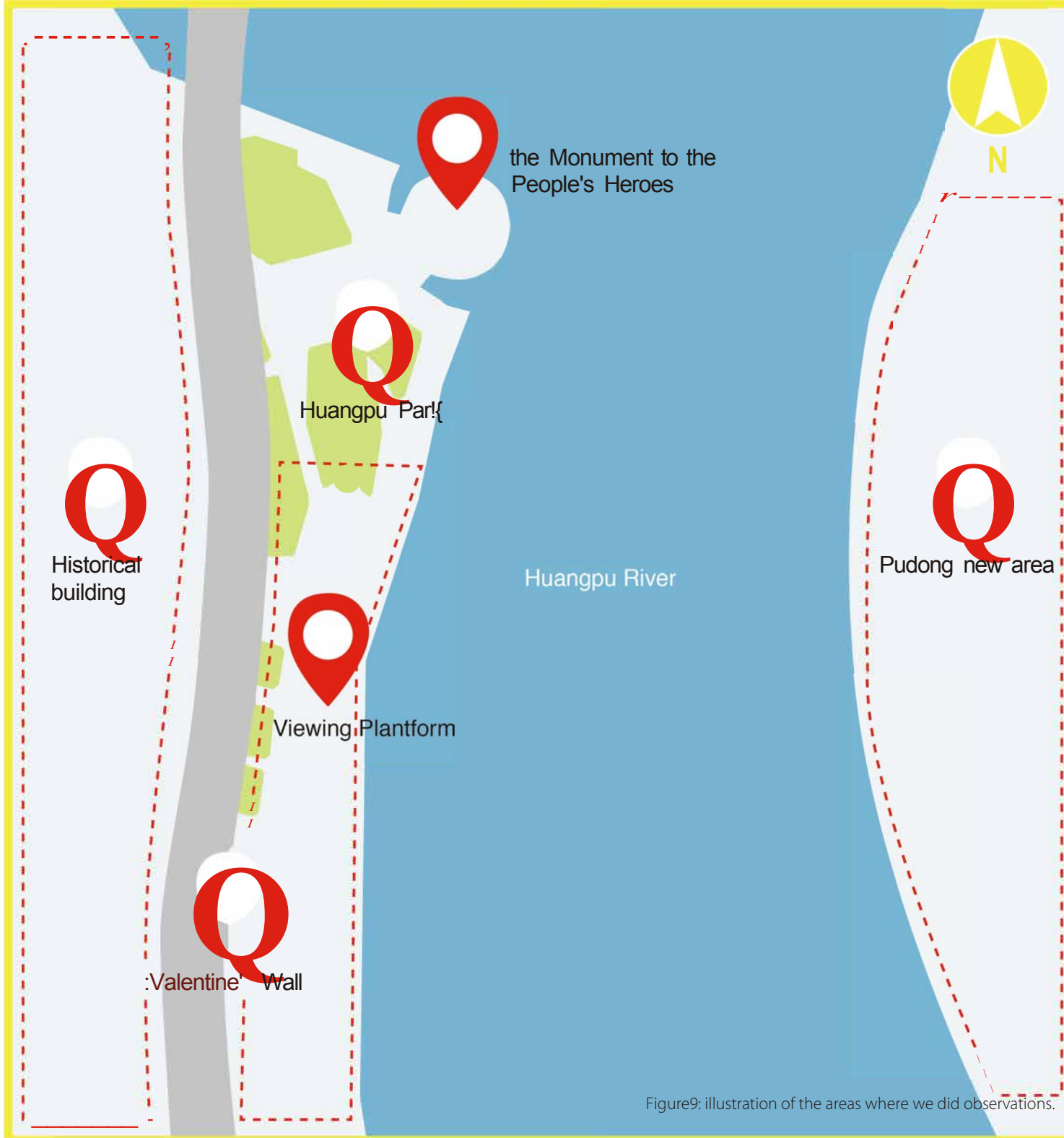


Figure9: illustration of the areas where we did observations.



SEMI-STRUCTURE INTERVIEW

Try to understand the blind and visually impaired people and know more about their “real” experiences, thoughts and emotions.

INTERVIEW TARGETS

VISON IMPIRED PEOPLE

MR. CAO				
Basic Information	Daily and Weekly Activities	The Bund	Motivation	Comments
-Name:	- Do you have any children? / Describe your current family situation:			
-Gender:	- How long have you lived in Shanghai?			
-What is your age?	- Are you congenital invisible? Or when did you start to be invisible?			
-Career:	- Do you usually go out regularly?			
-Local or a stranger?	- How often do you go outside?			
	- So which experience do you think you are most impressed with during your visit?			
	- What do you feel about the architectural landscape of the Strait?			
	- Is it convenient to visit the Bund? What do you think needs improvement?			
	- Why did you choose to go to the Bund?			
	- How will you commemorate each visit?			
	- Where do you like on the Bund?			
	- What do you like most about the Bund?			

VISITOR

MISS. SUN				MR. GUO		
Basic information	Visit purpose	About the blind	About culture	Basic information	Activities	Thinking
MISS. WU						
Basic information	Activities	Thinking				

- What is your purpose of visiting the bund?
- Why would you want to come to the Bund to do this?
- When were you arriving at the Bund?
- Have you seen people with disabilities in the Bund, such as in wheelchairs, crutches, etc.
- Have you seen blind people on the Bund?
- Have you ever noticed disabled people here?
- Do you feel that the Bund has a cultural atmosphere?
- Which side do you like to take photos more?
- When do you think is the best time to take photos of the bund?
- How do you think of the bund?
- Which side do you think can represent Shanghai more?
- Do you feel something about culture in the bund?
- Did you ever notice the words and the information about history on the rocks that on this side of the bund?

MANAGER

MR. LI		MR. LIU	
Basic information	Daily work	Basic information	Daily work

- What time is the most people here?
- Is there a barrier-free passage if we want people with mobility problems to visit here?
- Is there any infrastructure for the blind on the Bund side, such as blind roads?
- Why did you not do any barrier-free measures?
- Why is it that there is no observatory?
- Is there always someone looking for help?
- In general, what kind of help are people looking for from you?
- What special things have happened in peacetime?



Image9: Process of the interviews.



Role-play

GOAL

To simulate the tour of the blind and visually impaired people on the Bund to understand their "real" experience and feel their emotion.



Image10: Chen Li, doing the role-play experiment on the Bund

BASIC INFORMATION

- **Experiment Time:** • May 9, 2018, 16:00-17:00 & 19:00-20:00
- **Experiment Location:** • The Bund

• **Experiment Subject:**



- Chen Li, female, 24 years old, 163cm height, medium myopia.

