



MUSEUM EXPERIENCE DESIGN FOR BLIND AND VISUALLY IMPAIRED PEOPLE

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Experience Design

Interactions and Environments

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EXECUTIVE SUMMARY

In China, **blind and visually impaired people** is a forgotten group as they are rarely seen. However, it's not due to its small group number, but the **lack of accessibility** to the society for them. **The Shanghai Museum**, as one of the biggest public cultural facility and **the symbol of Shanghai**, should show more **inclusiveness** for blind and visually impaired people. It could become an important touch point for **making a transition** back to society for blind and visually impaired people.

In this project, we focusing on **facilitating a fulfilled experience** in Shanghai Museum for blind and visually impaired people. The challenge is how to help them **make a transition** back to society, so they can more fully enjoy life and have enriched experiences. Shanghai Museum aims to provide a unified experience for visitors in terms of exhibition, putting an emphasize on aesthetic values. However, aesthetic values cannot be well communicated because of the lack of interaction among visitors and limited perception of information. Besides, **the lack of communication** between staff and visitors may have negative effective on people to people interaction, preventing visitors from getting a fulfilled experience. More importantly, Shanghai Museum has **overlooked the social value and ethical value concerning the disabled, especially the blind and the visually impaired**. This is reflected in the inconvenient physical environment which can be unfriendly to the blind and the visually impaired. The lack of empathy and concern for the blind and visually impaired has led to their inchoate experience. Integrate service, interaction, product, environmental and communication design to deliver moral, social and aesthetic value to in order to facilitate a fulfilled experience in Shanghai Museum for blind and visually impaired people. The blind and the visually impaired is a vulnerable group, whose benefits are often neglected by the majority of the Chinese society. It is important that we raise concern over their rights and status in society. As one of the biggest public cultural facility and the symbol of Shanghai, Shanghai Museum serves as the opportunity site for our design. The inclusiveness for blind and visually impaired people in Shanghai Museum has great social and ethical values.

Image 3. Photo of outside Shanghai Museum from www.vcg.com

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.

SITE SELECTION

SHANGHAI MUSEUM



Image 4. Photo of outside Shanghai Museum from www.baikē.baidu.com

GENERAL PURPOSE

To facilitate the experience in Shanghai Museum for blind and visually impaired people in order to **provide them accessibility to society**

ORGANIZATION PROFILE

Shanghai Museum

The Shanghai Museum was **founded in 1952**, originally located at the old Shanghai Race Club, 325 West Nanjing Road, since when it has steadily developed. The museum was relocated in the old Zhonghui Building, 16 South Henan Road in October 1959. In 1992, the Shanghai Municipal Government decided to allocate People's Square, the very center of the city, as the new site of Shanghai Museum.

The construction of the new premises of the Shanghai Museum started in August 1993 and was completed and opened to the public on October 12, 1996. Covering a total area of 39,200m², with a height of 29.5m, the round celestial dome and the square earth base which symbolize the philosophy of a spherical heaven and a square earth, form an extraordinary visual effect. The Shanghai Museum is a distinguished architectural combination of traditional culture and modern spirit, making her unique among many museums in the world. The new Shanghai Museum has **ten galleries for permanent collections** and **three temporary exhibition spaces**. It extends a warm welcome to visitors from all over the world.

As a large museum of ancient Chinese art, the Shanghai Museum boasts a collection of **140,000 precious relics, featuring bronzes, ceramics, paintings and calligraphy**. The abundance and quality of the collection have enjoyed a high reputation both at home and abroad.

THEORIES

1. Facial Engagement — Erving Goffman

People to People Interaction
INTERACTION

2. Having an Experience — John Dewey

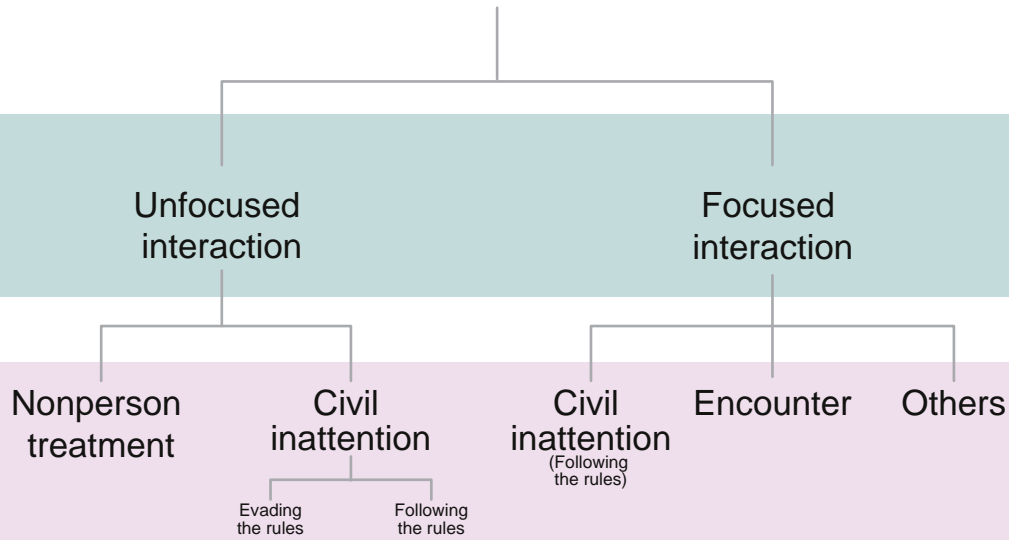
People to Environment Interaction
AN EXPERIENCE

3. Identity of Culture — Yu Yingshi

THEORIES

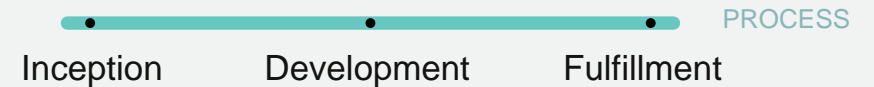
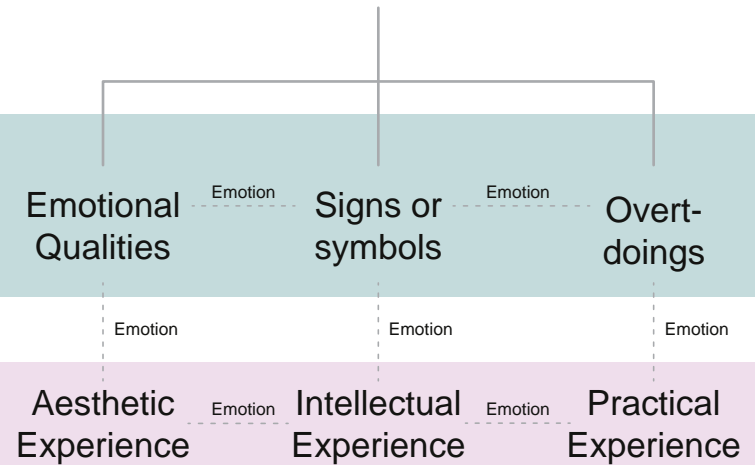
PEOPLE TO PEOPLE INTERACTION INTERACTION

Facial Engagement
Erving Goffman



PEOPLE TO ENVIRONMENT INTERACTION AN EXPERIENCE

Having an Experience
John Dewey



LITERATURE 1. Erving Goffman. Facial Engagement

LITERATURE 2. John Dewey. Having an Experience

FIGURE 1. Illustration of theory of "Facial Engagement" from Erving Goffman and theory of "Having an Experience" from John Dewey.

CONCEPT MAP OF CULTURE

Source:

Yu Yingshi 余英时

Historist, scholar of Han culture, academician of Academia Sinica, academician of American Philosophy. Professor in Harvard, Michigan, Yale
John W. Kluge Prize

Definition from Yu Yingshi

Culture is the way of living of an ethnic group. Culture can be seen in narrow or generalized sense. Culture is holistic. It has four layers including material, institution, custom and tradition and value, situated in concentric circles.

Our Own Definition

Culture is a set of tangible and intangible existence people develop that derives from their values.

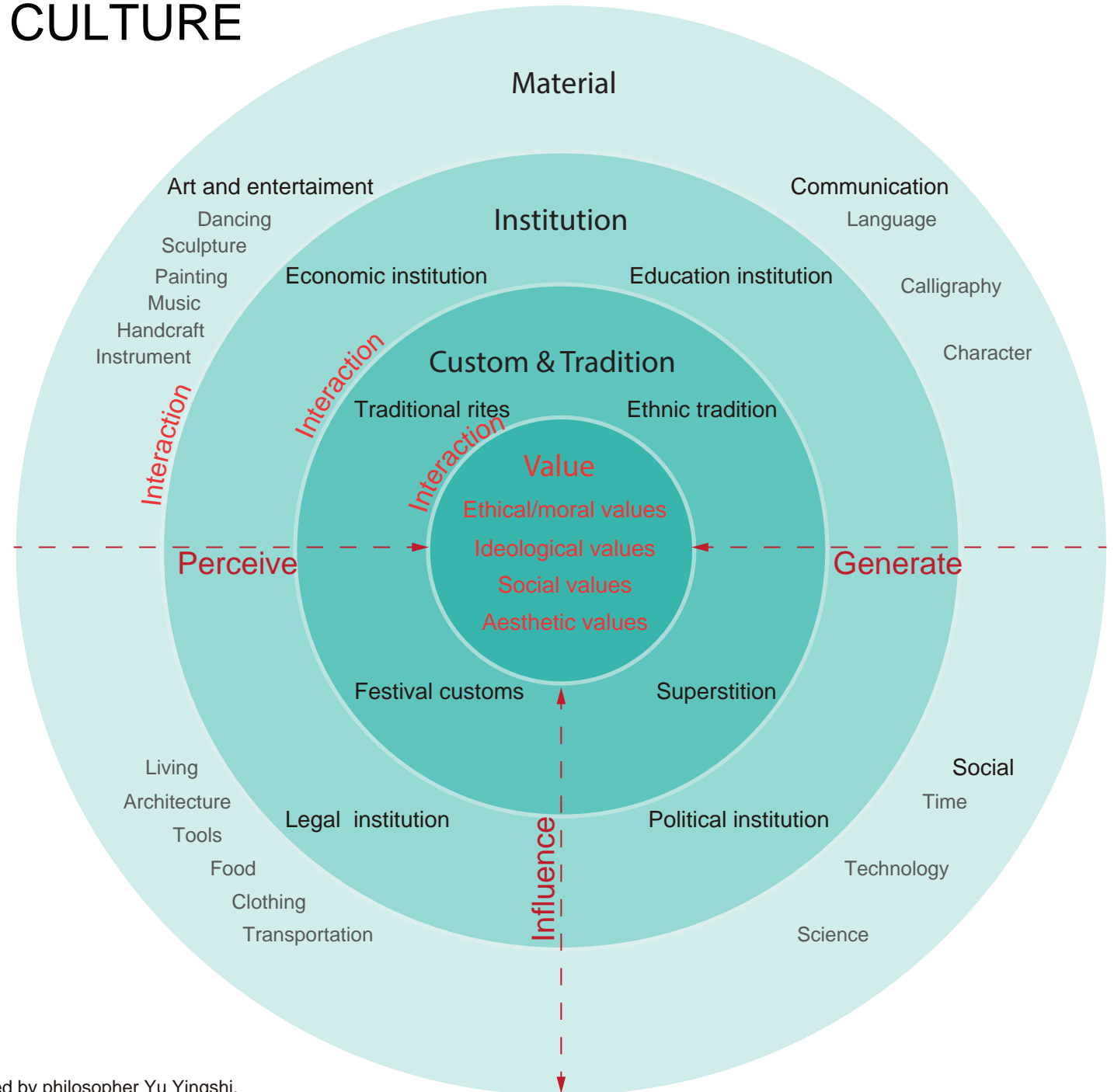


FIGURE 2. Illustration of concept map of culture inspired by philosopher Yu Yingshi.

