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STEREOTYPE FILTER: A DIGITAL INTERFACE TO FOSTER CULTURAL AWARENESS

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Abstract:

With the development of economic globalization, more and more people are immersed in a cross-cultural community. United States hosts the largest number of international students in the world. The cultural diversity of American college campuses makes them full of opportunity to learn about and from each other. However, huge portion of international students experience American colleges as culturally challenging. The cultural identities of international students are often stereotyped or misunderstood, causing barriers between students. Online questionnaires and analyzing related literatures suggests that the problem of stereotyping is a broad issue that is worth studying. Interaction design is a possible solution to help connect students on campus. However, as a communication medium, its application to solve the stereotype problem is still very limited. Therefore, the objective of this thesis is to explore how interaction design can foster cultural awareness and address stereotyping on college campuses. The "Stereotype Filter" was designed by developing a digital interface. Testing the prototypes of the design showed that the design effectively promotes cultural understanding among people of various backgrounds. It suggests that interaction design is a possible intervention to the cultural barriers that international students experience.

STEREOTYPE FILTER: A DIGITAL INTERFACE
TO FOSTER CULTURAL AWARENESS

by

Linghua Zhu

B.F.A., Rochester Institute of Technology, 2016

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Introduction to the Project
-Background

Barns is a leading researcher concerning the influx of international students in the United States. He found that huge portion of international students experience American colleges as culturally challenging (Barns 104). In 2013, United States colleges and universities hosted 4.1 million international students. This is a sizable number compared to other countries. This is not surprising because the United States has been the most desirable destination for international students since the late twentieth century. International students are drawn to and intrigued by the quality of education and the cultural aspect of the country. It is followed in popularity by the United Kingdom and Australia.

Introduction to the Project
-Preface

The high influx of international students in the United States has resulted in factors that influence and determine how the students live and experience college life. Barnes (112) suggests that common problems for international students include racial discrimination, culture shock, extreme language barriers, feeling estranged, lack of adequate social support, homesickness, and overall lifestyle adjustments. This all culminate as cultural barriers that affect the student experience. These factors are stressful to the students and can cause loss of culture and identity.

Introduction to the Project
-Problem Statement

The places people live are influenced by the customs, attitude and practices of people around them(de Wit 1-8). These define the primarily cultural elements of a place. When an international student is introduced to a new place, they are exposed to the beliefs, traditions and customs of another person or group of people. In an academic environment, this may result in a conflict or clash of norms. These can variably affect individuals at both a physical and subconscious level.

Introduction to the Project
-Problem Analysis

Causes of Cultural Barriers

Cultural barriers are found frequently in the situation of social gatherings and interactions. American culture is defined by personal independence and freedom. This is not globally common. Many foreign cultures are defined more by group thinking in which people make decisions themed on the welfare of everyone. The variation between countries can evoke cultural barriers, especially in an academic environment where international students are dependent on Socrative, discussion-based styles of learning. American colleges are more dependent on individualized approaches to (de Wit 1-8).

Religious orientation can also be a cultural barrier. Some religions decide what someone wears, eats, and how medical services are accessed or received (Hayes 537). These factors can clash against a more outspoken culture like the one ingrained in the United States, and can result in discrimination and stereotyping. This can knock a high-achieving student off his or her academic balance.

The United States has managed to achieve a relatively balanced gender ratio in the whole society. environments. However, some countries are still veiled on gender discrimination. Those brought up under such traditions might find it difficult to learn from or learn with females. This construes a cultural imbalance on grounds of gender.

The cause of cultural barriers stem from a lot of perspectives. International students are the group that experience cultural barriers directly. Research suggest that because of cultural barriers, international students experience feeling misunderstood, homesick, stereotyped, excluded, depressed, culture shock, racially discriminated against, and the loss of social support. Problems may occur in adjusting to a new culture and the need of learning new cultural norms, experiencing academic differences, and dealing with financial, emotional and especially cross-cultural challenges (Sherry et al. 34).

Literature Review & Content Analysis
-Existing solutions

How to Conquer Cultural Barrier
Cultural barriers can be handled critically, and conquering these problems would benefit the entire international student community. Promoting intercultural communications is a good and effective way to start. This can be done through organization of intercultural camps and events to tackle the cultural barriers. When international students can engage with students native to the United States, they can reconcile vast differences between them. Although this might not completely eliminate cultural barriers that are deep rooted, it establishes a common platform for members of every different culture to have a voice and to listen to others. Reconciliation happens on a subconscious level which manifests eventually in the daily life of the students.
Organized discussions induce productive communication and increase understanding of every culture present in a community. The more people talk about the cultural constraints between them, the more they get to understand individual obligations to their cultures to avoid loss of original traditions from under which all persons were brought up. Talking about individual cultures (even though they may conflict) promotes mutual acceptance of tradition in the sense of, "you don't have to like it you just have to respect it." (Hayes and Heng-Rue Lin 9). This narrows the intensity of the cultural barriers impact on international students.

Building relationships in the learning environment can mend or bridge the gap between cultures (Zhou 63-75). Relationships between students foster empathy and go a long way to enhance fluid interaction between people of different cultural orientations. This would benefit numerous numbers of international students. Reconciling cultural barriers can also be achieved by introducing a variety of family traditions and cultural practices into the curriculum. While this may be controversial, it would foster student knowledge about and empathy for other students. An example of how this can be done is by introducing courses on different languages and related cultures. Even though they may not cover the entire international focus, it will help create a more balanced cultural environment on campus.

Specialized Agencies

International student service centers like the Slutzker Center at Syracuse University aids the international students to adjust to an American school environment and culture. They assist through personal career guidance and special programs. They are able to help the international students acclimate through professional reading programs that familiarize the students to the English language (Spencer-Rodgers 656). This reduces the cultural barrier of communication and helps the students fit in.
The international service centers educate the international students on resolving issues related to information concerning universities, daily life in local communities and laws in the United States. The centers are staffed with people who have specialized knowledge about social acclimatization techniques or experiences, and who are able to communicate in various languages. This enables the students to lose the uptight behavior when they come into the country, since their knowledge of foreign environments is often what triggers cultural barriers and stereotyping.
Many universities and colleges in the United States provide online and in-person help centers for international students. The primary objective of such services are to reduce instances of stress as international students to acclimate to the learning institution. Some of these international service centers have gone to the extent of exercising disciplinary action if any student is stereotyped or discriminated against.

Application of Specific Methods

The diversity of international students on United States campuses is often ignored. The increasing demand for cultural adjustments makes the students vulnerable to suffering from psychological problems compared to other domestic students (Sherry et al. 40). It is essential that adequate and effective supporting services are provided. Most colleges provide orientations and meet-ups for International students to support a better transition of adapting to the new culture. Student assistance from native speakers and international student office among college campus became a strong backup as well. For instance, the international student office in Syracuse University arranges conversation partners for international students to practice communicating about any topic that might enhance their studies or campus life.

Literature Review & Content Analysis
-Literature Review Summary

The discrimination, stereotyping and social prejudice impacts the psychological stability of international students. It also increases intercultural divisions, making it difficult to reconcile these differences. Cultural barriers cause several challenges to college campuses. Every college, university or learning institution is challenged to educate and create awareness about diverse student populations so their students are multiculturally competent.

The following content analysis explores how design can support these efforts. How can international students have a better college experience, where they can immerse in a more empathic, culturally diverse academic environment.