• **Experiment Observer:**



- Ran Xun, female, 23 years old



- Ying Liu, female 22 years old

• **Experiment Procedure:**

- 1.Thick Cloth Blindfold + No Auxiliary
- 2.Thick Cloth Blindfold + Walking Stick
- 3.Thick Cloth Blindfold + Companion Assistance
- 4.Thin Cloth Blindfold (light sensitive) + No Auxiliary
- 5.Thin Cloth Blindfold (photosensitive) + Walking Stick
- 6.Thin Cloth Blindfold (light sensitive) + Companion Assistance

• **Experiment Route:**

North-east exit of Huangpu Park (under the stairs)



Heroes Monument



The Bund Pedestrian Road



Edge of the Bund Railing



Heroes Monument

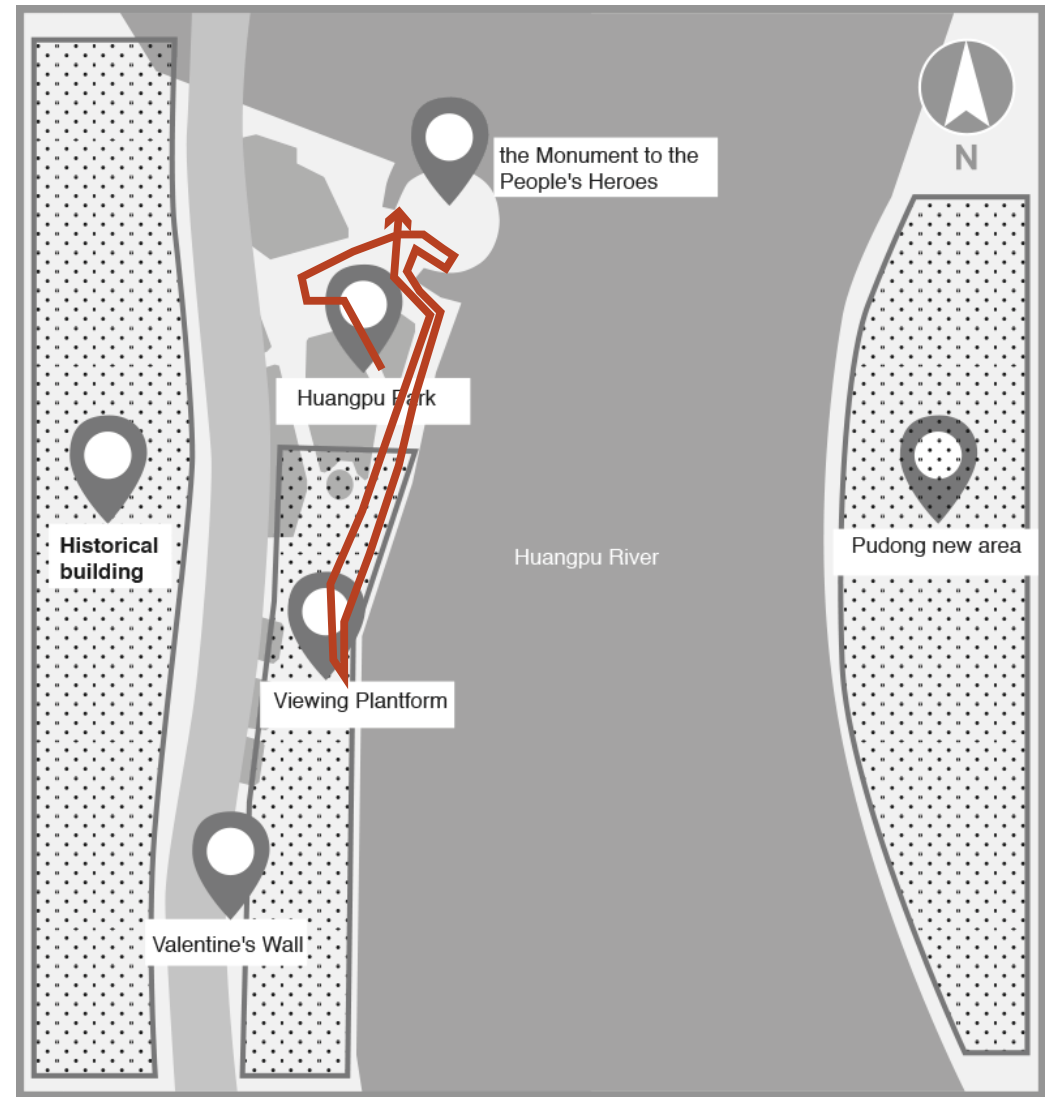


Figure10: Illustration of the routes of the role-play on the Bund.

Role-Play Process



Figure 11: Illustration of the time schedule and the activities of the role-play.