Source: <https://baike.baidu.com/item/%E4%99%E8%8B%B1%E6%97%B6/1359772?fr=aladdin>

CONCEPT MAP OF IDENTITY OF PLACE

Purpose

To confirm the meaning of interaction in place, and relationship between value and three key aspects, which are environment, material and people.

Identity of Value

This map was created by ourselves and inspired by culture map.

Interaction happen between any two aspects.

The interaction between people and people can perceive the value, as human consciousness.

And interaction between each two key elements could also generate value in different ways. On the contrary, value itself can influence all of these interactions as well as people, environment and materials themselves.

Value was put in the center of the map, because it highly relevant to three key elements and also its position is corresponding with the position of value in concentric circles of concept map.

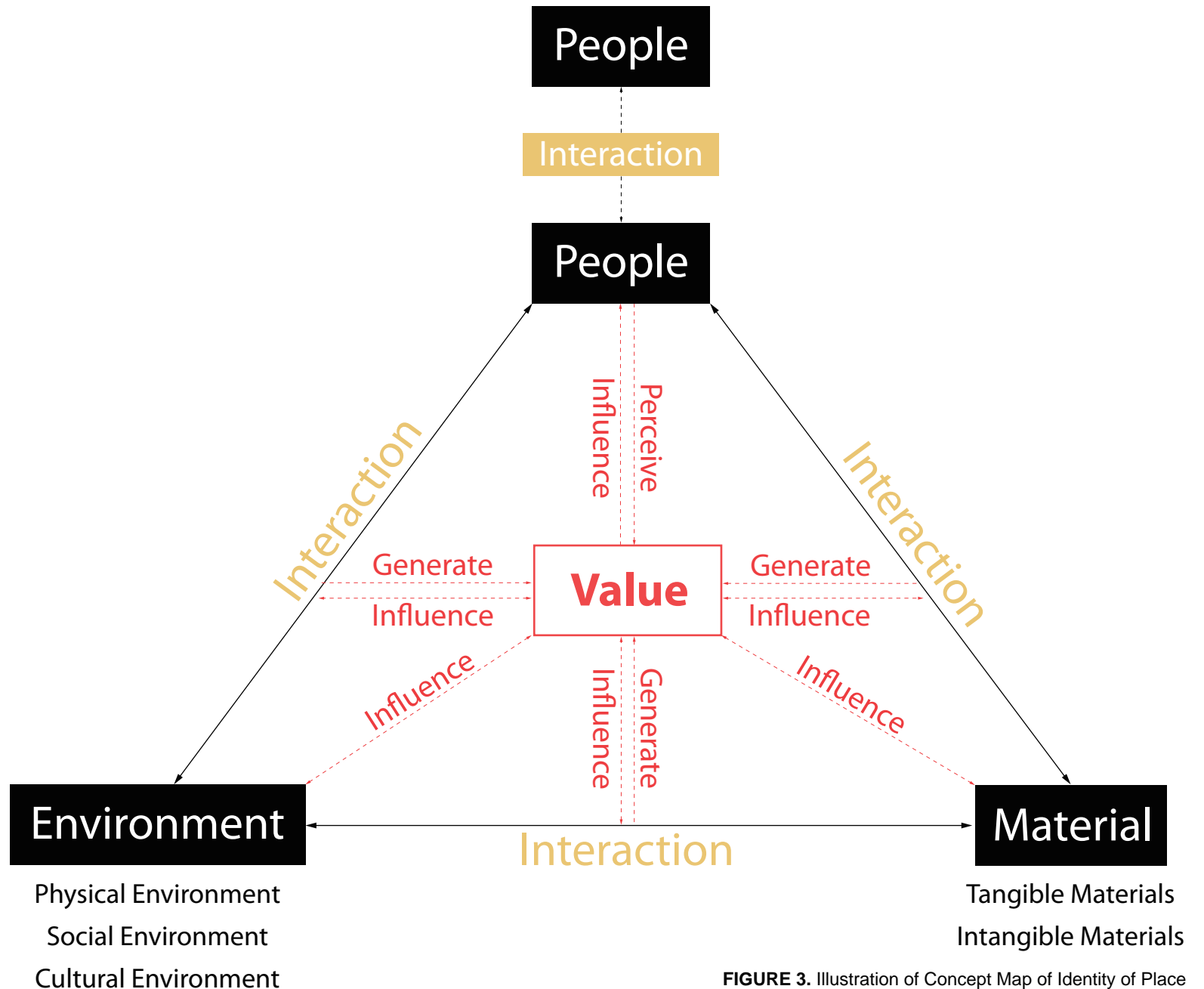


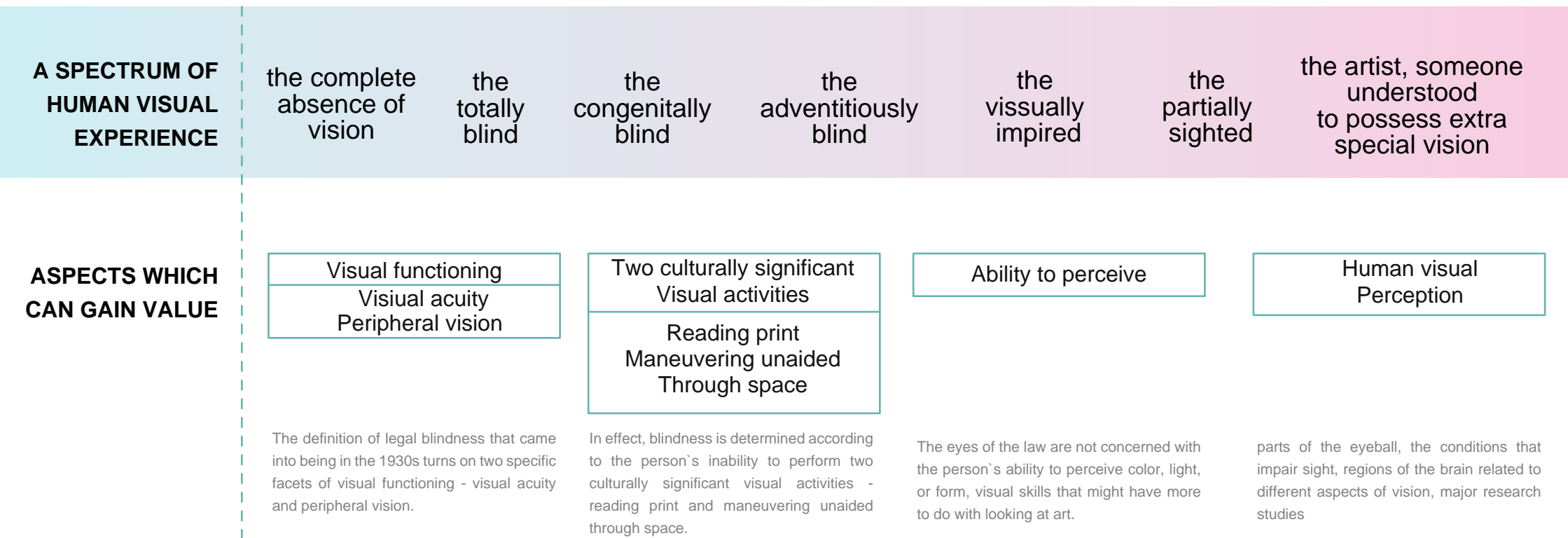
FIGURE 3. Illustration of Concept Map of Identity of Place

CONCEPT MAP OF BLINDNESS

Source: Georgina Kleege

«MORE THAN MEETS THE EYE»

What Blindness Brings to Atis



Definition of Blindness: Blindness refers to lack of perception of not only visual acuity and peripheral vision, but only color, light, or form, visual skills, et al.

LITERATURE 3. Georgina Kleege. More than Meets the Eye

FIGURE 4. Illustration of Variety of Blindness and Aspects Which can Gain Value.