Literature Review and Content Analysis
-New perspective of a design intervention

Increasing understanding about other cultures is essential if we are to eliminate the cultural barriers that international students experience. When people know more about other cultures, they gain empathy for people from that culture. The design goal of this thesis is to create an intriguing way for people to communicate that encourages intercultural conversations. Interactive design provides people with opportunities to communicate with others. Interactive elements can connect people quickly and closely and provide a space to share understanding.

Literature Review and Content Analysis
-Existing related art analysis

The purpose of this work is to design a digital interface that can be used as a possible intervention to the cultural barriers that international students experience. It is necessary to analyze the basic design elements conducive to cross-cultural communication. The advantages of existing related arts might be integrated into the digital interface. The characteristics of different types of existing related arts should be analyzed from different perspectives, which include static and dynamic, low technology and high technology, simple and complex dimensions. By considering and exploring the influence of all kinds of factors and the possibility that effect the realizing in the digital interface, it will be really beneficial to the subsequent design. Installations with strong cultural elements were analyzed and categorized to understand how cultural elements have been used in space. The analysis helped determine what could be integrated in a design intervention that fosters culture awareness. The analysis showed that elements can be skin color, typography, food, costumes, music, dance, stories and legends, animals, etc. Some elements are symbolic to people outside certain cultures while others are more familiar to people who grew up with that culture.
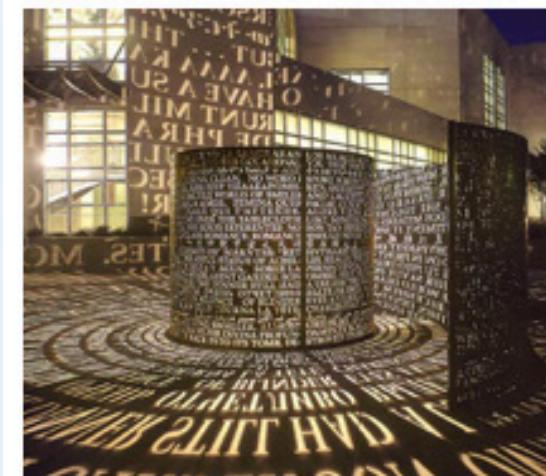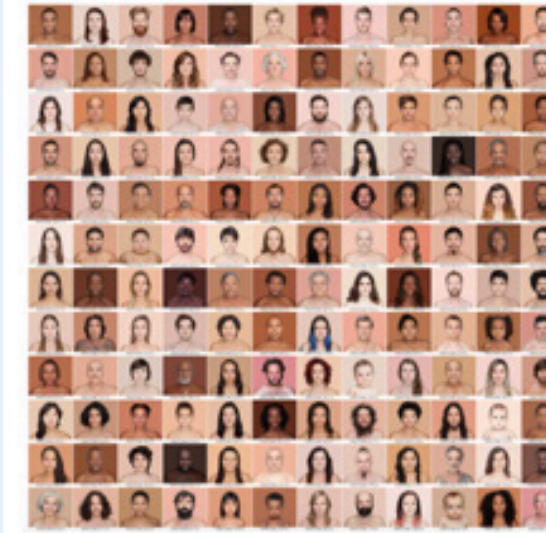
The interactive effectiveness of the installation arts was evaluated through the mapping process. The factors including static, kinetic, isolation and exposed situation were considered and analyzed. The following diagram shows that high tech elements such as cell phones isolate people and keep them from really connecting. However, it also shows that interactive design elements that are high tech may help bring people together physically (i.e. public s).

-Analyzing diagram about key elements in interaction design through installation art

High-tech

Isolation

Exposed

Low-tech
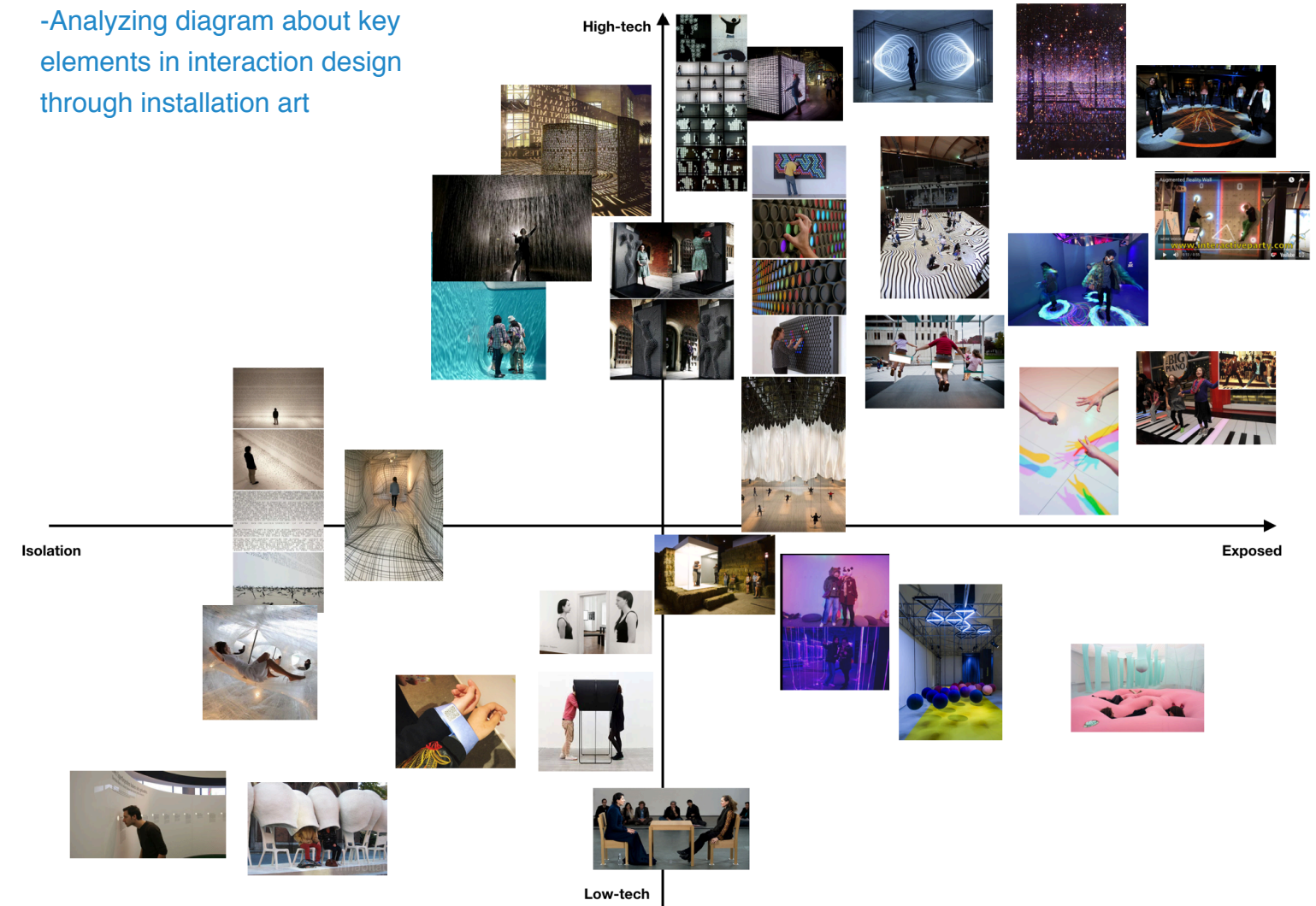
-Analyzing diagram about key elements in interaction design through installation art
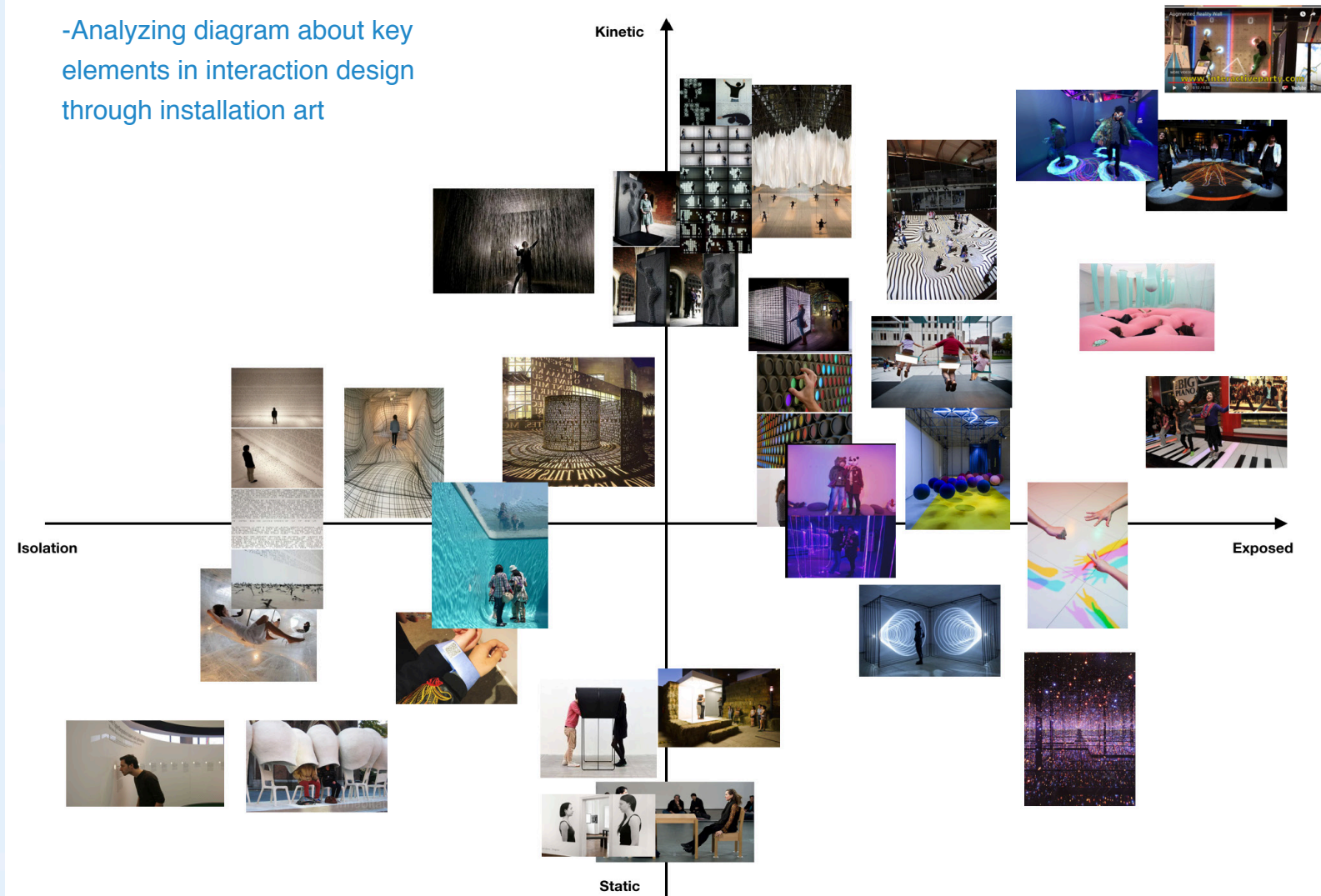
The diagram suggests that kinetic elements encourage physical connections between people, whereas social media connections limit the depth of authentic and personal connections. The analysis result reveals exciting possibilities of incorporating light, sound and movement into an interactive design solution.