Structure of Role-play

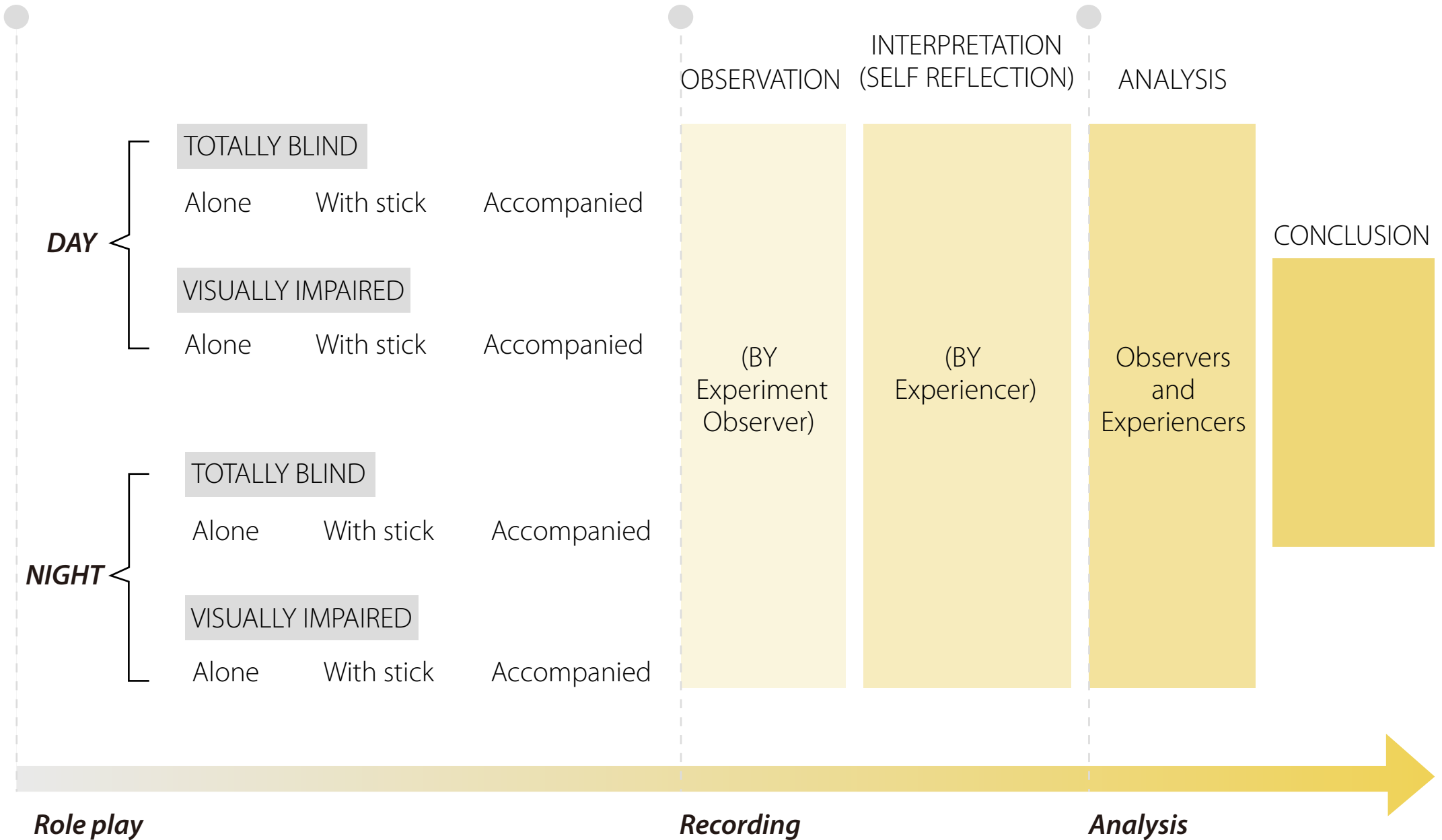


Figure12: Illustration of the process of doing and analyzing role-play.

PROCESS



PROCESS





Image13: Initial issue mapping discussion

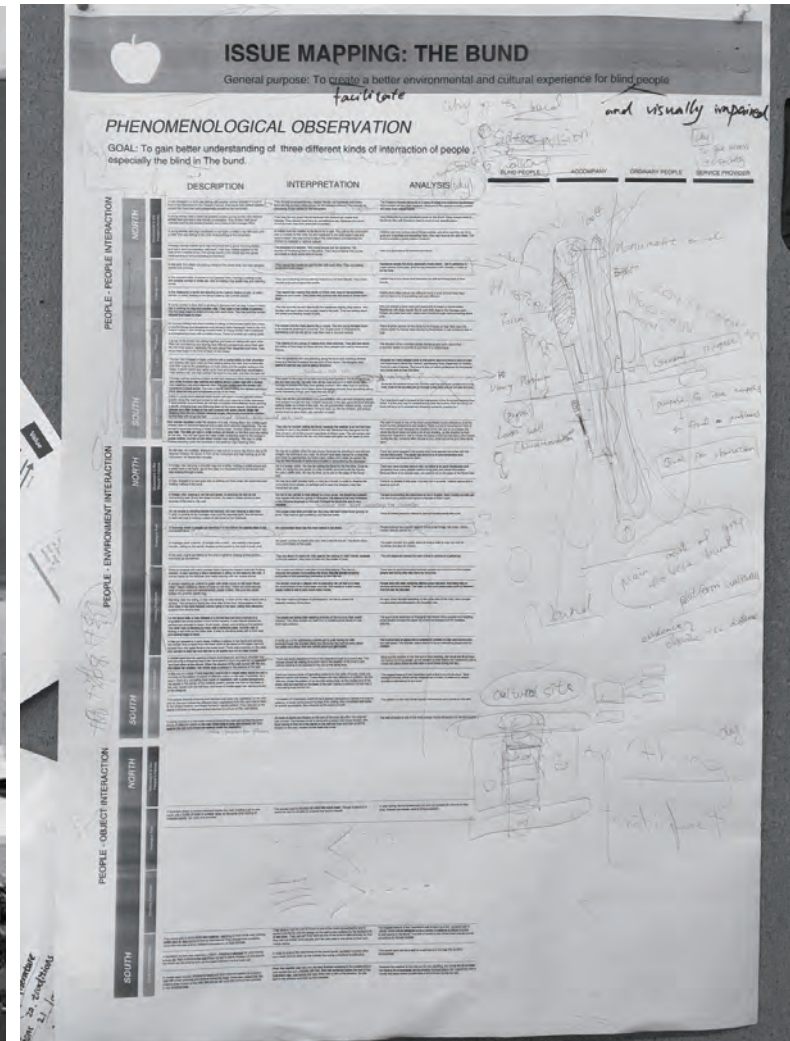


Image14: Initial issue mapping



Image15: Process of issue mapping



Image16: Process of issue mapping



Areas of Issues

According to the analysis and summary, we sort out five major areas of issues

AREA OF ISSUE 1

Physical environment not friendly to the blind and visually impaired people.

The current environment of the bund is not friendly to the blind and visually impaired people. For instance, there is no blind road on the platform of the Bund. Also, the information about the surroundings is written in visual forms making the blind and visually impaired people having no access to the information.

AREA OF ISSUE 2

Lack of useful devices to help the blind and visually impaired people having access to information and communication.

The blind or visually impaired people would often use things like sticks or earphones to help them to walk and location. Still there lacks more useful devices to help the blind and visually impaired people to have a more fulfilled experience and to communicate with other people on the Bund.

AREA OF ISSUE 3

Lack of empathy from people without disability to the blind and visually impaired people.

There is a lack of empathy from the people without disability, making the blind and visually impaired people difficult to have enjoyable experiences and enriched social interactions on the Bund. The blind and visually impaired people need people to accompany and to talk to them so they can have the access to information about the place and location.

AREA OF ISSUE 4

Lack of approach for the blind and visually impaired people to record their experiences.

Unlike the people without disability use photos and videos to record their experiences, there lacks a strong technique for the blind and visually impaired people to record their full experiences.

AREA OF ISSUE 5

Lack of approach for the blind and visually impaired people to use to seek for help.

The needs and goals of the blind and visually impaired people's are not satisfied and accomplished on the Bund. When they want to seek for help, it is hard for them to ask the strangers passing by directly, also there lacks tools that they can use for help.

AREAS OF ISSUES

1. Physical environment not friendly to the blind and visually impaired people.

2. Lack of useful devices to help the blind and visually impaired people having access to information and communication.

3. Lack of empathy from people without disability to the blind and visually impaired people.

4. Lack of approach for the blind and visually impaired people to record their experiences.

5. Lack of approach for the blind and visually impaired people to use to seek for help.

PROBLEM STATEMENT

The blind and visually impaired people do not receive enough attention from the others without disability, causing a lack of facilities considering the blind and visually impaired people in the physical environment such as blind roads. This lack of facilities not only makes it difficult for the blind and visually impaired people to walk on the Bund, but also prevents the blind and visually impaired people from perceiving the environmental and cultural information of the Bund.

