

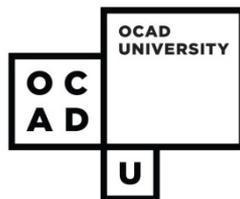
***“Masters of Laoting Shadow Play”***

**Experiencing traditional art practice in virtual space**

by

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陈碧君



A thesis exhibition presented to OCAD University  
in partial fulfillment of the requirements  
for the degree of Master of Design  
in DIGITAL FUTURES

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***“Masters of Laoting Shadow Play”***  
**Experiencing traditional art practice in virtual space**  
**By Bijun Chen**  
**Master of Design, OCAD University**  
**2018**

**Abstract**

As a child growing up in China, traditional art forms such as shadow plays and paper cutting were popular and spiritual arts enjoyed by everyone; they were also entertainment and decorative art. After a few years studying abroad, I found that such cultural treasures could hardly be found in public or during major festivals; everything seemed to be replaced by digital entertainment. As traditional Chinese art forms are a part of me, it would be sad to see those intangible cultural practices vanish. For this thesis project, (1) I will use field research to interview and understand the current landscape for one living artisan in China who still practices an art form at the brink of extinction, and (2) produce an immersive 360 documentary short that retells his/her stories and recreate a viewer’s experience of these forms from an observer's perspective, as a way of preserving these important traditional arts.

**Keywords:** Documentary, field studies, 360° cinema, heritage digital preservation, storytelling, Google Cardboard

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To Guoliang and Jingyu.

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# 1. Introduction

## 1.1 Background

My thesis and research topic are inspired by conversations I had with my parents about engagement with traditional arts in China. While my parents are huge fans of Beijing opera, Kunqu opera, and many other traditional art performances, they are sad to see the seats filled only by people using free tickets handed out by the government. This art form, highly important to Chinese culture, is being forgotten by the younger generations; to the point where the free tickets, handed out so that the performers are not embarrassed playing for an empty audience, are the only reason people go.

There are many ancient art forms from my hometown that are on the brink of extinction. Most of them have histories dating back at least 200 years (Mackerras, 1991)— Beijing opera for example, began in the Qing dynasty. As these art forms and cultural traditions are losing relevance for newer generations, it is essential to preserve these treasures in a way that make the art form accessible for today's young people. There is also an opportunity to share these cultural forms with Western audiences, which they may not have had access to before. Preserving this cultural heritage is also beneficial for artists, historians and cultural scholars in the future.

UNESCO has identified the need to preserve what it calls "intangible cultural heritage," for several key reasons: "to safeguard the intangible cultural heritage; to ensure respect for the

intangible cultural heritage of the communities, groups and individuals concerned; to raise awareness at the local, national and international levels of the importance of the intangible cultural heritage, and of ensuring mutual appreciation thereof; to provide for international cooperation and assistance“ (UNESCO, 2003). Personally, preserving such culture and art practice not only means protecting the essence of spirit, history, and civilization of my home country. With the limited time of this thesis, as the researcher and designer of this project, I decided to archive the most easily approachable art forms, where I could connect to masters with personal significance.

It is not necessarily difficult to find someone with a good understanding of Chinese Art and cultural practices, nor is it particularly challenging to find experts that do 360 filmmaking. However, it is the intersection point of those two aspects that matters the most - a person/researcher/designer has to have enough understanding of both 360 videos, and traditional art and cultural practices for those art forms, in order to share this experience with an audience, and for this work to serve as a tool for cultural preservation.

During my research trip in China in December 2017, I studied three masters artists, Wei Lu for Beijing opera, Shangjie Liu for Laoting shadow play, and Mengxiong Li for Jingyun Dagu (drum songs of Beijing). All of them are quite well known within their field, and all of them were very supportive and helpful with my questions and requests (it is very rare to see such selfless help without any direct benefit in return in today's Chinese society anymore). During this process, I gathered much information, data, knowledge, and formed important connections.

My objectives for this project include:

1. *Exploring the use of 360 videos as a tool for cultural preservation.*

Immersive 360 video is a relatively new medium which is becoming more available and affordable to the public, and it has untapped potential for preserving cultural heritage. With the current state of traditional craft in China, art and cultural preservation needs to be addressed with great care and importance. I am also interested in preserving these practices on a personal level. An objective of this project is to merge those two elements and expand the current use of immersive 360 videos by exploring its use as a tool for cultural preservation.