Literature Review and Content Analysis
-Design Challenges

Literature review shows that the cultural barriers exists commonly among college campuses. Conquering the barriers became so critical to help colleges to realize the diversity and multi-culture coexisting in American college campuses. Although there are some researches and methods created to get rid of these barriers, the reported results are still limited.
The literature review and content analysis suggest that an interactive spatial experience can be designed to foster cultural awareness and connect people among college campuses.

Methodology for Design
-Ideation & Probes

1.The first idea for an interactive design explored using cultural games to connect people in a playful way. The idea was to encourage people to know more about the cultures of others. Gamification is an efficient way to prompt communication and interaction between people

●●●●●● **Cultural interaction game design**

Not knowing much about other culture → **Cultural interaction game** → -Starting to know about culture elements from different culture in a playful way
-Creating more communication through the interaction process
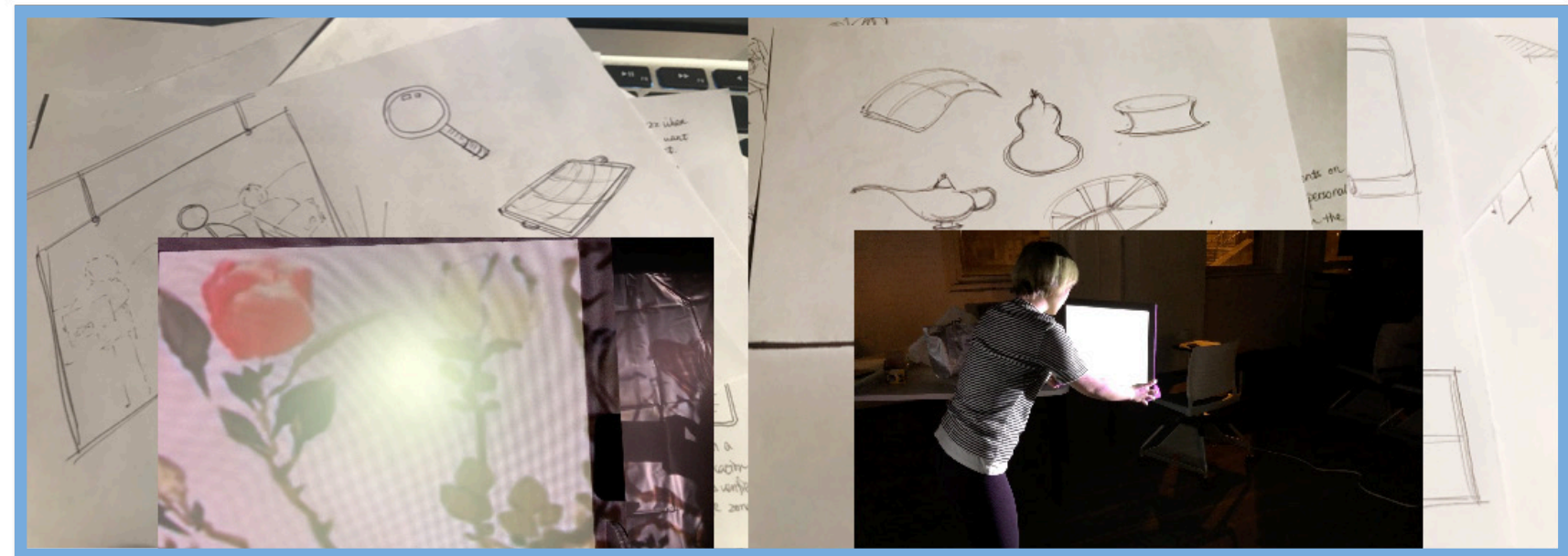
2.The second idea explored how interactive design can address the problem of stereotyping. Stereotyping is one of the issues that international students experience. A design that minimizes the stereotypes of others might foster intercultural communication. The design was developed into an immersive spatial and digital environment, called the Stereotype Filter. The Stereotype Filter uses digital interface to show what people's stereotypes look like when they are positioned against real people. The idea is that the experience is shocking and revealing, and results in connecting the participants in a meaningful way.