RESEARCH PROCESS

Dicussing of Concept Map



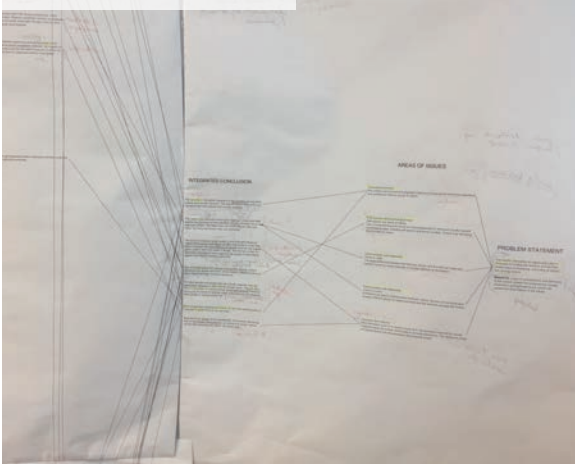
Dicussing of Concept Map



Presentation for Issue Mapping



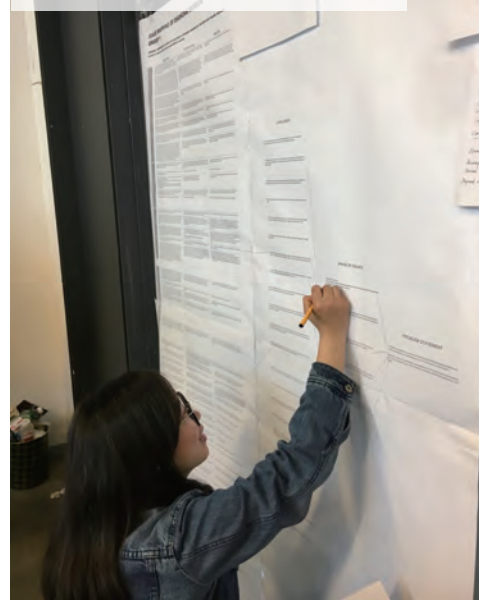
Drafts of Issue Map



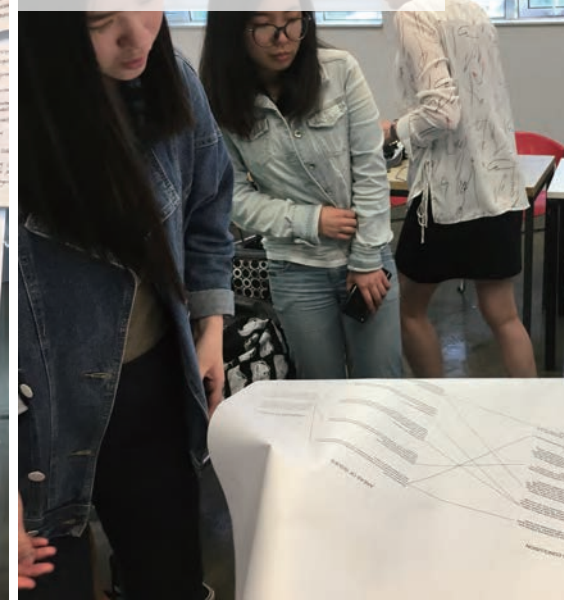
Dicussing of Issue Mapping



Dicussing of Issue Mapping



Presentation for Issue Mapping



Drafts of Identity Map

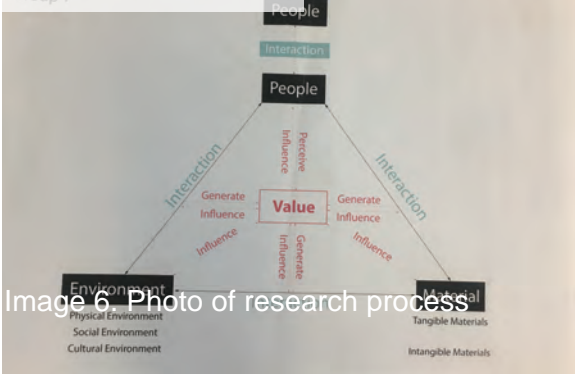


Image 6. Photo of research process

RESEARCH PROCESS

Discussion with Professor



Group Discussion



Discussion with Professor



Group Discussion



Image 7. Photo of research process

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. ’

——Kaja Tooming Buchannan

ISSUE MAPPING OF SHANGHAI MUSEUM

GENERAL PURPOSE: To facilitate the experience in Shanghai museum for the blind and visually impaired people in order to offer them accessibility to society.

PHENOMENOLOGICAL OBSERVATION

Goal: To gain a better understanding of the people to people, and people to environment interaction by observing visitors' behaviour.

ROLE PLAY

Goal: To gain a direct understanding of the experience and feeling of blind or visually impaired people in Shanghai Museum.

INTERVIEW

Goal: To get direct data from interview of blind or visually impaired people in order to understand the blind and visually impaired people's life experience for facilitating their experience in Shanghai Museum and offering them accessibility to society.

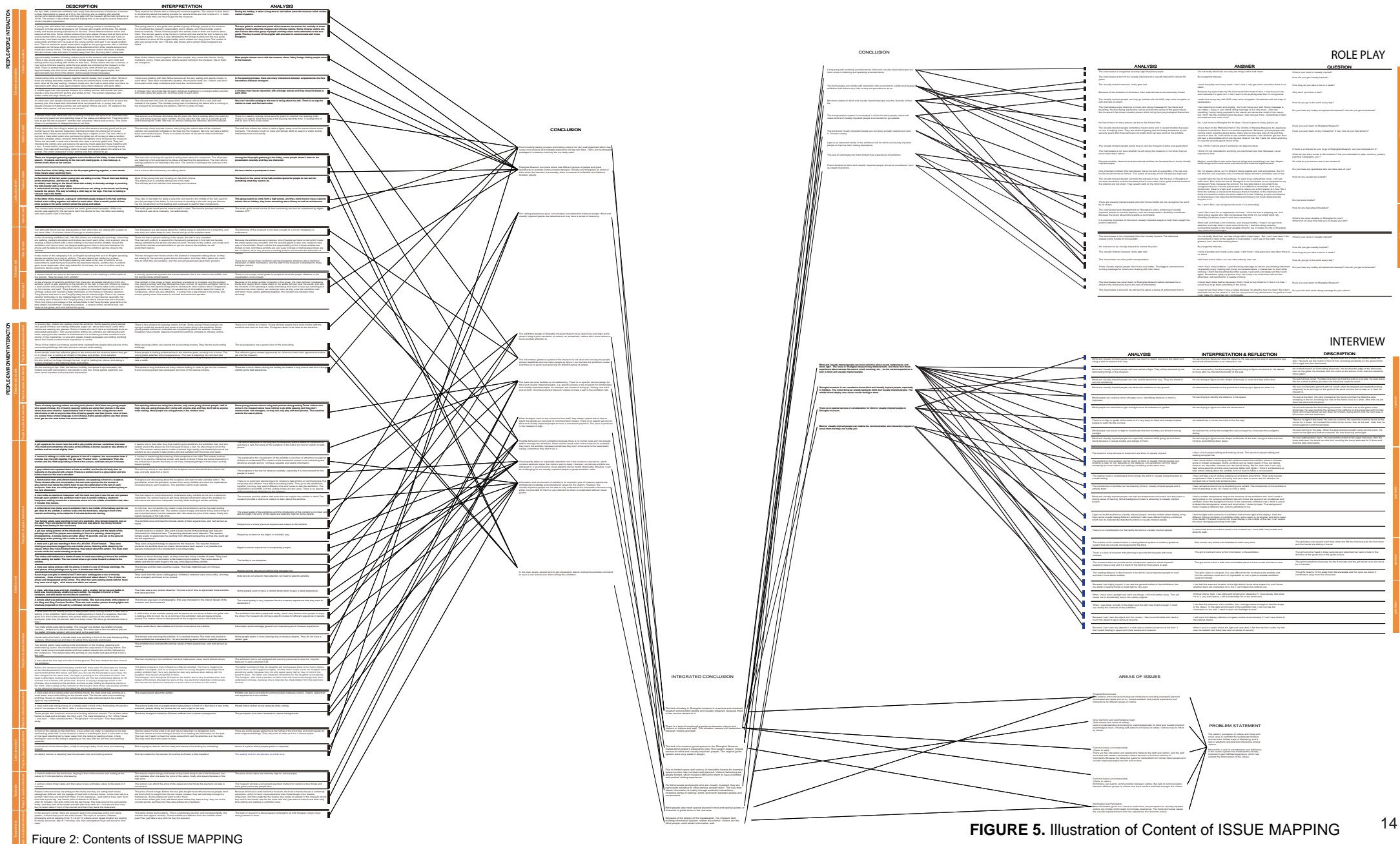


Figure 2: Contents of ISSUE MAPPING

FIGURE 5. Illustration of Content of ISSUE MAPPING

ISSUE MAPPING-INFORMATION OF PARTICIPATOR

1.PHENOMENOLOGICAL OBSERVATION



Observers:
Zidi Bai
Keke Wang
Denise Yang
Dian He
Qingshi Li

2.ROLE PLAY



Role Player:
Zidi Bai
Denise Yang



Observers of Role Player:
Dian He
Keke Wang

3.INTERVIEW



Interviewees:
2 blind technician in
massage shop



Interviewers:
Zidi Bai
Qingshi Li

GOAL OF ISSUE MAPPING

To integrate phenomenological observation, role play and interview in order to define the problem of Shanghai Museum which can be a starting point for initiating ideas.