2. *Exploring the advantage and affordance of 360-degree filmmaking techniques, especially in preserving memory and experience.*

I plan to use the affordances of 360 video to create a documentary short that will provide experiential insights into these art forms in a way other mediums cannot achieve. This research-creation will also provide an example for how 360 videos can promote cultural preservation.

3. *Creating a record of vanishing art practices.*

While I cannot prevent these art forms from dying, I can help prevent them from disappearing from people's memory. My objective is to use immersive 360 documentaries in the field of cultural preservation as a new method, alongside existing widely used methods such as 3D scanning and digital games.

## 1.2 Research Question

*How can 360 video acts as a tool for preserving the memory and experiences of endangered Chinese art forms?*

I hypothesize that as an immersive storytelling tool, 360 video can connect with users with different cultural backgrounds and identities to traditional Chinese art forms in a more meaningful way - to provide them with a more enriched, extended, and vivid experience than is possible with video alone.

360 video allows for an immersive form of storytelling that gives the user agency in deciding where to look inside a designed scene, rather than the singular perspective of a frame or lens. It creates a sense of presence or immersion because 1) the virtual environment responds to the user as their head turns around just like in the real world, and 2) because the virtual environment itself is footage taken from the real world (particularly 360 videos taken with high resolution). With these combined factors, the human brain signals that the current environment is perceptually real and natural. Feeling present is important because the user may feel a higher level of interactivity (Fox et al., 2009), an increased level of attention (Slater, 2003), and they may experience varying levels of intensity (Calleja, 2014). By immersing themselves more fully into the space and the story, audiences will be able to see and feel more of what a person in the environment would see and feel, creating a more powerful connection with the traditional art forms.

## 1.3 Theoretical Framework

This section discusses the theory this paper builds on, including social presence theory and transportation theory, and it explains why immersive 360 could be effectively used for this thesis project.

### 1.3.1 Social Presence Theory

Short, Williams and Christie (1976) state that social presence is the “degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationships...”. Social presence was developed later by Gunawardena (1995), as a measurement of the degree of how “real” a person is perceived in mediated communication, and how communication media tools may vary in terms of social presence. It directly determines how the users interact with the medium. For example, “Newspapers and letters put the reader in a space where the writer is telling a story, television places the watcher in a virtual space where both viewer and on-screen objects are present, video games can create virtual space where the player is an actor” (Steuer, 1993). Social Presence Theory could be particularly effective in this thesis project if we consider where immersive 360 video sits on the spectrum of social presence. It can help us understand whether 360 video is able to transfer experiential knowledge better than a standard documentary film or series of photographs. In other words, it helps address the question of why choose 360 videos as a medium for cultural preservation projects?

Type of Presence	Description of Presence
Conveyance of social cues	The degree to which any given medium has the capacity to transmit information that is perceived by a participant and used in the interpretation of the message
Fidelity of representation	The degree to which a communication medium creates imagery and other sensory input that has high fidelity relative to the target person, place, or thing that is the focus of communication
A transport mechanism	The degree to which a medium can give a user a sense that they are transported elsewhere (i.e., “you are there”) or bring a place or objects to the user’s location (i.e., “it is here”)
Immersion in a space	Either physical immersion (i.e., immersing sensory organs into physical devices like head mount displays and headphones) or psychological immersion (i.e., creating a sense that one is inside the space)
Social actor in a medium	When an observer treats a character in a medium as a social actor regardless of whether that actor can respond or is controlled by a human actor (e.g., watching and talking back to a TV anchor)
Computers as social actors	When people treat inanimate objects that do not resemble human actors (e.g., computers) in a socially sound manner

Table 1 The types of presence (Lombard & Ditton, as cited by Mennecke et al., 2011)

For this project, I hypothesize 360 video relates the most to *a transport mechanism* and *immersion in a space* as types of presence. The *transport mechanism* indicates that users can be relocated and transported by the media by creating different perceptions in them (Lombard & Ditton, 1997). A medium can give the user an impression that they are transported somewhere else; either bringing the place (or an object) to user’s location, or the user can be brought to the place. In both ways, the user will share the experience of, and copresence in, the space. This transportation is typical in media with high levels of realism (Mennecke et al., 2011), for example, playing a video game with a virtual reality system. In some horror games, players feel extra tension, and it is much terrifying than

computer screened based 2D video games due to the transport mechanism type of presence and the high level of realism.