PROBLEM STATEMENT

The blind and visually impaired people do not receive enough attention from the others without disability, causing a lack of facilities considering the blind and visually impaired people in the physical environment such as blind roads. This lack of facilities not only makes it difficult for the blind and visually impaired people to walk on the Bund, but also prevents the blind and visually impaired people from perceiving the environmental and cultural information of the Bund.

CENTRAL IDEA

Involving more touching in the actions of the blind and visually impaired people on the Bund, to help them to be able to feel the surroundings, and in doing so, more emotions and intellectual process will be added in, to make the experience of the blind and visually impaired people on the Bund more fulfilled.

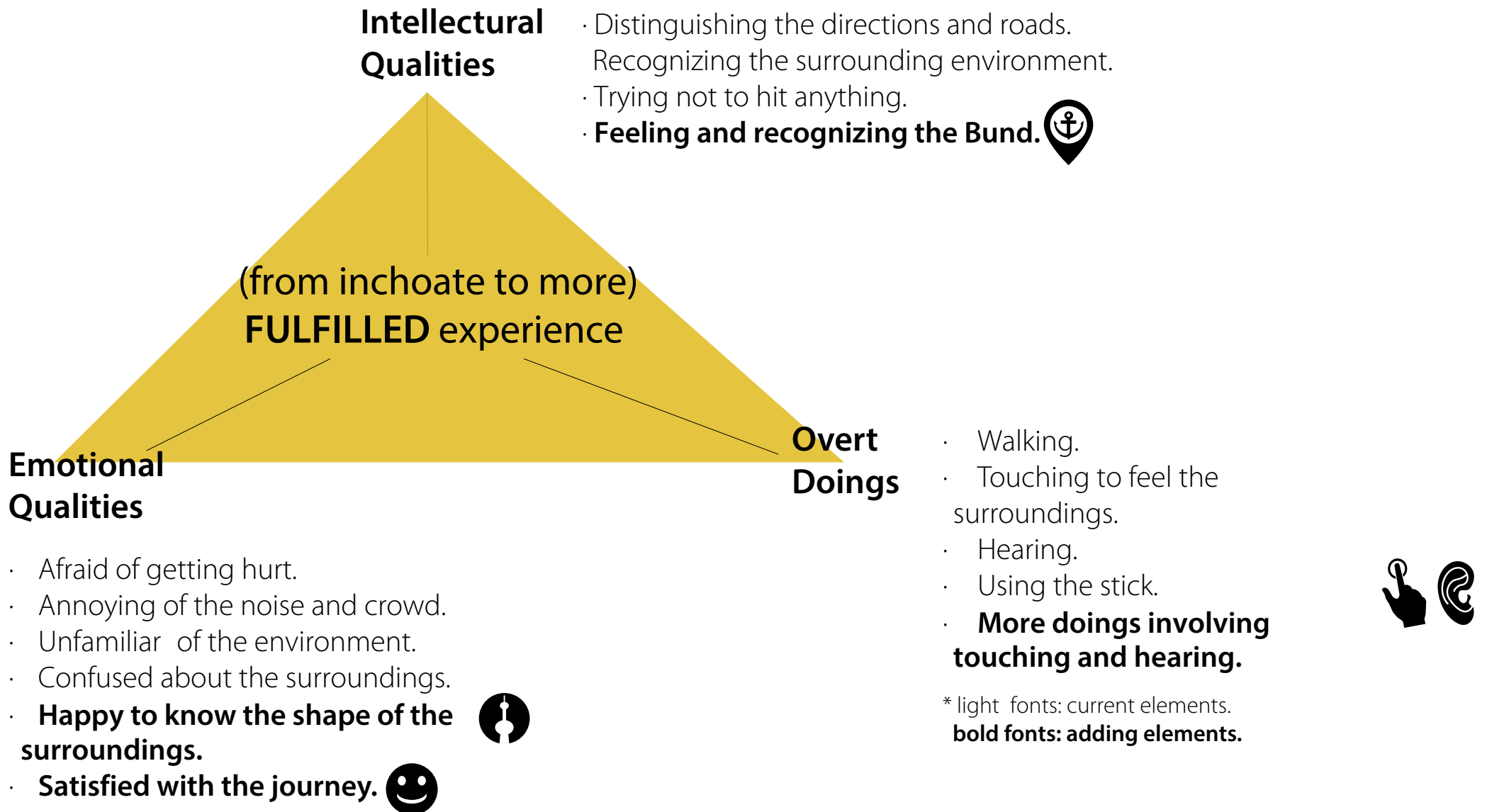


Figure13: Illustration of the structure of the central idea. Reference: "Having an Experience", John Dewey.

Initial Ideas

***Enhance their perception of the environment
& Ensure the effective transmission of culture***

feel the landscape shape with touch.
(making miniature models, etc.)

Personalized customization of the blind line
(navigation or contact between blind roads)



Comprehensive feasibility and demand, we chose to continue design in this direction

Provide convenient and safe tour services

Using of the same online service, then you can learn the existence and contact of the same kind of users, the blind can communicate, make friends widely, and reduce the feeling of loneliness.

Asking for help from the the Bund service center through the online platform.

Record the journey and experience.

Collecting different types of perceptual data (sound, scene, wind, light, temperature, humidity) through different attractions.

Reproducing the data of journey (in a more realistic way, share between blind people)

USER PROFILES

Primary

The Totally Blind
(Adventitiously)

-Age: 25-45 years

-Nationality:China

-Identity: **Outlander.**

(People from other cities of China.except Shanghai)

-The motives for coming to the Bund : **travelling**

(This information is drawn from the observations in the Bund about 6 hours.)

-Time for a general visit to the Bund : **2-3hours**

(Data obtained from the activity of visiting the Bund organized by the Shanghai Blind Association, The number of blind people is about 96)

-A general approach to the Bund: **accompanied by relatives(eg.friends,family,lover or Professional guide)**

-Average Income: **4000-5000RMB per-month**

(According to the relevant laws and standard of The law on the protection of the disabled in the People's Republic of China ,this income includes the national subsidy and their average wage.)

-occupation:**Most of them are masseuses,some are fortune tellers and unemployed.**

(Because most of the blind people in China are engaged in massage and divination services.This is a common sense in China.)

Secondary

The severe visual impairment
people (Adventitiously)

-Age: 15-20years

-Nationality:China

-Identity: **Shanghai locals**

-The motives for coming to the Bund: **travelling, Practice learning of the Bund**

(This information is drawn from the observations in the Bund about 8 hours.)