ISSUE MAPPING-METHODS USED

METHODS

1.PHENOMENOLOGICAL OBSERVATION



2.ROLE PLAY



3.INTERVIEW



ISSUE MAPPING-STRUCTURE

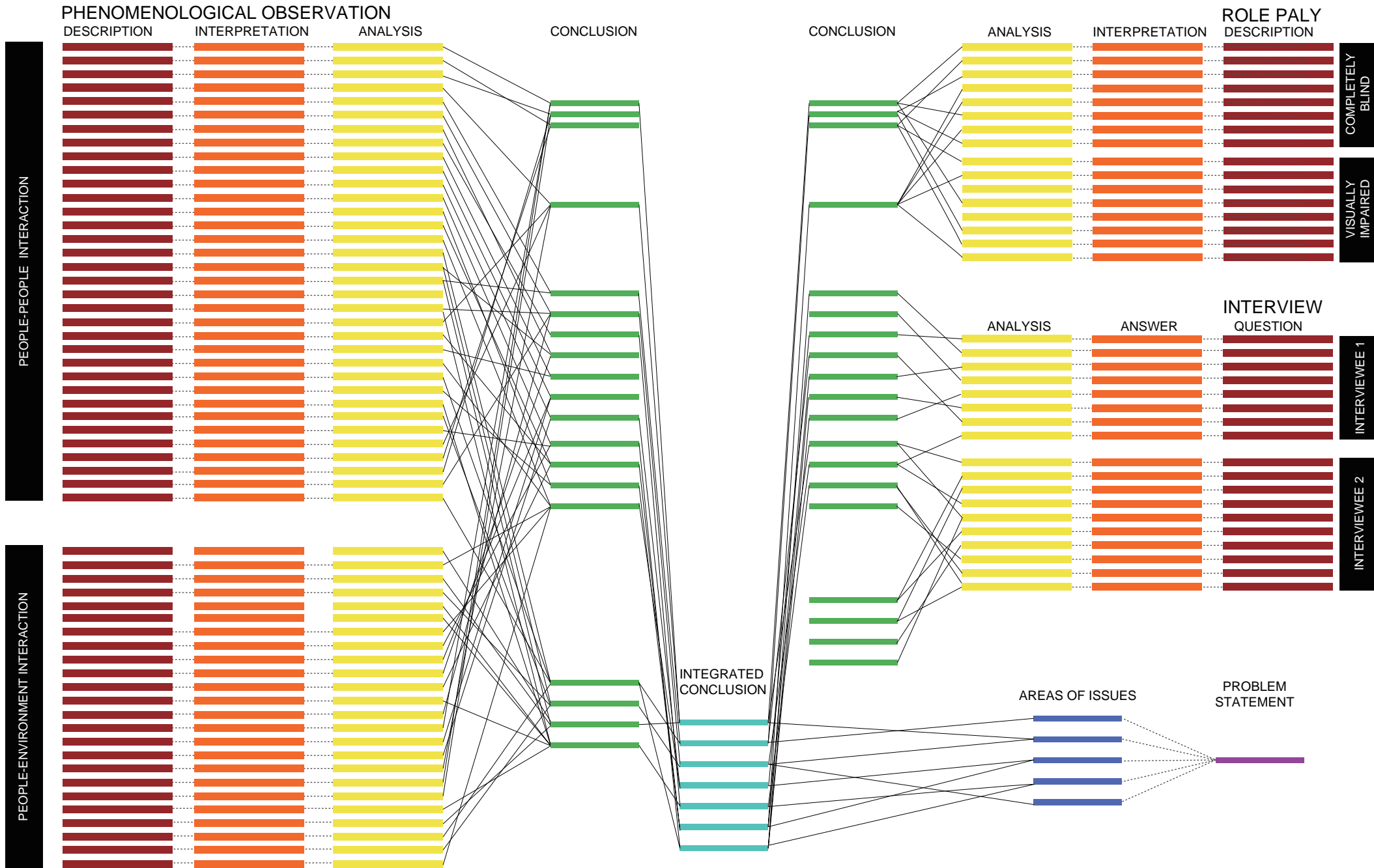


FIGURE 6. Illustration of Structure of ISSUE MAPPING

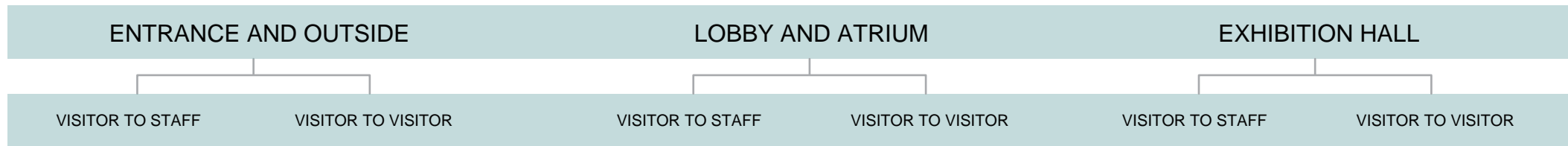
The method was designed by : Prof. Kaja Tooming Buchanan
 The visualization was inspired by 2017 project report of Man LI, Helena STENING, Bingyi YAN, Yuanxing ZHAO.

PHENOMENOLOGICAL OBSERVATION GOAL

To gain understanding of the people to people, and people to environment interaction by observing visitors' behaviour.

PHENOMENOLOGICAL OBSERVATION ASPECTS

PEOPLE TO PEOPLE INTERACTION



PEOPLE TO ENVIRONMENT INTERACTION



FIGURE 7. Illustration of Aspects of Phenomenological Observation inspired by theories of John Dewey (Having an Experience) and Erving Goffman (Facial Engagements).

PHENOMENOLOGICAL OBSERVATION CONTENT

PEOPLE-PEOPLE INTERACTION

	DESCRIPTION	INTERPRETATION	ANALYSIS	
Entrance and outside	Visitor to visitor	On Apr. 29th, outside the exhibition hall, away from the entrance of museum, a woman in blue dress starts to queue at 9:10 in the morning, she is chatting with another woman who stands close to her until they get into the museum at the main entrance at 10:30. The woman in blue dress says the waiting time is too long for several times and shows impatient expression.	They seem to be friends who is visiting the museum together. The woman in blue dress is complaining about the waiting process for several times and she is tired of it. It tooks the visitor more than one hour to get into the museum.	During the holiday, it takes a long time to wait before enter the museum which makes visitors impatient.
		A young man with black hair and brown eyes, wearing a beret is introducing the museum to those whose language is not Chinese with english all the time. He speaks loudly and shows exciting expression on his face. Those listeners looked at him and listened all the time. Some visitors around them who speak chinese look at them and a young woman told a boy stands closely to her to look at them and she said "Look at that uncle, how fluent english can he speak!" The boy then started to look at them for some while and then turn his eyes to the young woman and said "I can speak english, too!" Then he started to speak some basic english to the young woman with a satisfied expression on his face which attracted some attentions from other people around and made the woman smiles. The boy then glanced at those visitors who have a blonde hair and roman nose and stand 2 meters away from him, but they didn't notice that.	The young man is a tour guide who guides a group of foreign people to the museum. He introduced the museum passionately and in details, and those foreign visitors listened carefully. Those chinese people who stands close to them are curious about them. The woman seems to be the boy's mother and she wants her son to learn to the young tour guide. The boy is also attracted by the foreign tourists and the tour guide and started to show off his english ability which makes him very proud. The mother is also very proud of her son. The boy also shows will to attract those foreigners but failed.	The tour guide is excited and proud of the museum, he arouse the curiosity of those foreigner visitors about the museum and chinese culture. Some chinese visitors are also curious about this group of people and they show some admiration to the tour guide. The boy is proud of his english skill and want to communicate with those foreigners.
		Approximately nineteen of twenty visitors come to the museum with someone else. There is two young visitors, a male and a female standing closely to each other and talking all the way waiting with smiles on their face. Three visitors who are a woman, a man and a child are queuing while the two adults are introducing the museum to the child. There is another three people waiting in line, both of them are young girls. Approximately one third of the visitors are elderly and middle-aged people, and approximately two third of the elderly visitors speak foreign languages.	Most of the visitors come together with other people, they come with friends, family members, lovers. There are many elderly people coming to the museum, lots of them are foreigners.	Most people choose not to visit the museum alone. Many foreign elderly people come to the museum.
		Visitors who come to the museum together stands closely next to each other. Some of them are talking about the weather, the museum and the have some small talk with each other all the way waiting. However those who don't talk to each other and have no interaction with others keep approximately half a meter distance with each other.	Visitors are chatting with their fellow persons all the way waiting and stands closely to each other. Their topic includes the weather, the museum itself, etc. Visitors who don't know each other keep a distance and have few communication.	In the queuing process, there are many interactions between acquaintances but few interactions between strangers.
		A middle aged man who speaks chinese let a elderly woman with blonde hair who stands in one line with him go first and smiles to her. The woman responses with ather smile and says "thank you!".	A chinese man who looks like 40 years old gives precedence to a foreign elderly woman who looks about 60 years old. And they smile to each other.	A chinese man has an interaction with a foreign woman and they show kindness to each other.
		An adult man who speaks chinese told the woman who stands next to him to leave the queuing line, find a seat and come back once he contacts her. A young man who speaks chinese is making a phone call and asking "Where are you? I'm waiting in the middle of the queue, call me once you arrives."	The chinese man who look 40 years old is asking his wife to find a seat and wait outside of the queue. The chinese young man is contacting his fellow who is coming to the museum to and asking his fellow to call him in order to meet.	One can't sit while waiting so the man is caring about his wife. There is no sign for visitors to meet and find each other.
		A female visitor with black hair who is waiting in line turn her eyes to an adult man who is in security guard suit and standing close to the queue and asked him "How long will it take to get into the museum?" And the man answered "About half an hour." The visitor shows no excitement or disappointment in her face.	The woman is a Chinese who looks like 40 years old. She is curious about the stand-by time and trying to get an exact number. So she asks the man who is a security guard and maintaining the order. She has no obvious feeling and reflection about the answer.	There is a need to arrange some security guard to maintain the queuing order. There is no sign to show how long is the queuing stand-by time. A waiting time of half an hour is fine to the visitor.
		Every visitor who has a bag is asked by a man who wears a security guard suit to put his/her bag on the security inspection machine and take the phone out of his/her pocket. Male visitors are asked whether they have a lighter or not. The man who is in suit told a male adult visitor who just took the lighter out of his bag to take a random one from a basket where contains more than ten lighters once he leaves the museum. There are two staff, a male and a female who wear a security guard suit. They are checking the visitors who just pass by the security check gate and make it alarms with a tool. A male staff is checking male visitors and the female staff is checking female visitors. The male staff touched a visitor's trouser pocket and asked him what's in his pocket. The visitor answered "A key" and he was then allowed to go.	The security check process is strict, every thing the visitors take will be checked. Lighters are extremely forbidden to be took into the museum. But one can take a lighter back once he/she leaves. There is a certain division of the job for male and female staffs to search a visitor.	The staff who allows the visitor to take a lighter away once he leaves shows some humanity. The division of job for male and female staffs to search a visitor avoids embarrassment successfully.
		There are 20 people gathering together at the first floor of the lobby. A man is having a speech, 18 people are listening to the man with staring eyes. A man looks up. A woman looks down at her camera.	The man who is having the speech is telling them about his viewpoints. The 18 people are listening to him expressing his ideas and teaching his experience. The man who is looking upstairs is not listening to the man. The woman is looking at the pictures in the camera.	Among the 20 people gathering in the lobby, some people doesn't listen to the presentation carefully and they are distracted.
		At the first floor of the lobby, next to the 20 people gathering together, a man stands three meters away watching them.	He is curious about what they are talking about.	He has a desire to participate in them.
Lobby and atrium	Visitor to visitor	In the corner of the hall, seven young men are sitting in a row. Five of them are looking at the smart phone, and two are chatting. An elderly man sitting on the bench faced with a baby in the baby carriage is punching the milk powder with a water glass. A white haired old lady and a white haired old man are sitting on the bench and looking towards the atrium. The lady is holding a cloth bag on her legs. The man is holding a vacuum cup in his hands.	Most of the young man are focusing on the smart phone. The elderly man is carefully taking care of the baby. The old lady and the old man look leisurely and not alone.	The bench in the corner of the hall provides space for people to rest and do something what they want to do.
		In the lobby of the museum, a group of uniformed people stopped in the hall and they looked at the ceiling together and talked to each other. After a certain period of time, other people in the same uniform joined the group and talked.	They stay in the lobby for quite a long time and stand in the middle of the hall, seem to jam the passage of the lobby. In the process of standing in the hall, they are discuss ing the construction of this building and continued to wait for their companions.	This group seems to come from a high school, and they come here to have a special school visit on holiday, they know something about history as well as architecture.
		Two women were standing in front of the audio guide rental reception. While one woman was waiting for the service to fetch the device for her, the other was waiting with cash and ID card in her hand.	The audio guide rental service must be paid in cash. The service process took time. The service was done manually, not automatically.	The audio guide rental service is time-consuming and can be substituted by digital museum APP.
		Two girls with blond hair are disturbed by a man when they are talking with a paper on the hand. After 10 minutes, three of them go to another place.	Two foreigners are discussing about the visiting routes in exhibition for a long time, and then they are called away by their friends and go to the reception desk.	The brochure of the museum is not clear enough or is not for foreigners to understand.
		In the oil painting exhibition hall, 100-150 visitors are watching the paintings, when they are walking, people's shoulders and bodies can touch each other. And a person who is wearing a black uniform with a stick holding in his hand and he shuffles around the exhibition. From time to time, he stopped walking from time to time and looked at his phone, and he talks to tourists when tourist touch the exhibit or get too close to the exhibits.	There are lots of person walking in this space, the hall is very crowded. The man with uniform is respond for the security personnel in this hall, but he was always distracted by his phone and stop his work. He talks to the visitors very loudly and rude. When tourists touched exhibits or get too close to the exhibits, he will scold them sternly.	Because the exhibits are very precious, lots of people go there to visit which made the whole space very crowded. And the security guard is also very careful to take care of the exhibits. Since it will be the responsibility of him if those exhibits are broken or lost. And these exhibits are very easy to break or lost because there are lots of visitors, he is very serious to looking at them and monitor the behaviors of visitors.
		In the center of the calligraphy hall, an English-speaking man and an English-speaking woman are talking to a man in uniform. The two visitors are holding on a black electronic device, and the English-speaking man talks to the man in uniform, at the same time he used his hand to point to the electronic device, and the man in uniform gave some responses. After they talked for 10 minutes, the man in uniform took the electronic device away the hall.	The two foreigner don't know what is the electronic interpreter talking about, so they are asking for the security guard some information. And they didn't spend too much time to finish this conversation, and the security guard also gave their answers.	There have always been confusion among foreigners whatever about electronic interpreter or other information, and the staff in the museum is important to those foreigner visitors.
		A women stands too close to the interactive screen, a men wearing a uniform talks to the women, "Stay far away from exhibits."	A security personnel reproach the women because she is too close to the exhibit, and the women looks embarrassed.	There is not enough visual guide for people to know the proper distance or the visualization is not enough.
		At the entrance of ceramics exhibition hall, there are 30 people standing in front of a exhibits, which is also standing on the corridor of the hall. A man with uniform is holding a laser pointer and pointing at the exhibits, at the same time he talks to the audience for 30 minutes, and said: "Tang Sancai occupies an important historical position in Chinese culture and has left a deep impression on the history of Chinese ceramics. Tang Sancai was born in the Tang Dynasty has its cultural origin. First of all, mature ceramic technology is the material basis for the birth of Tang Sancai; secondly, the prevailing style of burial in the Tang Dynasty is the direct reason that led to its birth; Third, the history and culture of the various fields in the Tang Dynasty gave birth to its best artistic nourishment". During this process, a woman enters ceramics hall, she looks at this group, and runs toward this group.	The number of this group is huge, and have a tendency to increase, and the location they stand is wrong, and they blocked the main corridor of ceramics exhibition hall for a long time. This man spend a long time to introduce to other visitors about Tangsancai, he speaks very loudly and clearly, he speaks lots of information about the history of Tangsancai, which are very attractive, a woman has a big interest in his words, she moves quickly when she enters in this hall and found this speaker.	Because of the large number of people in this group, the main lecturer is speaking loudly and clearly which made visitor in the whole hall can hear his words, and also the contents of his speaking is really interesting, this team is very eye-catching and attractive that other visitors can notice as soon as they enter the exhibition hall. And when more visitors gathered together, the corridor was blocked more seriously.