*Immersion in a space* is a type of presence that suggests a more in-depth immersion within the target presentation's authentic environment. Said environment is able to be delivered to one's sensation through the communication medium (Lombard & Ditton, 1997). The immersion, in this case, falls into two categories: physical immersion (i.e., to immerse eyes or ears into VR glasses or headphones) or psychological immersion (i.e., immerse one into a virtual space by creating a sense), which psychological immersion is commonly the objective of creating on big screen televisions, virtual world, or virtual reality environments (Mennecke et al., 2011). Even though physiological immersion is not always needed to create psychological immersion, to accomplish a perception of immersion requires a minimum level of physiological immersion (Isgro, Trucco, Kauff, & Schreer, 2004). Therefore, for the thesis prototype 360 video, with the use of *Google Cardboard* or other head-mounted display systems, the users should experience a deeper level of immersion into the scene than interactively viewing it from a computer screen.

### 1.3.2 Transportation Theory

Green & Brock coin the term *Transportation Theory* to describe how audiences are likely to have stronger emotional connections to the real or fictional characters if they are immersed in a narrative world (Green & Brock, 2000). They argue that, "(c)entral to the process of identification is the adoption of a character's thoughts, goals, emotions, and behaviors, and such vicarious experience requires the reader or viewer to leave his or her physical, social,

and psychological reality behind in favor of the world of the narrative and its inhabitants” (Green, 2004). Based on this model, I expect by entering the world of the artisan masters, the users may feel a deeper connection to the process, and therefore care more deeply about its disappearance.

*Transportation theory* works in virtual reality environments by transporting the user him/herself as a character, to the virtual environment through imagery with the context of the “story” (Tussyadiah, 2016). For instance, a tourist traveling on a tour would pair up the target scenery expectation to one’s imagination, thus immersing them into the place they are visiting. Kim and Biocca (1997) stated that there are two factors of being transported into “presence”: arrival and departure, while arrival being feeling present inside the virtual world, and departure being feeling separation from the real and physical world.

*Transportation theory* is also applied for entertainment effects in public health issues such as movie smoking and tobacco use (Morgenstern, 2011). When individuals transport into a narrative world (movies, books etc), they tend to change their personal beliefs and even behaviors to match the story or movie. For example, smoking scenes are likely to have a different impact for smokers than non-smokers (Wagner, 2011). In this case, it would not matter if the characters are real or not. Due to the huge impact of on audiences' attitudes and behaviors through transportation, transportation theory also leads to further important implications, such as dose-response effects, transportation into anti-smoking narratives, placement and framing of anti-smoking messages, an illusion of invulnerability, and immediate effects of transportation (Green & Clark, 2012). In the prototype 360 video, I am

anticipating users will both feel present within the virtual scene, and be impacted by their transportation into the experience.

## 1.4 Methodology

### 1.4.1 Ethnography

“Ethnography consists of the observation and analysis of human groups considered as individual entities (the groups are often selected, for practical and theoretical reasons unrelated to the nature of the research involved, from those societies that differ most from our own). Ethnography thus aims at recording as accurately as possible the perspective modes of life of various groups.”

- *Structural Anthropology* (1963), by Claude Lévi-Strauss.

Ethnography is the study of people in their natural environment. Ethnographic research provides an in-depth understanding of a subject’s worldview and actions. Some methods of ethnography include direct observations, photography, video and audio recording, and artifact analysis (Atkinson et al., 2001). Such observations may take place in any natural settings for the subject; it could be his/her workplace, home, or gathering with friends or family. The research length may vary from a few hours, to months or even years of studies (Given, 2008).

Participatory ethnography involves recognition of the researcher/designer as a part of the research process. As an ethnographic method it invites in general members of the community to develop contextual and in-depth data (Price & Hawkins, 2002). This approach does not necessarily require the same length of time (trust building time) as other anthropological approaches; this is because the researchers typically already have connections and relationship of trust with the interviewing community members. Additionally, data collected with this process has the potential of yielding a more in-depth comprehension than some other data collection methods (e.g., online surveys and questionnaires) (Hammel, 1990).

I employed ethnography in this thesis research through observing my three subjects' daily lives (especially when they host or attend events), and conducting both informal and formal interviews with them. I visited their homes, studios, offices, theaters, attended their performances and shows, and obtained photos, regular videos, 360 videos, and audio. The average time I spent with each subject was three days.