-A general approach to the Bund: **use auxiliary tools (eg.guide stick) or accompanied by relatives(eg.friends,-family or Professional guide)**

-National subsidy : **2000RMB per-month**

(According to the relevant laws and standard of The law on the protection of the disabled in the People's Republic of China and Service standards of relief agencies for disabled children)

-occupation: **Students in the blind school (mainly),also include some students in the ordinary school.**

Tertiary

The Myopia or far-sightedness
people (Adventitiously)

-Age: 50-75 years

-Nationality:China

-Identity: **Shanghai locals**

-The motives for coming to the Bund: **passing, doing exercise or travelling**

(This information is drawn from the observations in the Bund about 8 hours.)

-A general approach to the Bund: **using a cane or walking with the glasses.**

(This information is drawn from the observations in the Bund about 8 hours.)

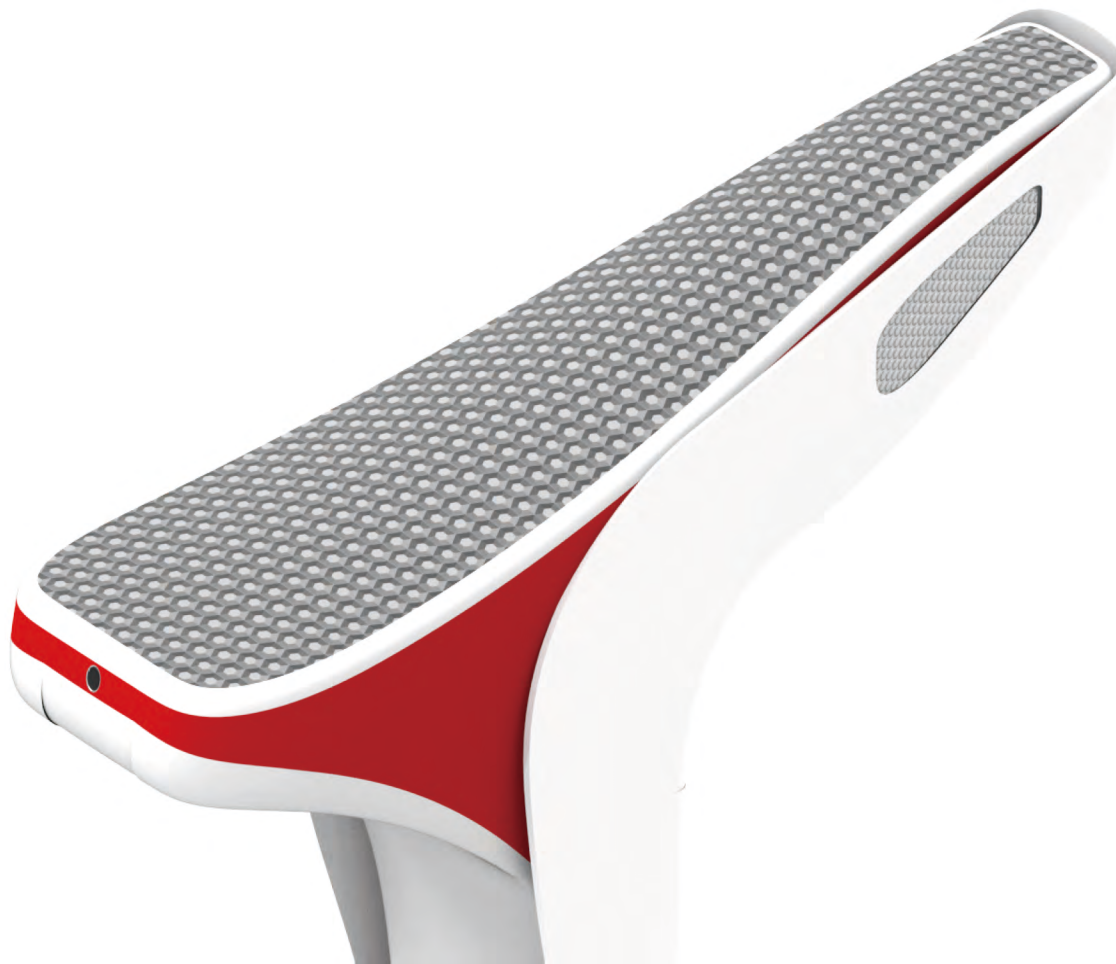
-National subsidy: **850RMB per-month at least**

(according to the standard of Shanghai Bureau of human resources and social security)