PHENOMENOLOGICAL OBSERVATION CONCLUSION

Flow including [waiting process and visiting route is not very well organized](#) which may cause inconvenience and inchoate experience during rush days. There are handicapped passages in museums, but they are not really used.

Shanghai Museum is a place where has different groups of people and great opportunity to promote communication between Chinese and foreigners as some of them show the intention, but actually, [there is a sense of unfamiliar and distance between people.](#)

The visiting experience spurs conversation and interaction between people. Blind and visually impaired people feel detached and may [have a sense of insecurity.](#)

The visiting experience spurs conversation and interaction between people. [Blind and visually impaired people feel detached and may have a sense of insecurity.](#)

The exhibition design of Shanghai museum doesn't have clear focus and logic and it doesn't bring rhythm sensation to visitors, so sometimes, [visitors don't know where to focus and pay attention to.](#)

The information guidance system of the museum is not clear and not easy for people without disabilities and low vision people to figure it out the best the exhibition routes. And there is [no good route planning for different group of people.](#)

PHENOMENOLOGICAL OBSERVATION CONCLUSION

The basic services facilities is not satisfactory. There is no specific service design for blind and visually impaired people, e.g. specific access in the museum for blind people and visually impaired people, for example, the access of lining up, visiting, rest area and so forth. And there are few place for visitors to have a rest in the exhibition hall.

When foreigner wants to buy souvenirs from staff, they always spend lots of time to figure this goods out, because of communication issues. There is no specific service for blind and visually impaired people to have a convenient payment. The price of products in the museum is high.

Impolite behaviors occurs sometime because there is no formal rules and not enough staff to manage the situations. Some visitors break rules in the museum, - for example, they touch the exhibits, because sometimes they don't know what is the rules board saying, sometimes they didn't see it.

Visual quality takes an especially important role in the museum experience, which contains aesthetic value that visitors want to keep. However, sometimes exhibits are displayed in a way that some visual aspects can be hardly observable. Besides, it can be challenging for the visually impaired people to grasp aesthetic value.

Information and introduction of exhibits is an important part of museum experience, embodying knowledge and educational values for the visitors. However, the visually-impaired people are not able to fully understand the information because it is either not provided for them or very abstract for them to understand without visual guides.

In the open space, people tends to get preparation before visiting the exhibition and tend to have a rest and reunion after visiting the exhibition.

ROLE PLAY GOAL

To gain a direct understanding of the current experience and feeling of blind or visually impaired people in Shanghai museum.