#### 1.4.2 Field Research

As part of my ethnography I undertook field research, which involving observing and analyzing real-life situations, as well as studying actions and activities as they occur. Field research relies on learning first-hand about a people, and a culture (cf. Powdermaker, 1966a). Some methods for data collection include:

- 1) Observations: the researcher has a firsthand experience with the participant in their natural environment, and can record information as it occurs.

2) Interviews: allows my interview protocol to gain information from subjects that helps completing the thesis project. Object analysis could be a way to initiate the questions. I would undertake an analysis of the art object, such as why and how it was made, and who was it made for. Interviewing with the masters can also give the artist an idea of what should be included by the end of the 360 video - which line of the story, or which setting would be most effective in communicating a sense of the environment and space.

3) Audio-visual materials - photographs, regular and 360 video recording, audio recording on interviews and literatures, and art object collecting: an opportunity for participants to directly share their reality (Creswell, 2014).

## 2. Literature Review

The following literature review will examine: 1) the preservation of traditional art forms such as shadow play, within other digital media as tool used in cultural preservation such as interactive computer games, digital scanning, virtual reality and augmented reality, 2) how immersive 360 video could be used as a tool for storytelling, such as using VR headsets, and Hyve-3D, and the use of immersive storytelling for an artifact in museum and show; and 3) relevant examples of other 360 video works.

### 2.1 Digital Media as Tool for Cultural Preservation

Only recently are people starting to realize how traditional art forms, such as shadow play, are endangered and facing extinction. Increasingly Chinese shadow play artisans lack successors, since most youths prefer to make a financially viable career, even for the direct descendants of the master practitioners. The current practitioners are becoming aged. Take shadow play craftsman and actor Hu Changyou for an example: he is a 66-year-old man by the date when Lin's (2002) article was written, and he learned the skills for shadow play when he was very young. Shadow play is also extremely tough to make, practice or perform (Chen, 2007). For these reasons it is essential to preserve such artforms, and document their process, while these master artisans are still around, and preserve the artifacts of performance such as the shadow puppets themselves. The Chinese government is trying to protect arts such as shadow play from extinction by setting up intangible heritage centers to study, research, and build archives for China's artisinal legacies (Lin, 2002). However, audience feelings of happiness and entertainment when experiencing such art forms are

even more difficult to preserve, because we are now living in a completely different world where everything could be inside of a cell phone. Lin (2002) notes it is such a pity that most people today may never feel the happiness shadow plays can bring. Despite efforts to protect the form, it is still going extinct, as it is slowly replaced with digitized entertainment such as TVs, mobile phones, tablets, and 3D prints. The new digital technology of virtual reality and immersive storytelling could be effective within the topic, and only audience immersive themselves fully into the space and the story, they are able to see and feel what the person was in the environment saw and felt.

Digital technologies have advantages and disadvantages in the field of cultural heritage preservation, specifically in their use in museums and public spaces. Biryukova and Nikonova (2017) identify two directions for digital cultural heritage preservation: one being an electronic form of traditional cultural storage, and another one is electronic forms of new cultural objects (most used in intangible heritage) which may become the object of the cultural heritage. This thesis project uses the second kind of preservation: a new digital work, in the form of a 360 video of existing and endangered intangible art performance. Biryukova and Nikonova also suggest that interactivity is the fundamental aesthetic innovation of digital cultural preservation. Being able to interact with the video, even if only perceptually, is an essential role of 360 cinema, and one reason why using 360 videos can be effective in the area of cultural preservation. The paper also maintains that while doing such art or site preservation digitally cannot replace the monuments (in my case the ancient art practice of Chinese shadow play, or ancient Beijing or Qunqu opera), it will be useful to give the users/viewers ideas of more than just the object itself: by immersing them in the experience of the real performance and the space.

There are many digital methods being used in preserving cultural and historical heritage. For instance, *ShadowStory* (Lu et al., 2011) is a creative and collaborative digital storytelling piece inspired by cultural heritage, specifically traditional shadow play. The children of our current day have fewer ties to their cultural background and traditions, yet they tend to be addicted to digital technologies, such as computer games and electronic toys. *ShadowStory*, on the other hand, is an interactive system specifically designed for children, that allows children with no experience or skill of the original art to perform such art practices, such as Chinese shadow play (Lu et al., 2011). This project strongly ties between Chinese traditional art practice and a new form of digital technology, similar to my thesis project. The deliverable of this project is a form of digital system/game, with the characters in the game being traditional shadow puppetry, which features a deep level of interaction between the players and the content. By the end of each play, the users are likely to understand more about how the puppetry works. In contrast, my project focuses on the background story and the experience of being inside of an immersive space, rather than the mechanics of shadow play puppetry.