●●●●●● **Stereotype filter**

People are having stereotypes on each other → **Stereotype filter** → -Getting rid of the stereotypes and starting to know person from different culture about who they really are
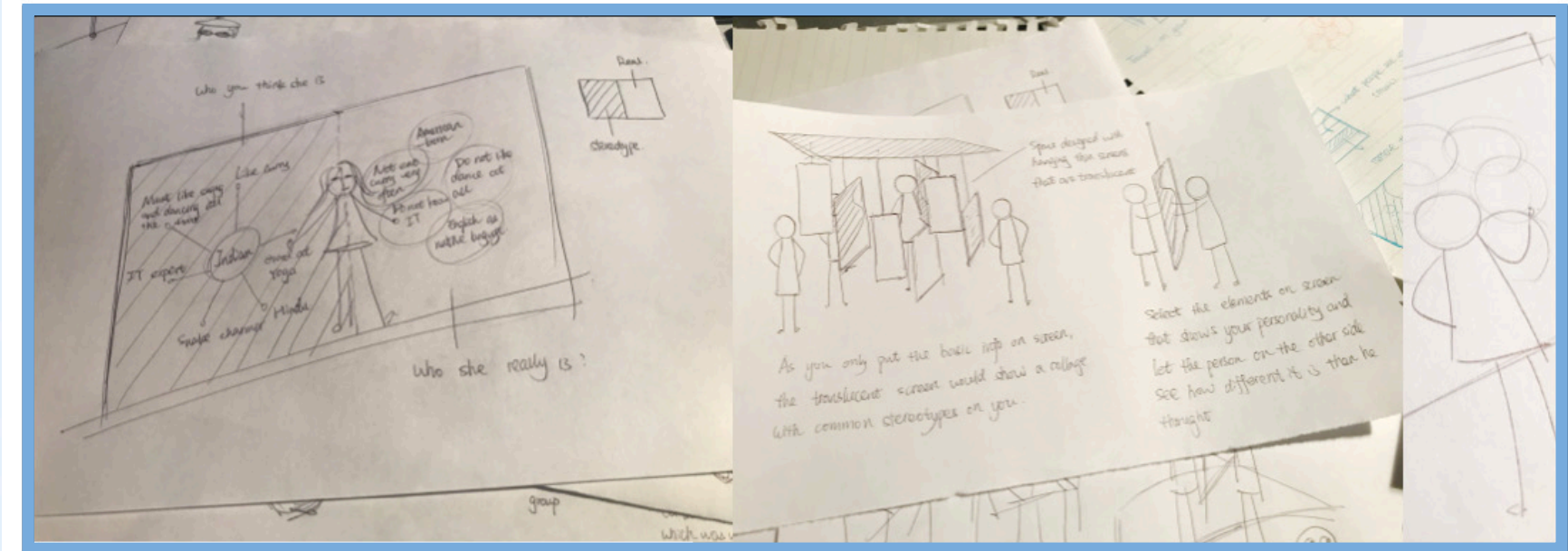
3.The third idea explored how interactive design can help students find allies on campus. The idea is that an app design can be developed to help students find each other on campus with similar experiences. It can be used to connect to other person or group with empathy on what you are experiencing, like finding a green zone for international students to share both the similarities, which could be called culture sharing.

●●●●●● **Ally finder**

Can not find people and place to talk about learning and sharing different culture or issues they are experiencing

Ally finder

-Find various people or groups to share both either similarities or different culture aspects.
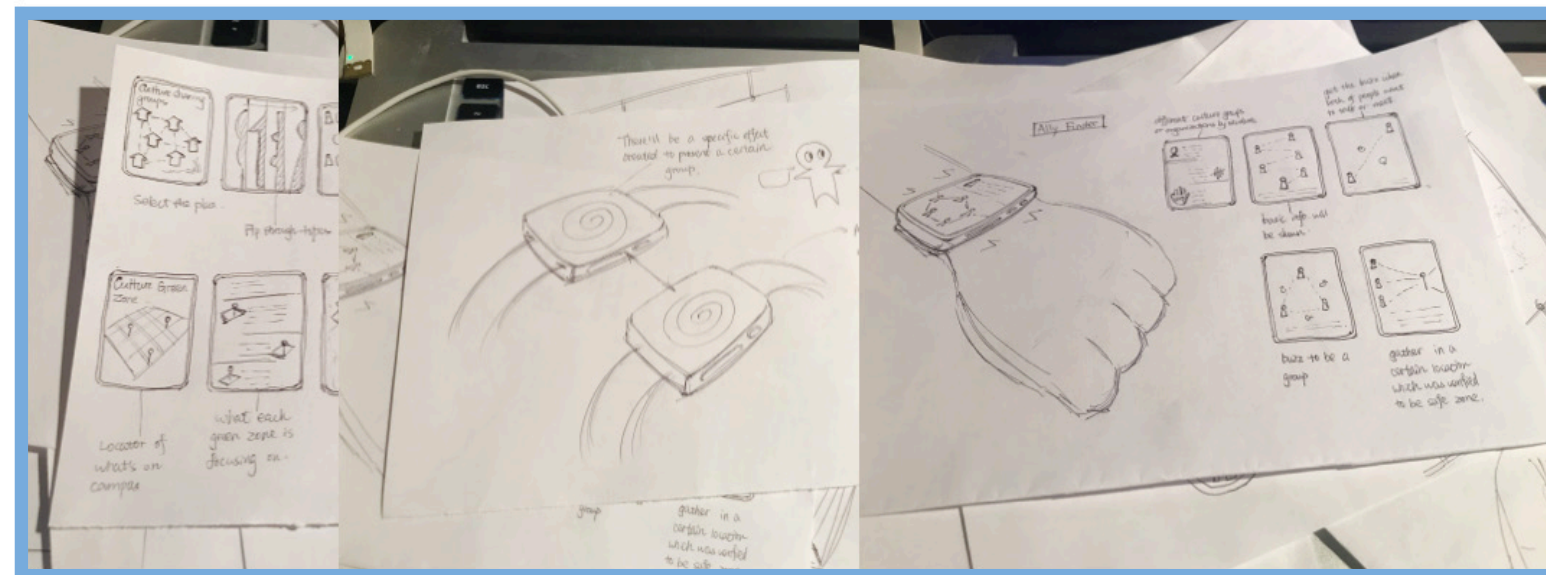
A Design Idea to Develop:

The Stereotype Filter was selected as the design intervention because it effectively addresses the problem that is the focus of this thesis. It has high potential to make a strong impact on fostering cultural awareness and connecting people.

Stereotype Filter:
A digital interface to foster cultural awareness

The Stereotype Filter is an intriguing and challenging concept and many elements need to be considered to realize the design objective from a digital interface perspective, such as the definition of stereotype, types of stereotypes, how people perceive stereotypes, possibility of realization. All of them need to be analyzed and seriously considered in detail. With the help of different theories and techniques, including database building, cultural elements selecting, interface design, program coding and running on existing systems, the expected effects might be achieved.