ROLE PLAY ASPECTS

COMPLETELY BLIND

OBSERVER

ROLE PLAYER

VISUALLY IMPAIRED

OBSERVER

ROLE PLAYER

FIGURE 8. Illustration of Aspects of Role Play Developed by Ourselves

RESEARCH PROCESS

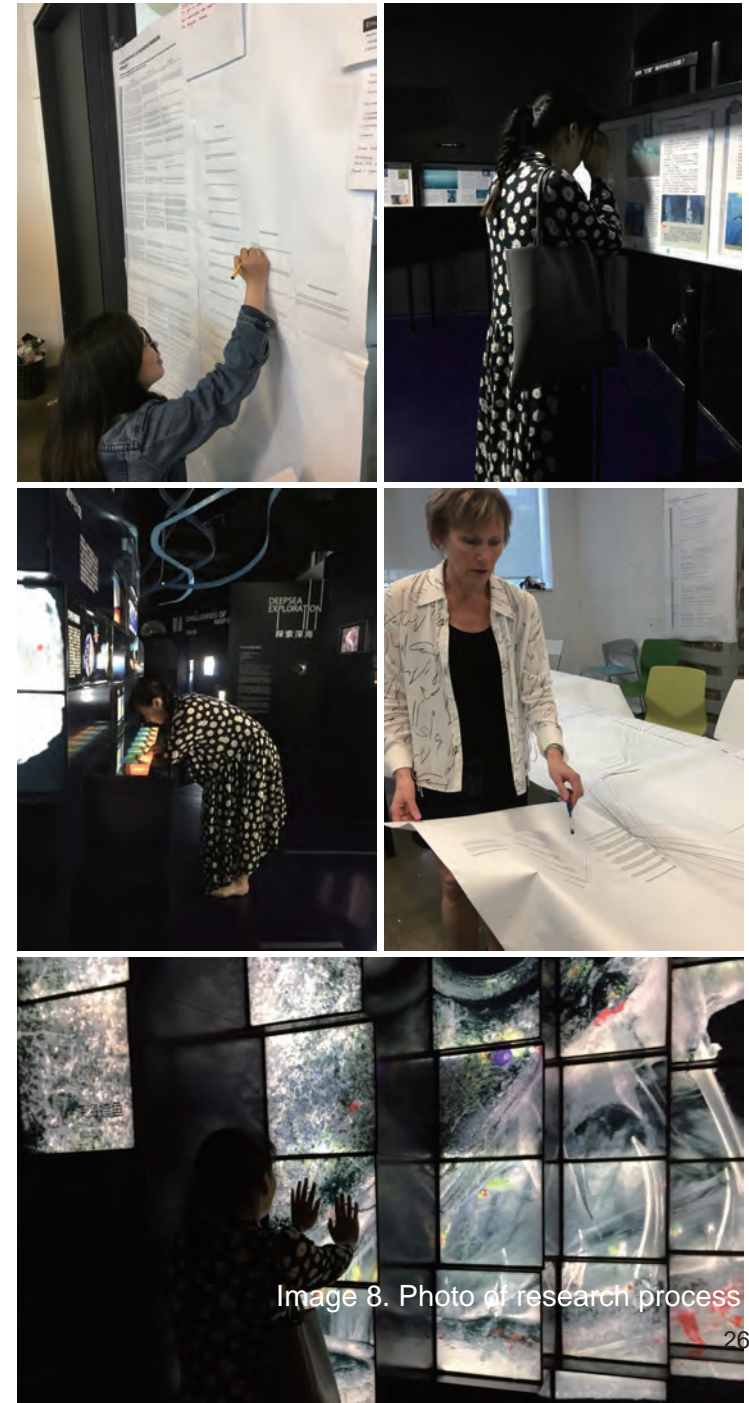


Image 8. Photo of research process

ROLE PLAY CONTENT

	DESCRIPTION	INTERPRETATION & REFLECTION	ANALYSIS
Observer	He touched the frame of the door, up and down for 3 times. He walked inside the door. He stuck out the crutch in front of him, knocking constantly on the ground from left to right and then backwards.	He was trying to figure out what the object is. He was using the stick to explore the way and check whether there is an obstacle or not.	Blind and visually impaired people usually use touch to detect and know the object and using a stick to explore their way.
	He walked toward an illuminating showcase. He touched the edge of the showcase then on the glass. He knocked with his crutch at the bottom of the wall and started to move again.	He was attracted by the illuminating thing and trying to figure out what it is. He started to move after he checked the border of the wall.	Blind and visually impaired people still have sense of light. They will be attracted by the illuminating things in the museum.
	He was turning corner. He lifted one hand and felt the wall on one side. He kept doing this for a while and then put down his hand and used his crutch.	He was trying to figure out the shape of doorway in case he bump to the door.	Blind and visually impaired people are very careful about their way. They are afraid of run into something.
	His was knocking the ground with his crutch when he stopped and started knocking frequently at an exit sign on the ground. He stuck out one foot to step on it, then he moved on.	He detected an obstacle on the ground and was trying to figure out what it is.	Blind and visually impaired people can detect the obstacle on the ground.
	He was at the door. His stick knocked at the frame and then he lifted the stick, sweeping in the air, knocking one side of the frame once in a while. After that, he put down the stick and moved on.	He was trying to identify the distance in the space.	Blind people are cautious when changes occur. Identifying distance in mind is important.
	He moved towards the illuminating showcase. His hand was on the glass of the showcase. He was touching the texture of the patterns on the showcase with his free hand, and moved slowly up and down for 5 times, during which time his hand was in full contact with the showcase.	He was trying to figure out what the showcase is.	Blind people are sensitive to light and light serve as indicators or guides.
	The room was dark. He came to a corner. He used the crutch to knock at the corner for 4 times. He knocked the crutch at the corner, then at the wall. After that, he turned against it and moved away.	He walked into a corner and tried to find the way.	There is no sign or guide of the route so it's very easy for blind and visually impaired people to walk into the corners.
	He was coming to the gate. When the gate opened sunlight came into the room. He turned to the light and walked outwards. He was frowning at the light.	He realized the exit by the sunlight but was annoyed by it because the sunlight is strong.	Blind people use sense of light to classify direction but they are afraid of strong sunlight.
	He was walking down stairs. He knocked the crutch at the upper staircase, then the lower staircase. He struck out one foot, touching the lower staircase for 5 times and took the step downwards.	He was trying to figure out the shape and border of the stair, using his stick and foot, trying to avoid falling down stairs.	Blind and visually impaired people are especially cautious while going up and down stairs because it causes trouble and danger to them.
	Completely blind		I hear a lot of people talking and walking clearly. The sound of people talking and walking annoyed me.
		I hear some visitors exchanging their opinions toward the exhibits, some in Chinese, some in foreign languages. Some contents can be heard clearly if they are talking close to me, the other contents can't be heard clearly. But for each chat, I can only hear some seconds and the voice become lighter and lighter. I think it is interesting to hear others talking about the exhibits, but it is hard to follow a conversation.	The content of conversation can be heard by blind or visually impaired people, but whether is clear or not, depends on the distance. Conversations can't be heard constantly as most visitors are walking and talking at the same time.
		I hear and feel a lot of visitors walking up and down around me. Their route sounds complicated. I feel a sense of insecurity and can't dare to move and I'm afraid to be bumped into or bump into someone else.	The visiting route is complicated which brings the blind or visually impaired people an unsafe feeling.
		I hear someone around me is introducing one exhibit. The introduction of the exhibits is kind of attracting to me. So I listen to it for a while.	The introduction of exhibits can be heard by blind or visually impaired people and it attracts them.
		I feel a sudden temperature drop at the entrance of the exhibition hall. And I smell a damp odour in the currency exhibition hall. And I hear the sound of air conditioner and ventilator. I hear the background music in the nationality exhibition hall. I think it is easier to detect the temperature, sound and smell when I close my eyes. The background music creates a different feel. And it's attracting to me.	Blind and visually impaired people can feel the temperature and smell. And they have a strong sense of hearing. Some background music is attracting to visually impaired people.
		I feel the light of the entrance of exhibition hall and the light of the display. I feel the different lighting condition of exhibition halls, some seem to be brighter and some seem to be darker. I'm afraid to bump into those display in the middle of the hall. I can realize the place changing according to the light.	Light can be felt by blind or visually impaired people. And the middle island display brings them some unsafe feeling. Different exhibition halls have different lighting conditions which can be detected by blind or visually impaired people.
		It seems that there is no blind roads in the museum so I can't walk. I feel unsafe and afraid to walk.	There is no consideration for the facility for blind or visually impaired people.
Role player			

ROLE PLAY CONTENT

Visually impaired	Observer	The girl takes one second each time while she lifts her foot and puts her foot down and her hands are sliding in the air	She moves very slowly and hesitates to walk every time.	The interior of the museum lacks a visual guidance system or auditory guidance system that can provide convenience for the blind.
		The girl turns her head in three seconds and stretched her neck to look in the direction of the guide text or the guide picture.	The girl is hard and slow to find information in the exhibition.	There is a lack of museum that planning to provide blind people with route choices.
		The girl touched the showcase for like 5 minutes and the girl bends over and move for 3 minutes.	The girl wants to find a safe and comfortable place to have a seat and have a rest.	The museum does not provide some conspicuous seats for visual impaired people to have a rest and it is hard for the blind to find a place to seat.
		The girl's head is very close to the showcase and her eyes are about 3 centimeters away from the showcase.	The girl's vision is not good. It is very difficult for her to observe the exhibits and find the exhibition route and it is impossible for her to plan a suitable exhibition route for himself.	The reading distance in the museum is too far for visual impaired people to read and learn more about exhibits.
	Role player		I can feel the area and location of the light block, I know what shape it is, and I know whether there are characters on it, but I can't figure the contents out.	Because I am highly myopic, I can see the general outline of the exhibitions, but my ability of seeing things in weak light is very poor.
			Without others' help, I can still avoid striking on obstacles if I move slowly. But when I'm in a very dark space, I still accidentally hit on the showcase	When I have poor eyesight and can't see things, I will look farther away. This will cause me to accidentally bump into nearby objects.
			I can feel the presence of the exhibits, but I must get closer enough to see the shape of the object. In the dark environment of the exhibition hall, I can not see the characters on the wall, I need to open the flashlight to read.	When I was close enough to the object and the light was bright enough, I could see clearly the contents of the exhibition.
			I will touch the display cabinets and glass covers unconsciously if I can't see what's in the cabinet clearly.	Because I can't see the object and the content, I feel uncomfortable and need to touch the object to get a sense of security.
		When I was in a place where the light was very dark, I felt that the floor under my feet was not realistic and there was also no sense of security	Because I can't see any objects in a dark space and the existence of the floor, I feel myself floating in space and I feel unsure and insecure.	

ROLE PLAY CONCLUSION



Blind and visually impaired people are **more sensitive about sound, temperature and smell, light** . The noise in Shanghai museum may bother them. And there isn't much experience about senses like sound, smell, touching, etc. , so the experience is poor to blind and visually impaired people.

Shanghai museum is **too crowded to those blind and visually impaired people**, especially in holidays. The crowd bring an unsafe feeling to blind and visually impaired people. The middle island display also cause unsafe feeling to them.

There is **no special service or consideration** for blind or visually impaired people in Shanghai museum.

Blind or visually impaired people can realize the **communication** and interaction happens around them but **they can hardly join**.

INTERVIEW GOAL

To interview blind or visually impaired people in order to understand the blind and visually impaired people's life experience for facilitating their experience in Shanghai Museum and offering them accessibility to society.

INTERVIEW CONTENT

QUESTION

What's your level of visually impaired?

How did you get visually impaired?

How long do you take a rest in a week?

Why don't you have a rest?

How do you go to the work every day?

Do you have any hobby and personal interests? How do you get entertained?

Have you ever been to Shanghai Museum?

Have you ever been to any museums? If yes, how do you feel about it?

If there is a chance for you to go to Shanghai Museum, are you interested in it?

What do you want to see in the museum? Are you interested in jade, currency, pottery, painting, calligraphy, etc.?

So what do you want to see in the museum?

Do you have any guardians who can take care of you?

How do you usually go outside?

Do you know braille?

How do you feel about Shanghai?

What's the most valuable in Shanghai for you?/
What kind of value that help you to shape your life?

ANSWER

I'm not totally blind but I can only see things within half meter.

By congenital disease.

I work everyday and every week. I don't rest. I only get some rest when there is no client.

Because my eyes make my life inconvenient for most of time, I only focus on my work because I'm good at it. I don't want to do anything else that i'm not good at.

I walk here every day with GAD map voice navigation. Sometimes with the help of passengers.

I like listening to music and singing, but I can't sing very well. Doing massage is my hobby, I enjoy it. And I think doing massage is our only hope. I also like travel ling, I enjoy being exposed to the nature and sense the smell of the nature, but I don't like the crowded place because I feel nervous there. Sometimes I listen to broadcast and voice novel.

No, I just come to Shanghai for 10 days, I haven't gone to many places yet.

I have been to the Memorial Hall of The Victims in Nanjing Massacre by Japanese Invaders once before. But it is a terrible experience. Because I joined people with normal vision travelling group alone, there was no one take care of me and they moved so fast. So I was afraid to see exhibits because I was afraid to get lost. But I still saw a few exhibits which are big and close to me. But I dare not touch anything in case the security guard shout at me.

Yes, I think it will be great if someone can take me there.

I think I'm not interested in anything you mentioned just now. Because i never experience that.

Maybe I would like to see some famous things and something I can see. Maybe those things which have some educational and historical significances?

No, I'm always alone, so I'm afraid of being outside and visit somewhere. But I'm not afraid to visit anywhere else if someone takes me there and takes care of me.

I usually take the bus or the subway, if I want to go somewhere close, I will just walk there. But I think the bus of Shanghai is not convinient to me compared to my hometown Hefei, because the word on the bus stop plate is too small to be recognized by me. And the placename is too difficult to remember. And in my home town, there is a light and a sound to notice you which station is it now. But I think the subway is convenient, because there is handrail on the staircase and there is a sound to notice me which station is it now. Walking is more convinience to me because I can take the blind tracks and there is not much obstacles like bicycles on it.

No, I don't. But I can recognize the word if it is protruding.

I don't like it and I'm so regretted to be here. I think the bus is plaguing me. And there is few people who help me because they think I'm not totally blind. My Disability Certificate doesn't work here sometimes.

Work well and make a lot of money, and always healthy. I hope I can get more attention and help when I travel around the city. I feel that being cared by surrounding people is the most valuable thing for me. It makes my life in Shanghai very warm and meaningful.

INTERVIEW CONTENT

QUESTION

What's your level of visually impaired?

How did you get visually impaired?

How long do you take a rest in a week?

How do you go to the work every day?

Do you have any hobby and personal interests? How do you get entertained?

Have you ever been to Shanghai Museum?

Do you feel tired while doing message for your client?

ANSWER

I'm not totally blind but I can see things within three meter. But I can't see clear if the environment is dark or the weather is overcasted. I can't see in the night. I have glasses, but I don't like wearing them.

By congenital disease.

I work everyday and nearly every week. I don't rest. I only get some rest when there is no client.

I still have some vision, so I can take subway, bus, etc.

I don't have many hobbies. I just like doing message for others and chatting with them. I especially enjoy chatting with those conversationalists, it makes feel no tired while working. I don't like travelling like other people, I just work and sleep and then work again. Sometimes I play my phone, but I can't play it for more than half an hour otherwise I will be blind for a couple of hours.

I never been there before because I think I have to buy ticket for it. But if it is free, I would love to go there sometime in the future.

I used to feel tired when I was a rookie because I'm afraid to hurt my client. But I don't feel tired now as I'm used to it. And I'm very proud of my job because I'm good at it and I can make my client feel very comfortable.

INTERVIEW CONCLUSION

Comparing with watching entertainments, blind and visually impaired people are more prone to listening and speaking entertainments.

The blind people can hardly fulfil interaction with environment, exhibit and people in exhibition hall without any help or they are permitted to do so.

Blindness makes th blind and visually impaired people lose the diversity of their life.

The transportation system is incomplete in China for blind people, which still make blind and visually impaired people inconvenient to go outside.

The blind and visually impaired people are not given enough respect and care in Chinese society.

Light is an important facility in the exhibition hall for blind and visually impaired people to improve their visiting experience.

The lack of information for them limited their experience of exhibition.

Public facilities for blind and visaully impaired people are not well considered, such as raised characters.

INTEGRATED CONCLUSION

The safety in Shanghai museum is a serious and unsolved question among blind people and visually impaired. The security guard need more focused interaction with blind people and visually impaired.

The emotional experience between vistors and visitors or visitors and staff need to be improved emotionally.Both of visitors and staff shouldn't be so rude with each others. The better they can communicate with each other, the more information they can exchange.