Figure 1 Three children playing with ShadowStory

Yikai (Glen) Zhang (2016) has researched new ways of using digital technology including digital scanning, virtual reality and augmented reality to preserve the architectural heritage (two temples) of China. These projects were initiated by marrying his two favorite concepts together: mixed reality and architecture heritage preservation. In his paper, he discusses his research on the historical and economic causes of the heritage buildings being unprotected and facing the fate of disappearance, using case studies, field and internet research. His hope and his goal for this project is that if one day the architectures no longer exist, his models of the building which took place earlier can help people rebuild the temples, or alternatively will exist digitally forever. For his prototype, Zhang made an app, with both virtual and augmented reality modules, on the mobile device to observe the two historical buildings. In virtual reality mode, users can view a poster of the temple and the 3D model of the building will show digitally on the mobile phones (Zhang, 2016). In augmented reality

mode, the users will be given the ability to visit through the temples as if they were on a tour. Zhang's use of process documentation and contextual field research was an influence in structuring my own thesis work.



Figure 2 Users are experiencing the project under the AR scene (Zhang, 2016)

## 2.2 Immersive 360 video as Tool for Storytelling

There are different existing systems for immersive storytelling, with diverse viewing effects for the audience. Dorta, Pierini, and Boudhraâ (2016) discuss and compare two kinds of immersive display systems, VR headsets, and Hyve-3D, in relation to social perspective, and their benefit and limitation for showing movies. This is relevant to my thesis project because it answers the question of what is the benefit of 360 videos viewing in VR, and also gives insight into the production process (identifying the elements I should pay more attention to),

by conducting user testing and experiments. One result of this research is that the participants feel a good sense of presence, experience themselves being transported into the virtual environment, and feel closer to the characters (Dorta et al., 2016). This paper also cautions that the act of watching movies is generally a social event that people enjoy to do with others as they like to share experiences. Using VR can isolate the viewer from others (in the experiment it is common that subjects try to communicate during the videos), therefore it is ideal to keep the duration of the content (in my case the documentary video) short - less than 10 minutes. Some of the challenges this research highlights includes the importance of guiding the viewer with the main event, since with 360 degrees it could be easy to get lost in the story with a missing main event (Dorta et al., 2016). It could also be challenging to hide the video production crew and equipment during shooting because all 360 degrees will be exposed in the scene.



Figure 3 Hyve-3D (Dorta et al., 2016)

Stogner (2011) discusses the power and use of immersive storytelling for an artifact, especially within a museum or show.

When we combine an artifact and an immersive background story, it gives visitors/ users a more enriched and extend experience than just looking at one object or hearing about one story has it brings way more powerful narrative (Stogner, 2011). The article talked about the advantage of the 21st-century media technology being a two-fold. As they can attract a more diverse range of users and visitor, they can also expand both the range and the depth of user experience, especially in a museum.

One thing this paper helps address is the question "out of all the digital technologies, why choose VR, why choose 360 videos?" With different cultural experience and background of users, immersive storytelling techniques can connect visitors with different cultural backgrounds in a more meaningful way in the story. As Boehner, Sengers and Gay (2005) note, "Affective presence incorporates the ineffable but inescapable qualities of lived experience including emotions, spirituality, social communion, and creative inspiration."