Analysis of Stereotyping

Stereotypes are viewed as a set of shared conviction and beliefs concerning individuals of a specific group. Not all socially constructed images are stereotypes. Some beliefs are also wrongly judged as stereotypes (Robertson 100). Stereotypes are beliefs and convictions that originate from a personal level. However, they legitimized when a group or set of individuals share the same perceptions. Stereotypes can be viewed from two perspectives: from the person whom the belief originates from, or the target of the belief itself.
Stereotypes can be based on any perspective, race, gender, religion, sexual orientation, or virtually any trait or characteristic of a person or group of people. Stereotypes can be positive. For example, women claim they complain about physical pain less than men. However, many stereotypes are negative. For example, some stereotypes are loaded with assumptions that people belonging to a particular race are inferior to others. In either case, stereotyping is an oversimplification of traits without taking into account personal differences. New stereotypes are hardly ever brought into existence,. Rather, older stereotypes are recycled from second generation groups that have wound into society and are used mostly to continue a spite cycle.

Negative stereotypes in learning environments lower academic results (Williams and Johnson 45) . The potential of a student under duress struggles to hold and comprehend new information. A learning environment is regarded as threatening if it incubates any stereotypes in any manner at all. While positive stereotypes foster highly cognitive responses, negative stereotypes barr cognitive behavior, which goes on to imply that stereotypes and behavior possess a direct relationship (Williams and Johnson 45). Even though there are gender variables, ethnic and socially graded class difference, that doesn't give leeway for people to be classified into stereotypes since they are more often than not obsolete, extreme and discriminatory.

Stereotyping international students only serves to widen the gap between them and the domestic students in the United States. In the manner that international students are generalized induces feelings of disconnection and puts them in a position of marginalization and unstable psychological grounds within the school or campus environment (Osland and Bird 66). that doesn't give leeway for people to be classified into stereotypes since they are more often than not obsolete, extreme and discriminatory. Stereotyping international students only serves to widen the gap between them and the domestic students in the United States. In the manner that international students are generalized induces feelings of disconnection and puts them in a position of marginalization and unstable psychological grounds within the school or campus environment (Osland and Bird 66).

Stereotyping international students not only has negative impacts on their learning performance but also on their ability to access job placements being of the view that the stereotypes are not exactly restricted to school grounds, rather they also filter into the rest of the community. This simultaneously influences educational agencies or individuals who champion for involvement of an international student base. Therefore, the key inquiry is what institutions and the international learning sector should do to come against those stereotypes while discouraging them. Stereotypes have been used to judge and class international students from domestic students (Trice 108). This proves how misguided stereotypes are. This is on the grounds that intellectual ability cannot be measured using biased variables that exist in the community at large. The extent of tasks seen as of high demand may be regulated by personal variations in operating memory (Trice 110). Stereotypical threats are also highly likely to happen if the individuals under scrutiny are conscious of the seclusion patched to their social groups. Individuals that subscribe strongly to their social groupings are the ones who are extremely vulnerable to being stereotyped. However, this should not dissuade any individual from embracing social and cultural beliefs that they were brought up in, prior to admission in the United States as international students.

Methodology for Design
-Questionnaires

In order to achieve the first-hand feedback about stereotypes, especially how people define stereotypes, how common stereotypes exist, the relationship between stereotypes and cultural background and the main reason people are stereotyped, I designed the questionnaire. The questionnaire includes following categories: ethnicity, age, gender, if ever being stereotyped or stereotyped others and why, example of the experience. The questionnaire was sent to people from China, U.S, Australia, Japan and Germany, and main group who took the questionnaires are people on campus, either studying or working. A questionnaire about stereotyping experiences was anonymously distributed through FaceBook and WeChat. The purpose of the questionnaire was to gather information that could inform the development of an interactive design experience that fosters cultural awareness between people through exposing stereotypes. The questionnaire asked people to share their individual experiences of stereotyping and being stereotyped. 18 people replied to the English version and 87 people replied to the Chinese version. In the English version, the results shows that 16.7% people thought they might be stereotyped and 83.3% said they were stereotyped. In the Chinese version questionnaire, 59.8% of them were stereotyped, 32.2% put maybe and 8% put no. They were asked to describe the experience of how they were stereotyped and how they have stereotyped others. The responses were summarized into categories that people reflected on the most. The themes that emerged were food, religion, sports, IQ, wealth and physical characteristics. The feedback suggests that when people stereotype others, they usually base their knowledge on what they heard from other people, or what they once saw. When asked to share the possible reasons for why they were stereotyped, they responded that films, one-sided TV programs and lack of communication are main reasons. Different people might define stereotype with different ways while receiving information from someone else, which is worth studying.

Stereotype Survey

This is an ANONYMOUS survey designed to learn more about stereotypes. The information you provide will be used to develop the content of a design intervention for an MFA Design thesis project. Participation is voluntary and completely private. Thank you for participating in this questionnaire.

* Required

1. Which of the following best describes you? *
Mark only one oval.

- Asian
- Pacific Islander
- Hispanic or Latino
- Eastern Indian
- European or White American
- African and Black Americans
- Middle Eastern or Arab
- Native American or Alaskan Native
- Other: _____