-occupation: **retirees**

Feel the Bund

— Intelligent Guide Assistant for the blind



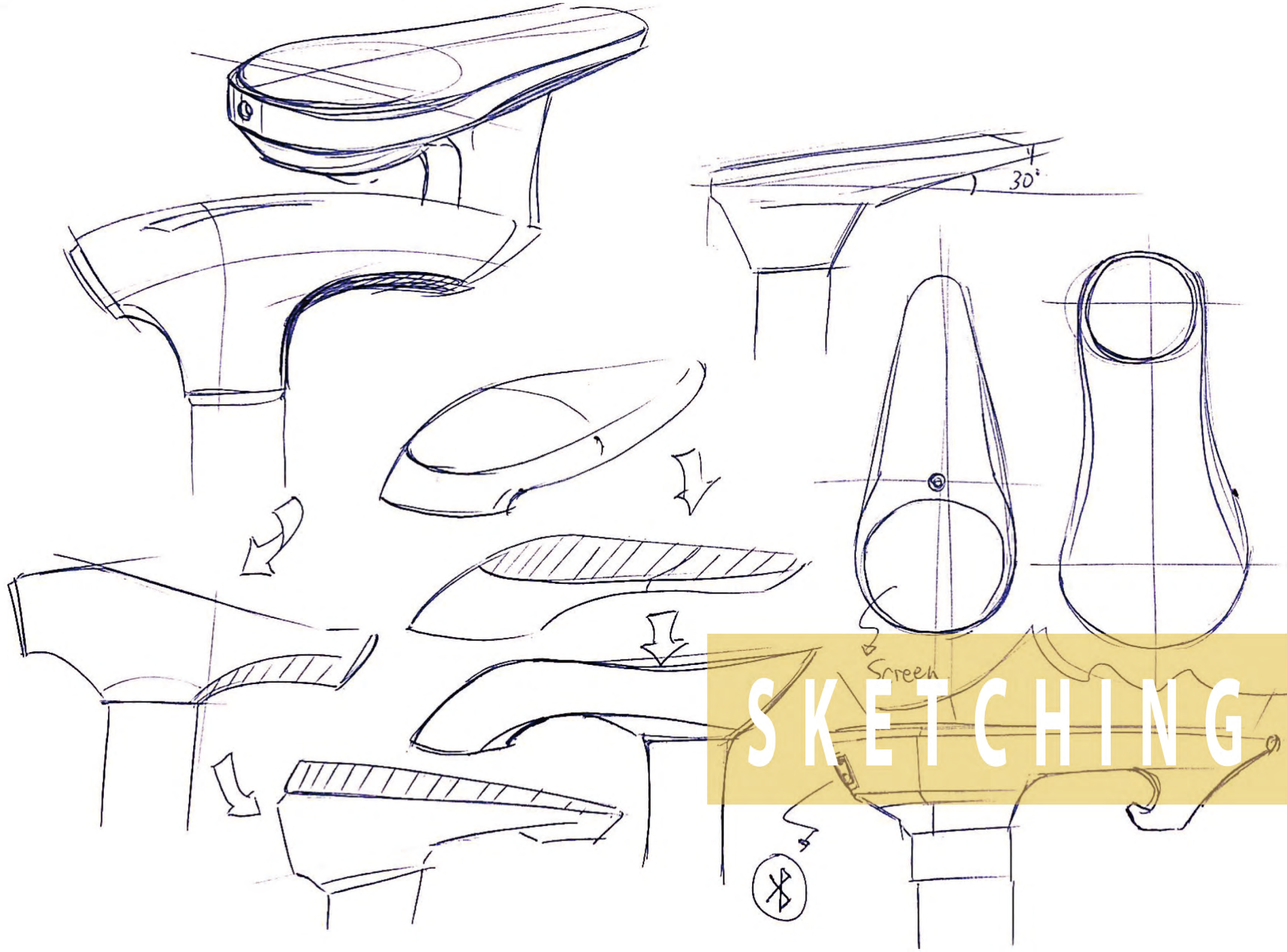
Conceptual Product Design

GOAL

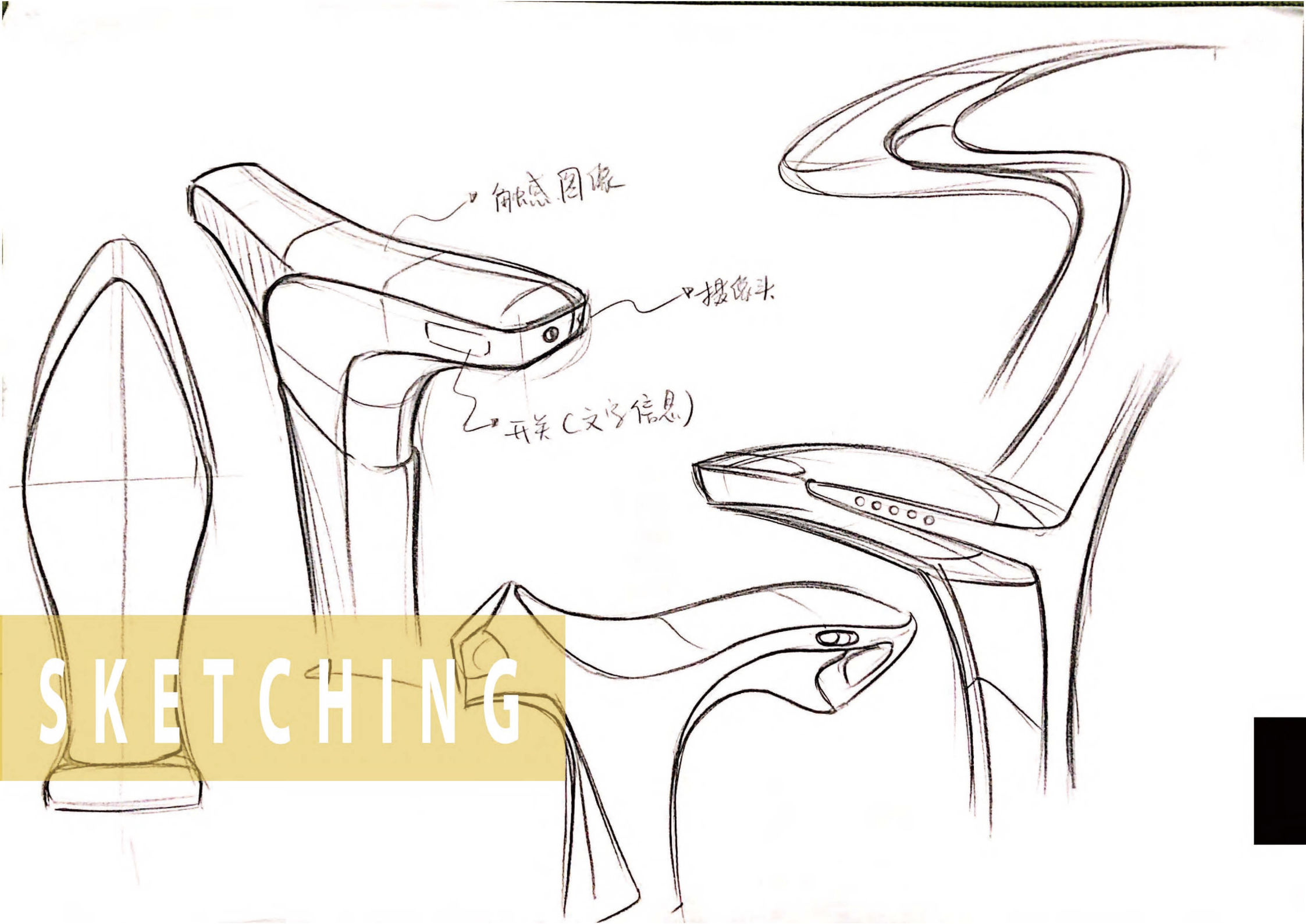
The purpose of this product is to help blind people integrate into the society, and to feel the scenery and culture of the Bund as well as normal people.



Figure14: picture of the appearance of the product.



SKETCHING



SKETCHING



Issue1 :Physical environment not friendly to the blind and visually impaired people.

Using new materials to transform the collected image information into a touchable model in time.

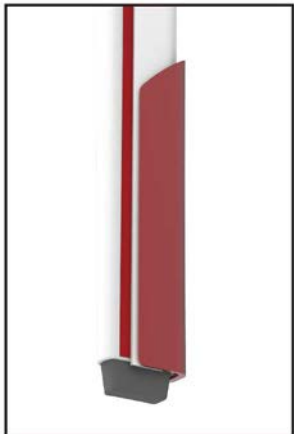


Camera : --
collecting image information

Issue4: Lack of approach for the blind and visually impaired people to record their experiences.

Synchro Braille
introduction
of Bund

Issue2: Lack of useful devices to help the blind and visually impaired people having access to information and communication



The length regulator
of the blind rod

Issue1: Physical environment not friendly to the blind and visually impaired people.

Contact point of Guiding

Design Description

This product enables the blind to appreciate the architectural landscape of the Bund by touching the miniature model when they walk along the Bund. The front camera can collect and analyze the image information, and then the product will transform the collected dynamic image information into a physical model for the blind to touch. The side touch surface will provide the corresponding Braille introduction based on the displayed model.