The lack of a museum guide system in the Shanghai Museum makes blind people experience poorly in the museum. First, they did not take them consider that peopple who are visually impaired. Second, the original guide system were very weak in design. And the fact is that, it's extremely important to have a good guide system to make blind people have a fullfilled experience.

Due to limited space and various of irresistible factors,for example, space function has not been well planned. Visitors' behaviors are greatly restricted, which makes it difficult for them to have a fullfilled and pratical visiting experience.

For blind people and people who are visually impaired, they are particularly sensitive to other senses except vision. The way they obtain infor-mation is mainly through aesthetic interactions between people and environment. Specifically, improving the sense of hearing, smell, and touch to enhance the blind people's visiting experience.

Blind people also need special places for rest and special guides or channels to guide them to the rest area.

Because of the design of the visualization, the museum did not do well on building information system, neither the normal visitors nor the blind people could obtain information well.

AREAS OF ISSUES

Lack of Interaction Among Visitors

Experience of the exhibition stimulates needs for interaction among visitors. However, there are few channels to facilitate interaction between different groups of visitors, for example, there are few activities visitors may do together. Facilitating interaction between visitors adds to social value. Besides, aesthetic values are recognized and perceived by visitors in between interaction, so that they get closer to the fulfillment of experience.

Limited Perception of Information Leads to Incomplete Experience

Most information given is in visual or audio form, the perception for visually impaired visitors are limited, which leads to incomplete experience. The aesthetic and cultural values the visually impaired drawn from the experience thus become scarce.

Inconvenient Physical Environment

The inactive and inconvenient physical environment, for example, improperly planned showcases and seats, has limited aesthetic and practical experience and interactions between different group of visitors. This indicates a lack of social and ethical values.

Lack of Communication Between the Visitors and Staff Members

Although there is no formal code of conduct in the Shanghai Museum, people in the museum share the common view that they should follow certain rules. However, since people perceive the rules from their own perspective, there could be gap in between their understandings, especially between those of the staff and the visitors. Lack of communication of such understandings may cause conflict and damage people to people interaction.

Lack of Empathy and Concern for the Needs of the Disabled

There is a lack of understanding and caring for visitors, especially for the blind and the visually impaired. Concern for their psychological need is also not emphasized, for example, self-esteem and sense of safety. Social and ethical values are not emphasized in terms of the benefits of the disabled.

PROBLEM STATEMENT

Shanghai Museum aims to provide a **unified experience** for visitors in terms of exhibition, putting an emphasize on **aesthetic values**. However, aesthetic values cannot be well communicated because of **the lack of interaction among visitors and limited perception of information**. Besides, the lack of communication between staff and visitors may have negative effective on people to people interaction, preventing visitors from getting a **fulfilled experience**. More importantly, Shanghai Museum has overlooked the social value and ethical value concerning the disabled, especially the blind and the visually impaired. This is reflected in the **inconvenient physical environment** which can be unfriendly to the blind and the visually impaired. The **lack of empathy and concern** for the blind and visually impaired has led to their incomplete experience.

ISSUE MAPPING

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CENTRAL IDEA

We aim to provide the blind and visually impaired people a fulfilled experience in Shanghai Museum by improving of the inconvenient physical environment, showing specific concern for the blind and the visually impaired. Our goal is to implement universal design that benefits not only the blind and the visually impaired, but also other visitors. We enhance the perception of aesthetic values with unique ways of exhibiting. We enhance the perception of social values by facilitating the interaction between them. Our design includes earphone, texture wall and co-creation device.

USER PROFILE

Primary User

Totally blind people

Age: 30-70 years old
Nationality: China
Occupation: Massagist/retired/un-employed
Work hours: 84 hours/week, retired
Family: Single, married, family
Education level: Mostly special education

Secondary User

Visually impaired people

Age: 30-70 years old
Nationality: China
Occupation: Massagist/retired/un-employed
Work hours: 84 hours/week, retired
Family: Single, married, family
Education level: Mostly special education

Tertiary User

People without disability

Age: 30-70 years old
Nationality: China/Other countries
Occupation: Varied
Work hours: 40 hours/week, retired
Family: Single, married, family
Education level: multiple

User profiles were determined based on phenomenological observation, role play in Shanghai Museum and interview in Blind Massage Shop.

IDEATION PROCESS

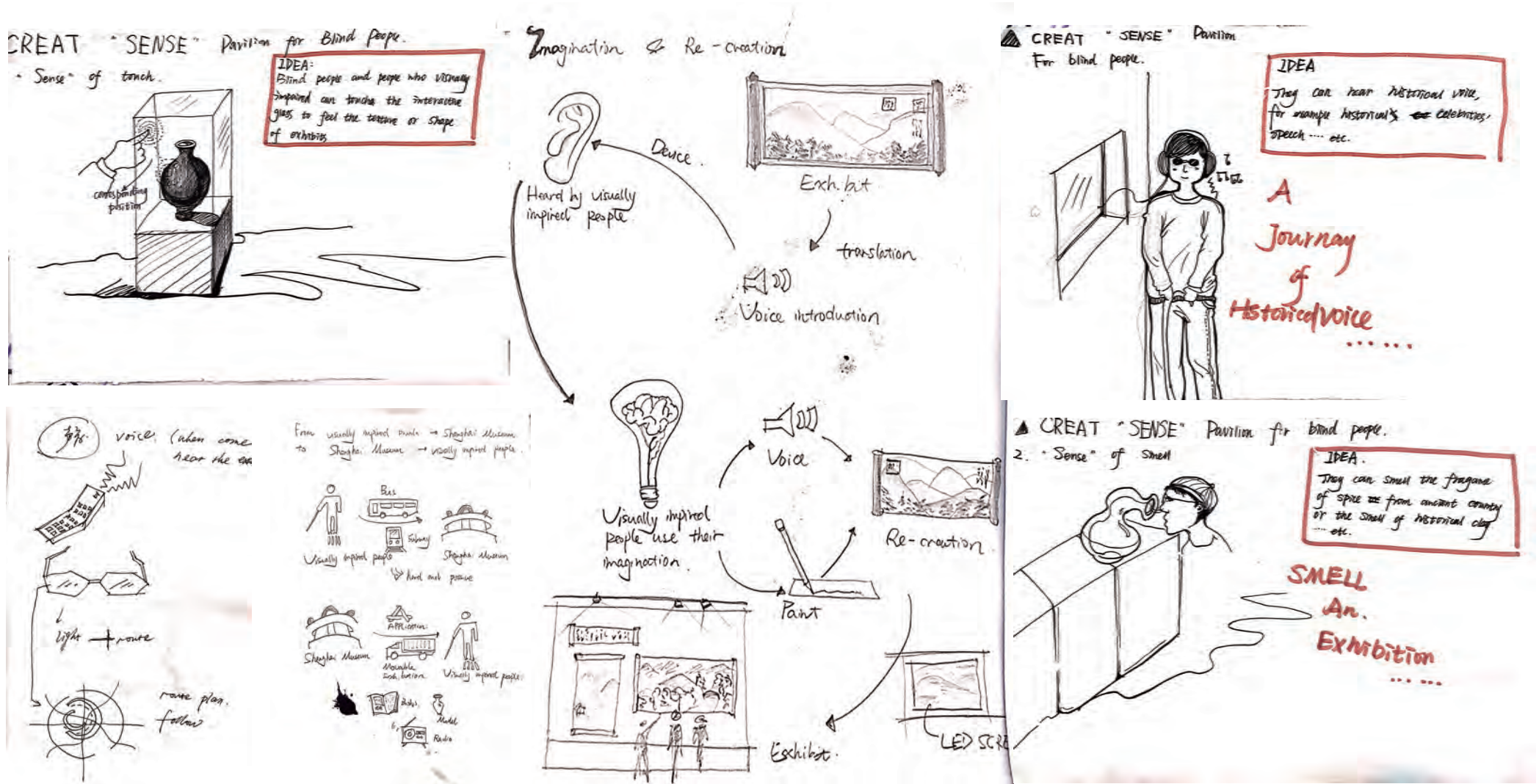


FIGURE 9. Sketches of Initial Ideas

INITIAL IDEAS

Blind Track

Areas of Issues: Physical Environment



FIGURE 10. Illustration of Blind Track outside the Museum



FIGURE 11. Illustration of Blind Track inside the Museum

Blind and visually impaired people can walk on the blind track so that they may not be easily disturbed by others and in this way they can gain more safety when they are walking inside the museum..

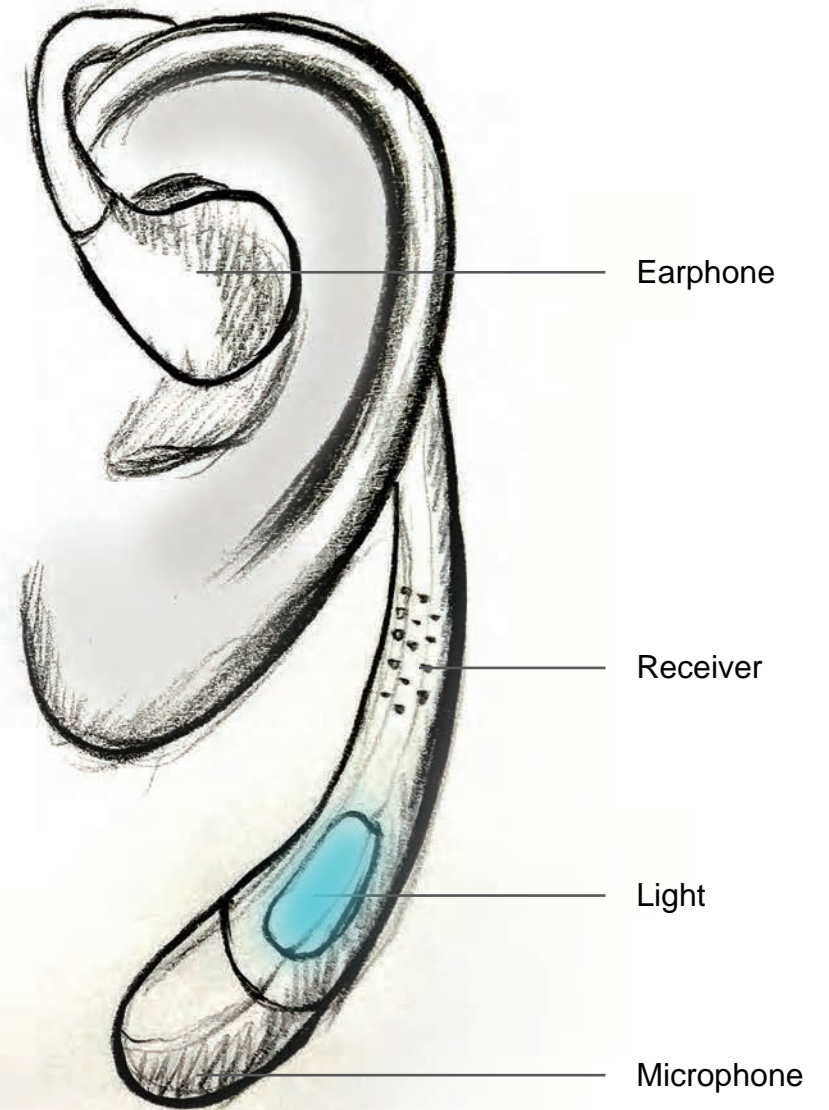
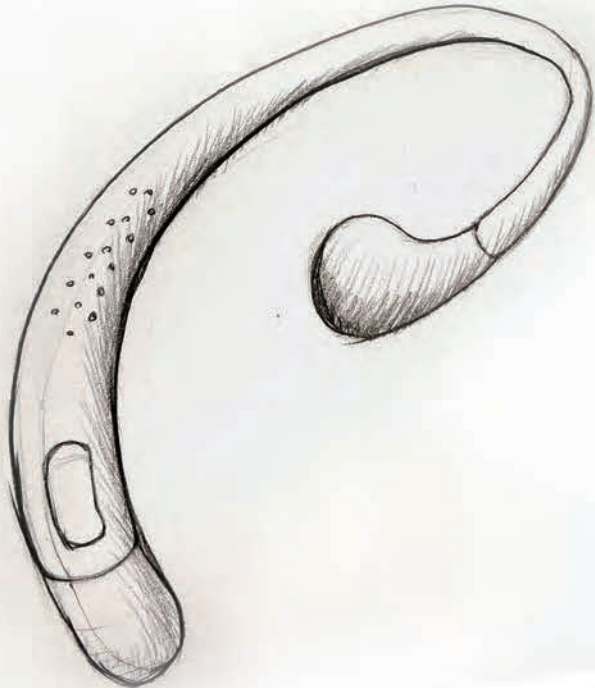
INITIAL IDEAS