2. Which of the following best describes your age? *
Mark only one oval.

- child
- teen
- 17-19
- 20-29
- 30-39
- 40-49
- 50-59
- 60-69
- 70-79
- 80+

3. Which of the following best describes your gender? *
Mark only one oval.

- Female
- Male
- Other: _____

4. Have you ever been stereotyped? *
Mark only one oval.

- Yes
- No
- Maybe

5. List ONE stereotype you've experienced. *
_____

6. Why do you believe you were stereotyped (based on previous question)? *
_____
_____
_____
_____
_____

7. List ONE stereotype that YOU'VE projected. *
_____
_____
_____
_____

8. Why do you believe you participated in the stereotyping you listed in the previous question? *
_____
_____
_____
_____
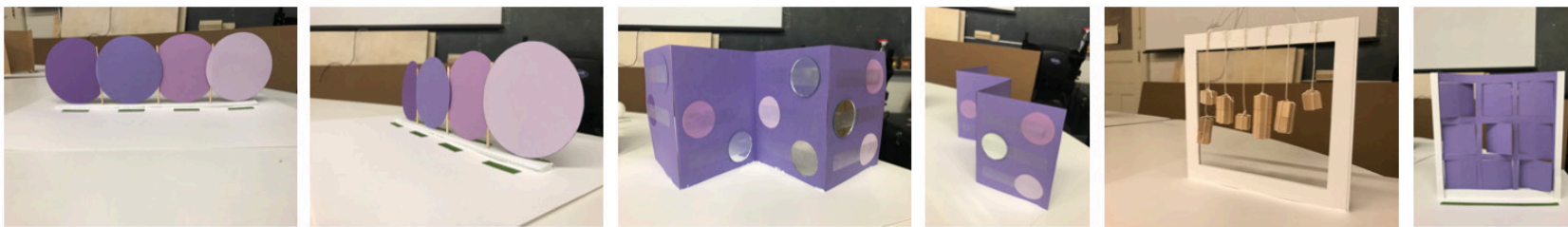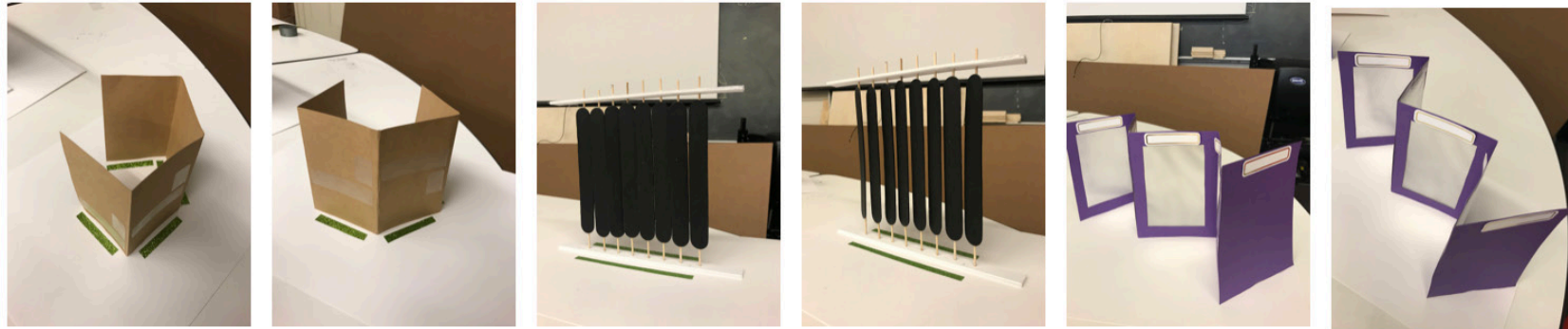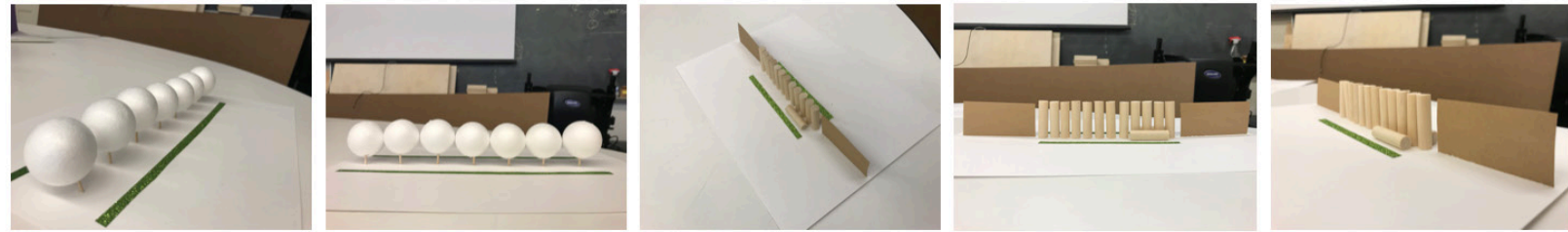
Methodology for Design
-Idea developing & Prototyping Process

Scaled-down mockups were built to explore how an interface design could be applied in space in creative and playful ways. Elements that were explored included gamification and hands-on experiences. Various shapes, materials, transparencies, were considered as possible techniques to separate and communicate information. Rounds of analyses were performed and the pros and cons of each physical and digital interface application were documented. Each were analyzed and compared. The physical interface proved to be limited when transferring information essential to the goal of the design. This supported the decision to develop the physical interface into a digital platform which can prompt a more efficient conversation.

The full-size mock-up was built and the projection was tested on semi-transparent screening paper where the interface could be seen on both sides. One horizontal and one vertical experiential space were created by cardboard and film paper. The interface testing that followed helped inform the development of a full-size screens simulated by touch-based stations.
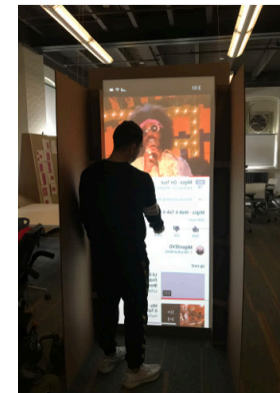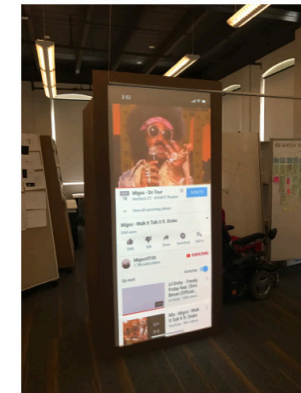
Design Outcomes
-Interface design

Since the diversity is a great advantage of college campuses, using campuses as a background to create the design provides more opportunities to connect students and conquer the cultural barriers. Therefore, using digital interface to create an interaction design is a good choice to fix the problem of stereotyping. The resulting interface design focuses on creating a special venue of intercultural conversation between college students. Controlled by an app, the interface use keywords that provide stereotype-like prompts and general information about various cultures. The design allows people to engage in "live" exchanges of information through the app. This encourages them to talk and learn about their respective cultures. It provides the participants with a meaningful experience by using interesting real-time interaction. When the interface reveals the real person, the real image of self and the external stereotype can be compared, the change of the original stereotype can be recognized with the recorded interactive results and its analysis.
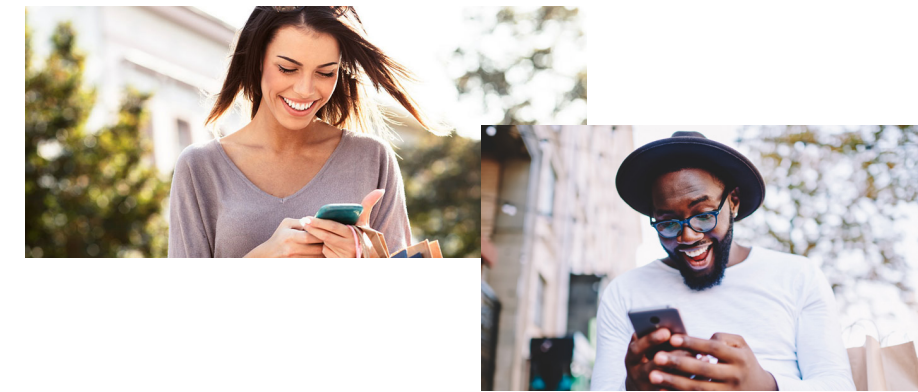
How the Interface design works
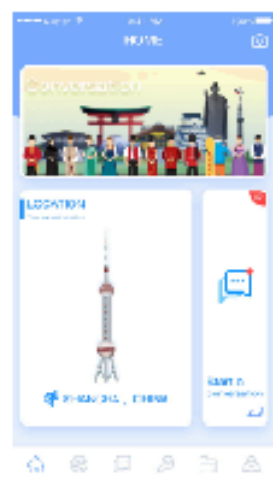
Home page: including menu bar, location and conversation.
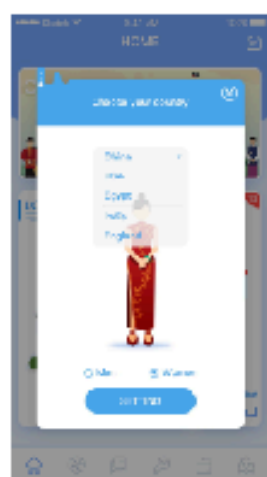
The first time you enter the app, the setting window will pop up. You can select your country.
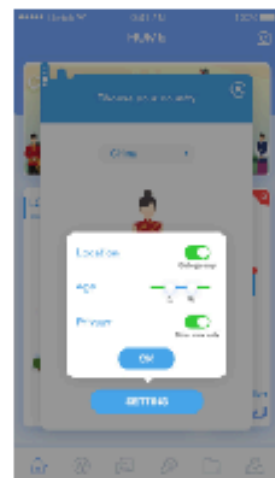
Set up your preference and hit OK.

Click "Start a conversation" to connect to another person from a random ccountry.