Figure15: picture of the function description of the product.

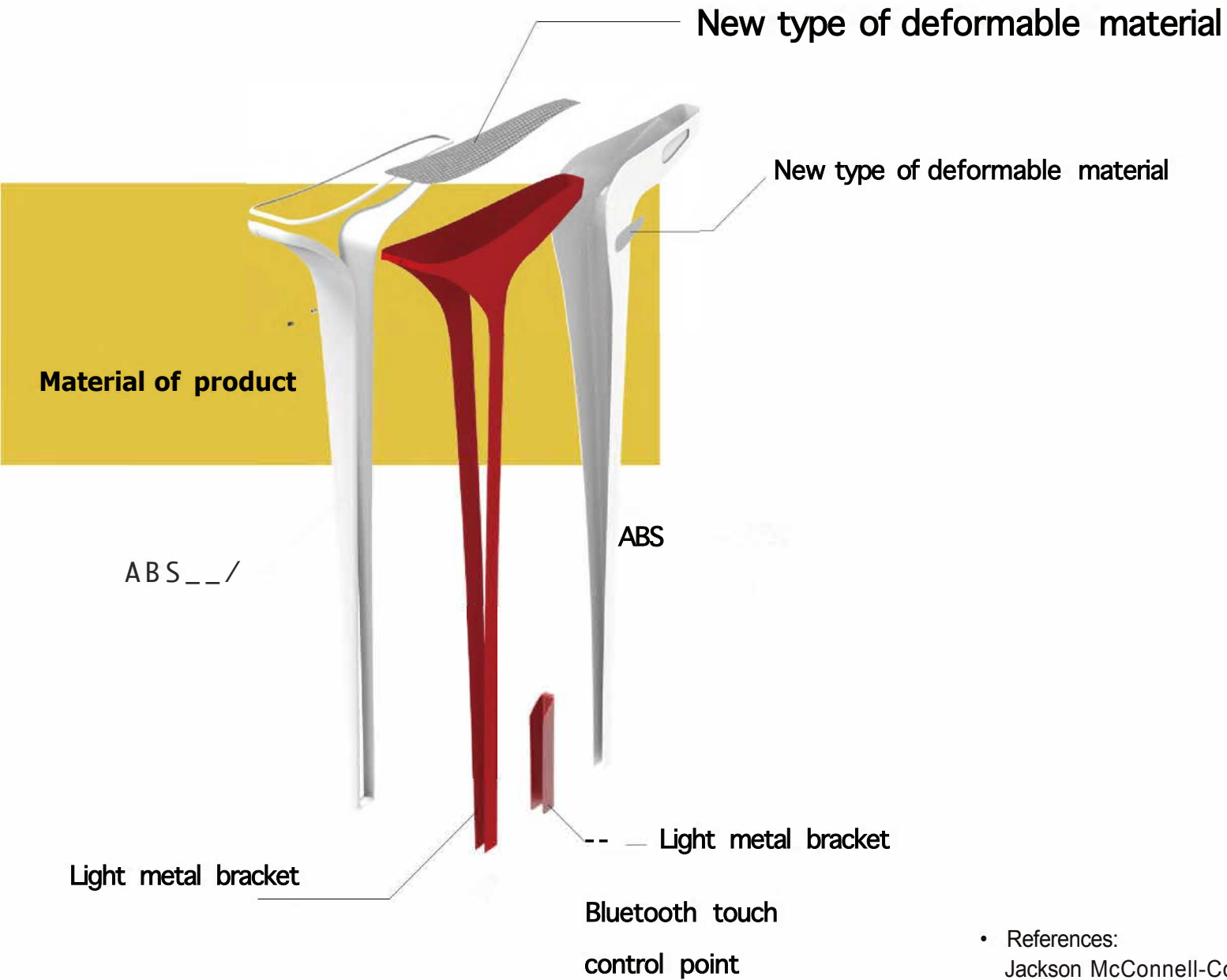


Figure16: picture of the material description of the product.



Can music be touched ?
 Yes, The designer Jackson McConnell made this type of speaker which can show waveform especially for hearing-impaired people to help them enjoy music in a particular way.



- References:
 Jackson McConnell-Concept acoustics
 Wu Guanghao-Light stich

Figure: From <http://www.go-gddq.com/html/s735/2012-05/1003148.htm>



Figure17: picture of the situation of using the product.