Earphone

Areas of Issues: Communication and Relationship, Information and Perception

Guiding Earphone: When the blind and visually impaired people come into the Shanghai Museum, they will be given out a Guiding Earphone each person.

It is designed by our own.



has bluetooth and can be located

FIGURE 12. Sketch of the Earphone

INITIAL IDEAS

Earphone

Areas of Issues: Communication and Relationship, Information and Perception

FIGURE 13. Illustration of Use of the Earphone(1)



Now it's the bronze exhibition hall. Turn right you will get the jade exhibition hall

As they speak to the microphone about the exhibition they want to visit, the earphone will broadcast route navigation for them. It helps correct their directions according to positioning system.

Background photo source:
<http://art.ifeng.com/2017/0119/3229878.shtml>

INITIAL IDEAS

Earphone

Areas of Issues: Communication and Relationship

FIGURE 14. Illustration of Use of the Earphone(2)



INITIAL IDEAS

Texture Wall

Areas of Issues: Information and Perception



Texture Wall: It will be put in the exhibition hall with different theme, the blind and visually impaired people can touch texture of exhibits by their hands. It fulfils their exhibition experience by touching.

FIGURE 15. Illustration of the Texture Wall

INITIAL IDEAS

Co-creation Device

Areas of Issues: Inner Harmony and Psychological Need, Communication and Relationship, Information and Perception

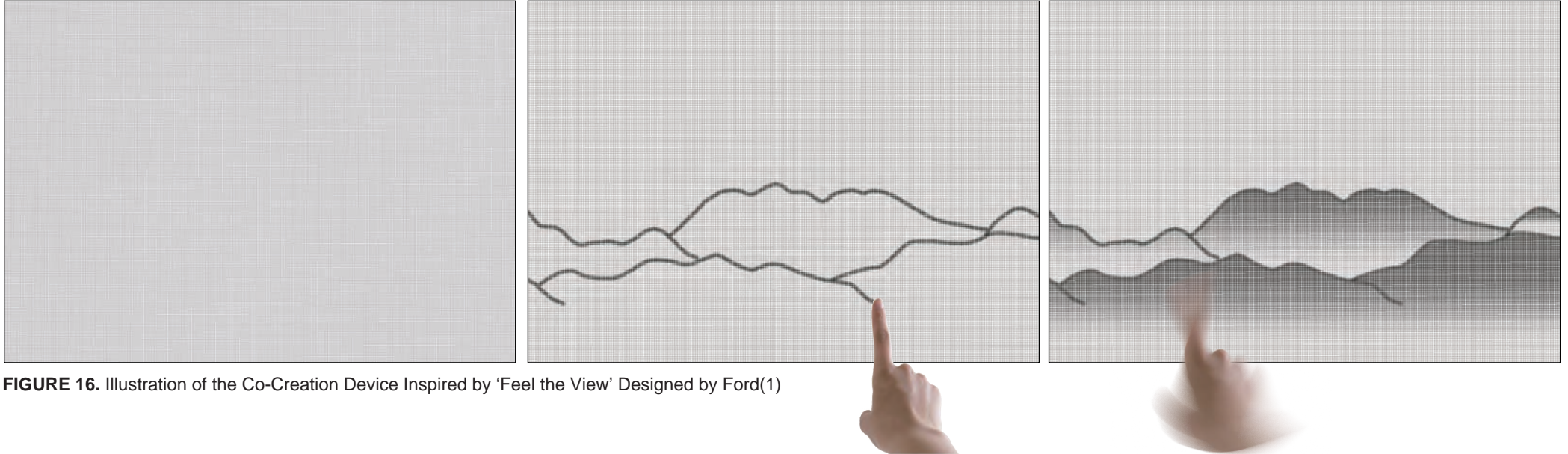


FIGURE 16. Illustration of the Co-Creation Device Inspired by 'Feel the View' Designed by Ford(1)

There is screen with dense movable units.

When someone use his/her finger to pass over the surface, the units which he/her touches will move backward thus create shadows which show the shape of the line. The line can also be perceived by blind and visually impaired people so they can admire and draw paintings as well.

One can also use finger to create special effect, such as gradual change of color in order to draw a good picture.

INITIAL IDEAS

Co-creation Device

Areas of Issues: Inner Harmony and Psychological Need, Communication and Relationship, Information and Perception



Background photo source: www.vcg.com

FIGURE 17. Illustration of the Co-Creation Device Inspired by 'Feel the View' Designed by Ford(2)

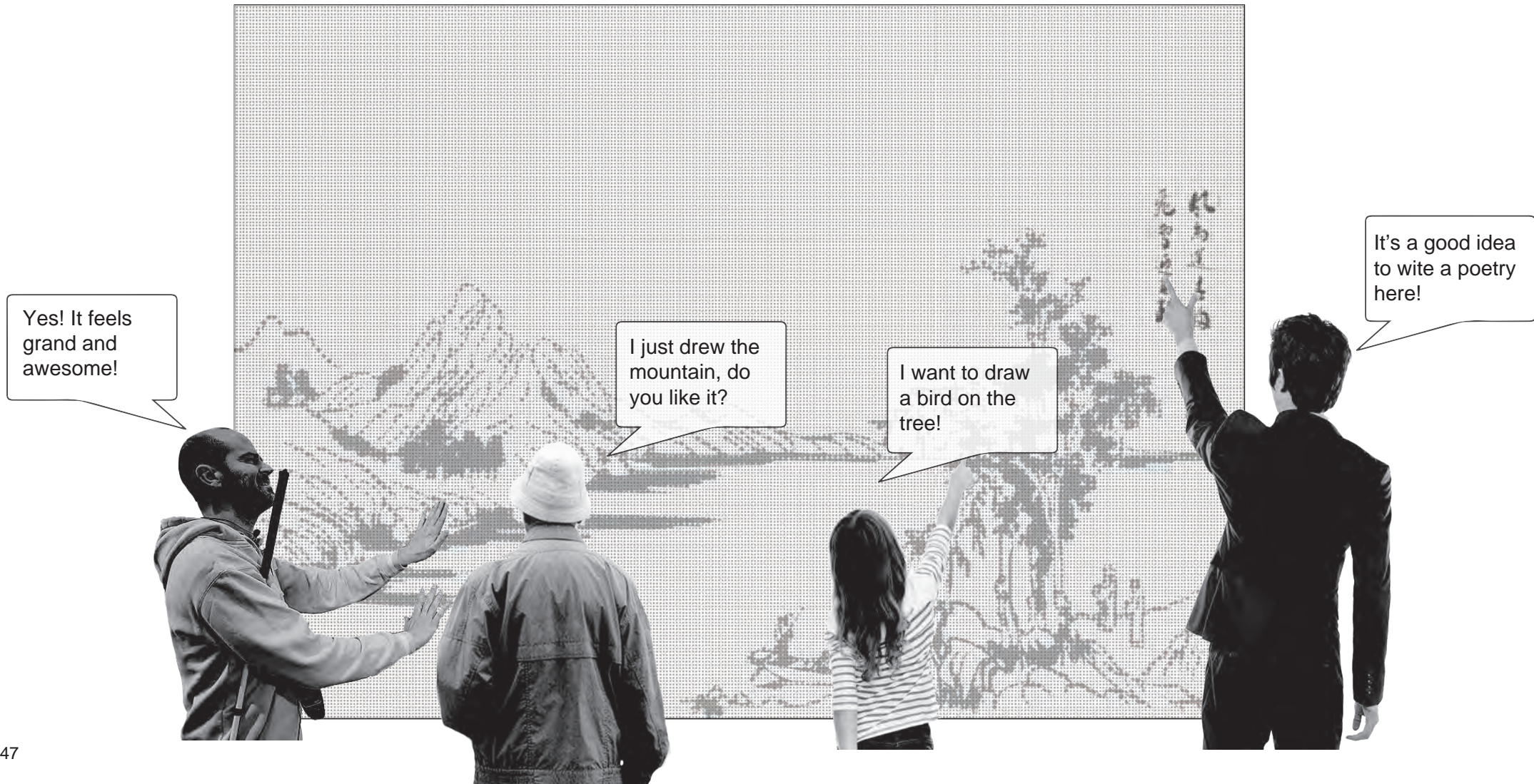
INITIAL IDEAS

Co-creation Device

Areas of Issues: Inner Harmony and Psychological Need, Communication and Relationship, Information and Perception

Visitors can create the painting together. During the co-creating process, visitors will use the aesthetic value they gain from the museum. They can also gain social values by collaborating and communicating with others. Blind and visually impaired people can gain moral values as they have the same opportunity.

FIGURE 18. Illustration of the Co-Creation Device Inspired by 'Feel the View' Designed by Ford(3)



CUSTOMER JOURNEY

FIGURE 19. Illustration of the Customer Journey



SIGNIFICANCE

Blind and visually impaired people is a vulnerable group, whose benefits are often neglected by the majority of the Chinese society. It is important that we raise concern over their rights and status in society.

As one of the biggest public cultural facility and the symbol of Shanghai, Shanghai Museum serves as the opportunity site for our design. The inclusiveness for blind and visually impaired people in Shanghai Museum has great social and ethical values. and places for issues that finally discloses the central problem based on evidence.

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