The wheel will spin to a random country.
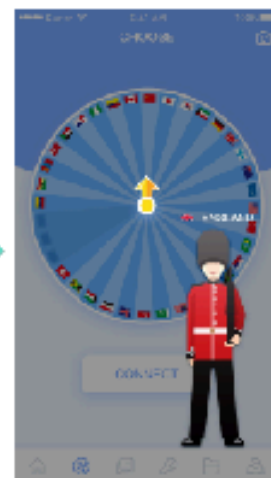
The figure they picked for their country will show up on the connecting interface.
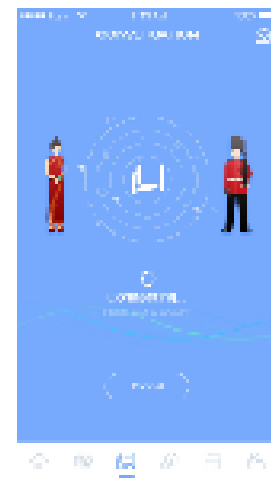
Connecting
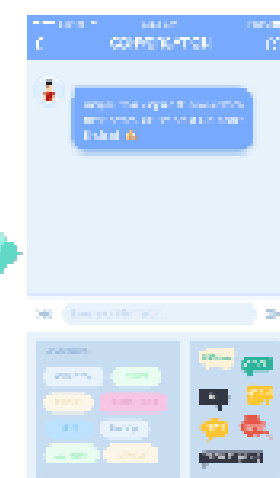
The conversation will start here. And you have topic, key words to click on or use in the conversation.
Quick reply sheet here also help you better communicate.
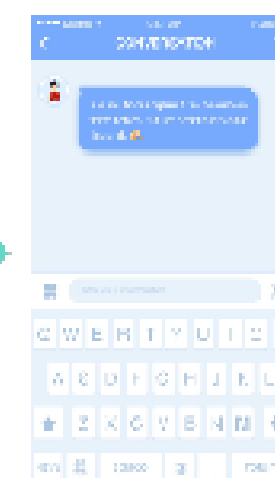
The conversation continues.
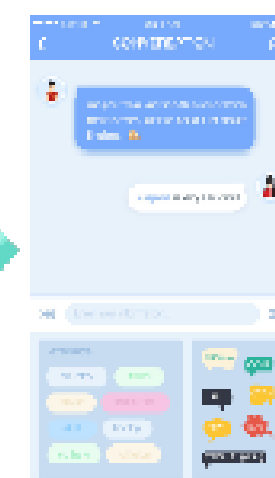
Key words such as country, food, travel, religion etc. even occur in the conversation.
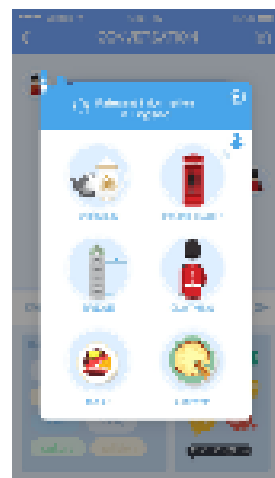
Once key words occur, say words, related pictures that represent what in our people in other culture think will be searched out automatically and show up in bubbles, which contains people's assumptions or basic knowledge of that culture.
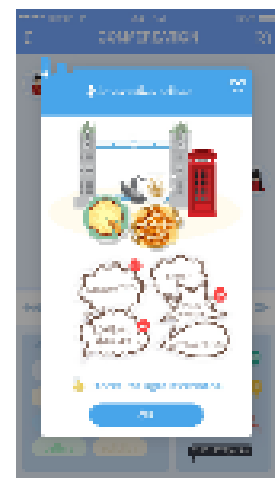
After the whole conversation, information collage will pop up and you can see their information in the bottom that you feel the one depicted the person on the other side through what you acknowledged in the conversation.
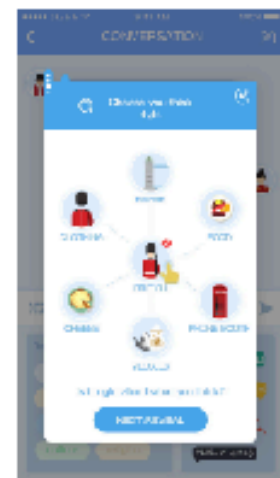
After you picked the information, this picture will show up to combine what you selected.

Then, the camera will be opened, you will see yourself and peron on the other side at the same time, saying hi and take a group photo if you want to upload to social media or just for memory.

Tap at the same time to get a group photo.
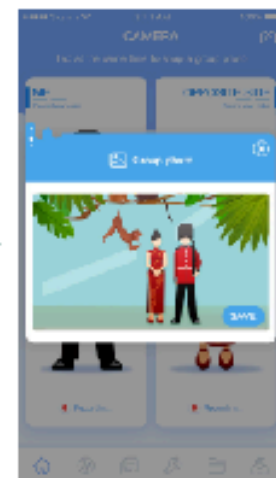
Group photo compositing

Personal profile

Map: you can see through the dropped pins of how many people are using the interface at the same time in certain area.

CONVERSATION

Conversation begins

Key words appears

Relevant information in England
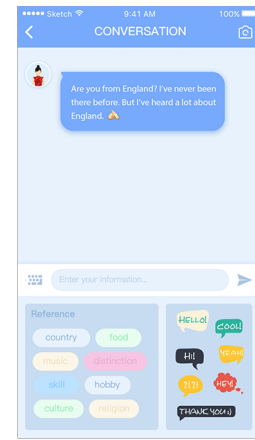
Related information that represents people's stereotype popped up. Conversation continues, and these topics will be discussed.
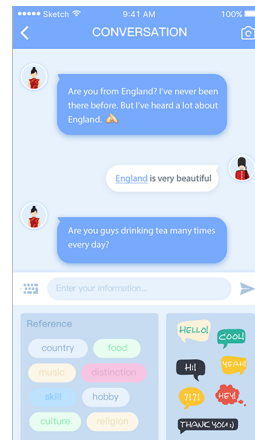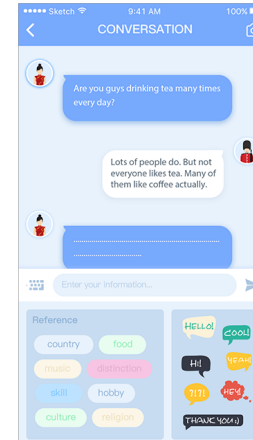
Real information will be exposed while the conversation continues.
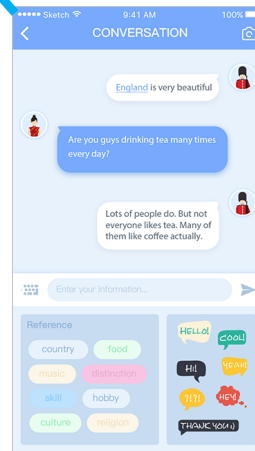
Keep talking

Keep talking
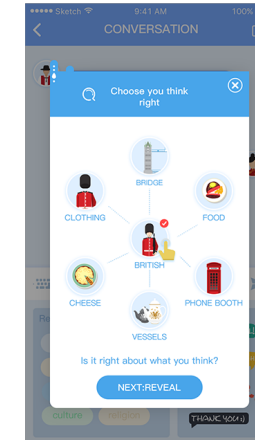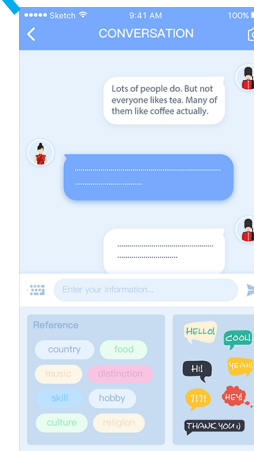
When conversation finished, the app will create a information collage for you as a conclusion that contains both real information and stereotypes that still existing theough the talk and ask you if the information is right to represent the person on the other side.
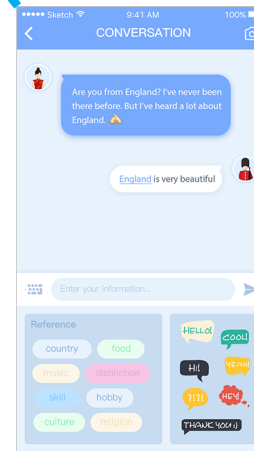
Design Outcomes
-Interactive experience simulation