Blind Care stick



Visual effects in the environment



Sensor and trigger point

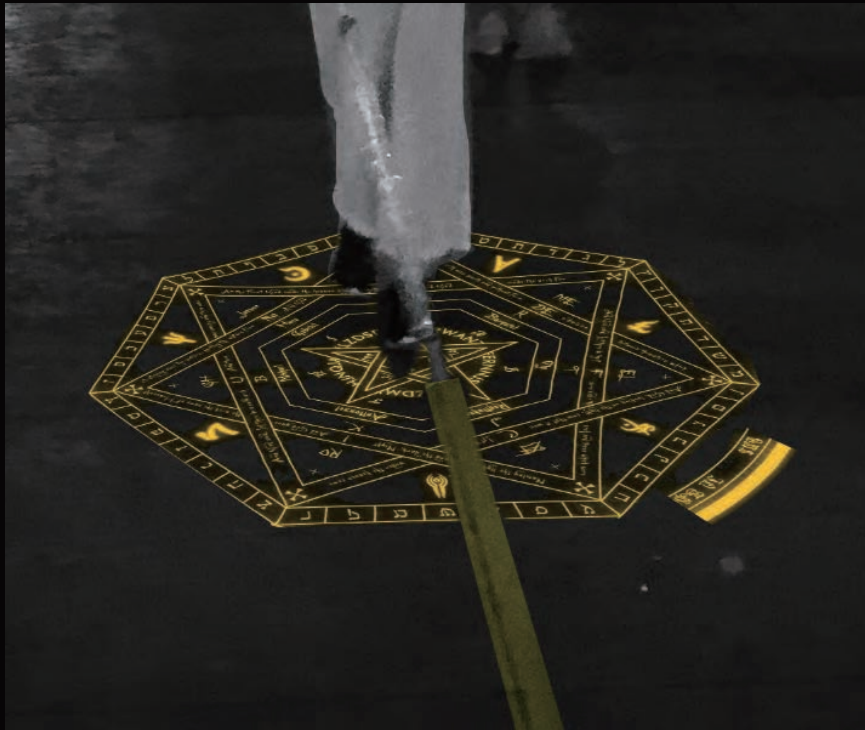


Special material pavement guide



Figure18: Concept rendering 1

● security



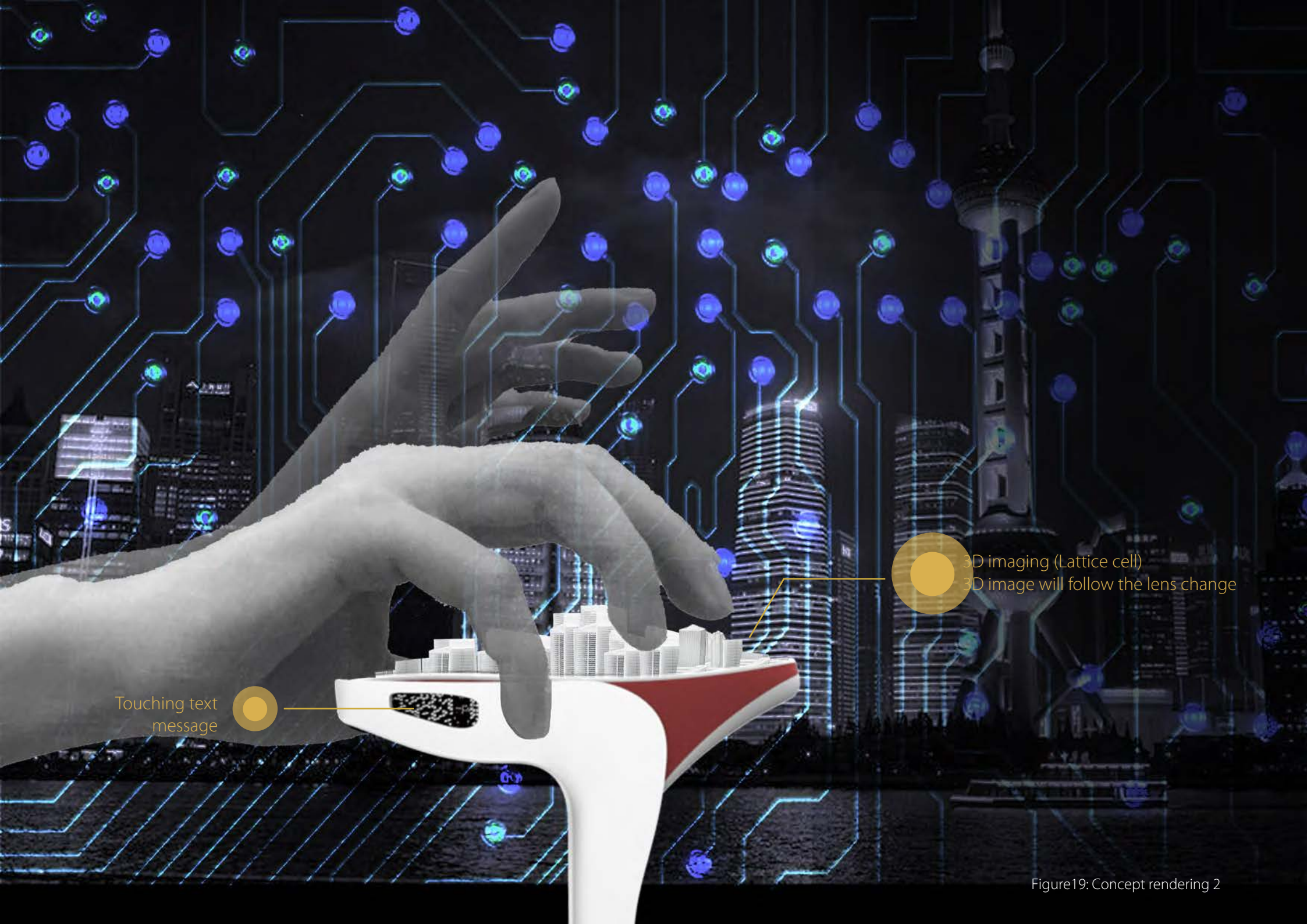
Light patterns:
Remind pedestrians not to hit the blind.
Increase the possibility of blind and pedestrian interaction.

● guide

● interaction



The surface of a special new material, when it senses a cane, it changes color



Touching text
message

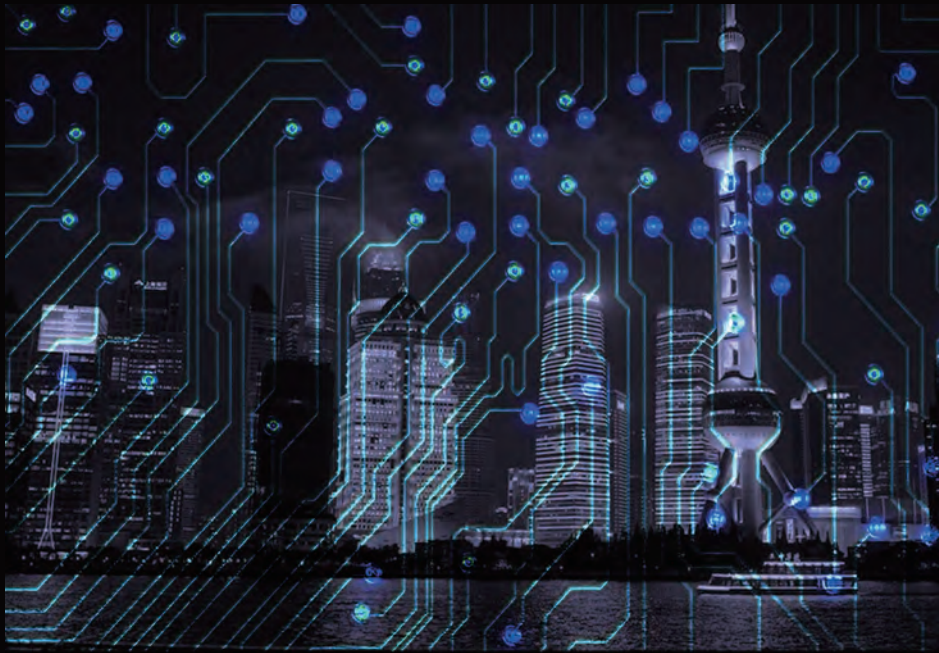


3D imaging (Lattice cell)
3D image will follow the lens change



Figure19: Concept rendering 2

● feeling



Based on the big data of the city



Get data through the lens, it 3D image data and then presented on the stick



Significance

Significance of Our Work

Our project pays attention to the current situation that the blind and visually impaired people do not have fulfilled experience on the Bund, which reflects there is a lack of access for them to get back to society. The ideas and the concept design we delivered are a trying to help them deal with the physical environment issue of walking on the Bund, and the emotional issue of feeling the outer environment. Hopefully, the blind and visually impaired people could be able to enjoy a more fulfilled experience on the Bund with our design.

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List of References

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10. baidu map of Shanghai

Appendix

Our time schedule for the entire project.