A video simulates the experience of operating the interface, through the full-scale interface is projected onto a built-in screen. When people see the operating process step by step, it produces the effect that an actual person is actively touching the screen and using the interface to converse with another.
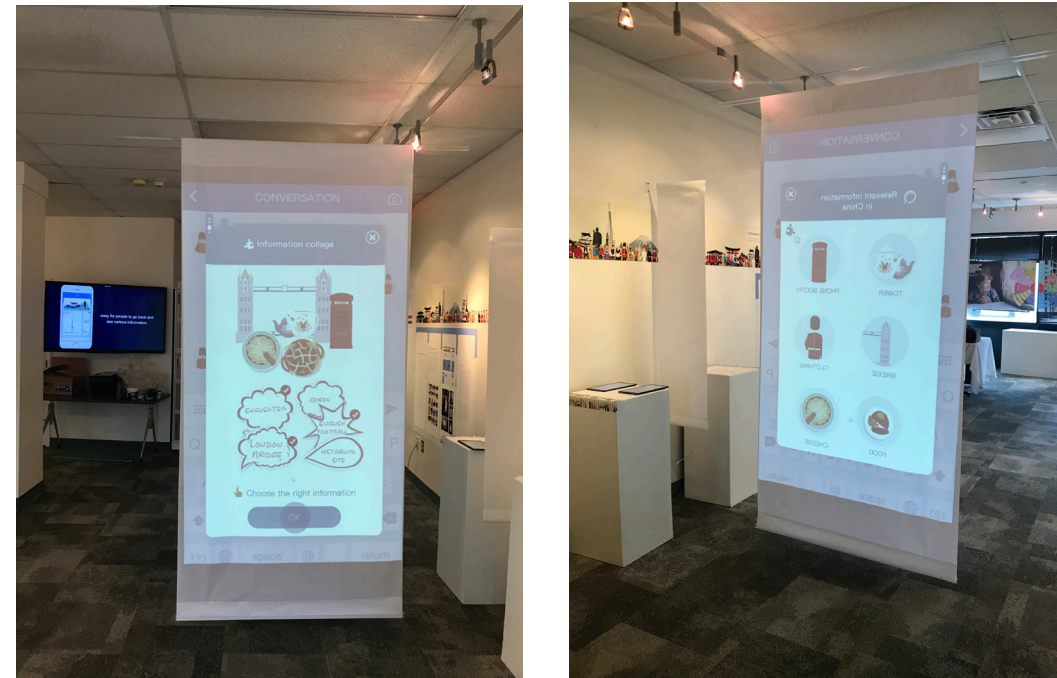
Design Outcomes
-The app prototype

The app prototype at first step is designed to work for people from five countries: United States, China, United Kingdom, India and Egypt. Apart from the United States, China, India and the United Kingdom were selected because their big number of international students in the United States. Egypt is selected because the international students come from Africa. In the completed App prototype, five countries were selected and used as examples to test the App prototype so that participants can experience the interaction through using it before a huge database is established.

Conclusions
-Reflection & Summary

Based on the research and analysis of stereotyping issue on college campuses, an interactive digital interface based app was designed and feedback was collected from people on campus, especially college students.The App prototype was designed and tested to make sure it functions on all smartphone platforms, that the touch screens worked properly, and for streamlined and effective on-site projection. The process of developing the interface included gathering meaningful feedback and suggestions from peers and professors.

The participants generally believed that stereotype problems exist in different degrees, and affect the mutual understanding and effective communication between peoples. The main motive and reason for the interest of the App Stereotype Filter may result from the desire of participants to enhance understanding from each other, since they know the objective difference between the outside impression and self-identification information. Most of the participants are interested in the App of Stereotype Filter, and consider that the elements involved in this digital interface, including state, gender, clothing, food, hobbies and cultural sights, can basically reflect the specific cultural characteristics of the countries in which the participants were located. The participants considered that the visual interface of the App is friendly and interesting. The optional, interactive and comparable key elements in the App can attract people's attention, and promote the awareness of cultural communication through participation and interaction.

The projection demonstration has a strong visual impact and is suitable for displaying and promoting the application of the App.

Therefore, combined with the design objective of this study and the feedback information of testing for the designed App Stereotype Filter, the following points are summarized.

1. The App Stereotype Filter designed in this study exhibits an interesting and engaging level of interaction. It can stimulate the participants' spirit of exploring the unknown information, and encourage people to participate in the attempt and communication. A further understanding of other cultures can be realized in the process of dialogue and interaction through the App.

2. The designed digital interactive interface used diverse elements of different national cultural attributes. Through a friendly digital interface, the interaction of both sides and the later presentation of the real images make the participants feel the universal existence of stereotyping. Through the analysis of the results with visual impact and information comparison, the cultural exchange consciousness might be awaked and improved.

3. The designed App prototype achieves the expected conceptual design goals through the basic data including five countries as examples.

4. By using the touch screen station, the amplification of digital interface and related interaction were realized. The result may help to extend the adaption of the App to people with different ages, and the situation in different environments. It delivers a possible way for the App to realize the design goals of Stereotype Filter in a wide range application between fixed stations in different places.

Conclusions
-Conclusions

The problem of stereotyping exists universally and is worth studying to improve the experience of international students. Knowledge about this topic was gained by through an online questionnaire, a comprehensive literature review of related research, and through a content analysis of possible design interventions. Considering the cultural diversity of American university campuses, taking university campus as a typical scenario, it aims to help campus students conquer cultural barriers, this thesis developed an interactive design solution to address this problem. The digital interface of the designed Stereotype Filter can make the interaction more vivid through the presentation on cell phone, touch screen and projection. It provides the participants with a meaningful experience by using interesting real-time interaction. By the comparison of the real image of self and the external stereotype, the change of the original stereotype can be recognized with the recorded interactive results and its analysis. The application of this design research might effectively foster cultural awareness and promote mutual understanding among people of different cultural backgrounds. It may provide a useful way to solve the problem of Stereotype on campus, which is of significance for cross culture exchange of people from different countries.

Conclusions
-Limitations:
The resulting design has some limitations. First, the database system to support the App prototype is limited, only five countries were selected as examples to meet the necessary need of realizing the design concept of Stereotype Filter. Second, the digital interface has not yet been tested by human subjects. Third, the digital interface in various systems and the assessment of commercial application still need more teamwork to collaborate with information technology and business planning partners.

-Further research expectation
In order to achieve possible commercial applications in a wider range of different media systems, further research is needed. First, the digital interface can be improved to involve additional cultural elements. Various selections should embrace both specific broad research, which should include people from an even greater array of countries. Second, the improved App should be tested by volunteers and therefore IRB approval will be required before testing. Third, additional collaboration with IT engineers will be expected and the construction of a big data system and a commercial value assessment can provide support to the practical application of this design.

Appendix

English version Questionnaire responses examples

Chinese version Questionnaire responses examples

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