## 2.3 Related works

There are many 360 videos found on the Internet that serve a similar end goal to my project: to brings an extended, and vivid experience to users by shooting a real environment that a regular person can not access. For instance 360 videos and documentary are being used to film what is inside of an actual war (Pirog & Solomon, 2016), or being used in an Amazonian

forest that needs protection from human beings (WWF International, 2015), or a flood disaster that is happening on the other side of the earth (Vikatan TV, 2016). Some serve an educational purpose, to help people understand and see what is happening on another end of the world, and also present a call to action to respond to a crisis. *Happyland360* (Rabtsun, 2015) is one particularly relevant example. It is a real-life captured 360 documentary, and people can look at it through a simple VR headset (*Google Cardboard*). It is one of the first 360 documentaries taken in southwest Asia. The artist went into the lives of five different people, and retells their stories (Rabtsun, 2015). For persons like myself, it would be hard to imagine what such places be like. Listening to their story by reading a book or from audio track would not as effective as immersing myself into such environment. The feeling of being present in another person's reality could be extremely impactful for viewers. The work is based on the artist's research surrounding a huge dumpsite in Manila where 40,000 people live and survive. In the future viewers look into this video might realize the poor condition those people in the video live in, they could help them if they can, or they can relate it to their current life which is potentially much better. For the people in the video or the officials in Manila, it could be a record of what happened at that moment. For 360 filmmakers like myself, it could be a great reference and example of how to make 360 documentaries, and the style could use in certain circumstances.



Figure 4 Viewing *Happyland360* in a *Google Cardboard*

After gaining more knowledge about creating and editing 360 videos and coming back to this video, it may seem a bit raw in terms of a 360 documentary piece. The legs of the tripod can constantly be seen in the bottom of the video, and the stitch line can also be found in some shots. Those are the aspects that I should be aware of and try to avoid when making the prototype piece for this thesis.

## 3. Early Prototypes

In this early prototype section, I demonstrate some technical issues I ran into, and resolutions to them. This section also suggests some affordances for 360 videos, such as conducting interviews inside the 360 environment, and creating animations for 360 videos. It further discusses displaying 360 videos.

### 3.1 Prototype with Local Artist, Samaa

This is the very first prototype I did when I just purchased the 360 camera, a *Samsung Gear 360*. I went to artist Samaa's home and interviewed her with some very general questions about her artwork. The duration was 6 minutes. Initially, I did not realize that the 360 videos need stitching at all. The videos described above used only the *360° Video Metadata* app. From this first prototype, I realized it is essential to hide the tripod in the video. As we can see the tripod is very obvious in the video when the user tries to look down to the video. Also, there is a strange gap between the two cameras: the consequence of not being stitched. Following this, I researched examples of treatment of the tripod on *YouTube* channels, and found some used one object to cover the tripod, some others used smoke and blur. I would personally try to make a stand (maybe transparent) to put the camera because it is small and light.

My initial plan was to shoot only one video interview with Samaa, but I later decided to shoot many videos with different artists, as I was concerned people may get tired of watching one environment.

To sum up some comments and suggestion from the class:

1. I did not prepare headphones for audio
2. There are two big gaps between cameras
3. The overall style is very boring-- it's just individuals being there and talking, and would probably be better as just a regular documentary
4. The video output was too low resolution
5. I found I was unable to press start for the user with the headset I used.

## 3.2 Prototype with Local Artist, Sara

After user testing day I decided to shoot another video with a different local artist: Sara. The reason I chose her is because I have been to her place, and there is a studio room space, filled with art pieces she had done. I thought it would be perfect for this purpose.

When shooting this, we ran a test shoot where I was in the room with her, and I put the camera in a chair (at a very low angle). We discussed what she should talk about and what she should do during this test shoot. She was a bit nervous in front of the camera, which I believe will occur for everyone, and I think the test shoot was very useful.

I did three shoots after the first test shoot. For the first two I pressed start and finish on my remote control; the third one I asked her to control the start and end time. For all three videos, I went hiding in another room, and could still hear her talking. I asked her to move

around her room during talking, maybe show different art pieces on different walls, because it works better with 360 videos. The shooting process was very interesting.

Because of the user testing, I was able to find the solution to the gaps between cameras. In the end, I used the *Gear 360 Action Director* application to stitch the videos into a 360 landscape video, and then used the *360° Video Metadata app* to upload the videos. For a later prototype (created for a class with the *Canadian Film Centre*), I bought a headphone for views so they could listen to the artist talk.

I was able to find solutions for most problems I found from user testing day, I am sure for the next user testing section more problems will occur.

1. I provided users headphones for audio
  2. I stitched videos together with the *Gear 360 Action Director* application to eliminate gaps between cameras.
  3. For the test with Sara, I added her walking around, so she wasn't just sitting there talking. I will explore a lot more with different styles, and attempt to keep the video shorter (this prototype video is at 2 minutes).
  4. Instead of showing the video on *YouTube*, to allow for a higher resolution video it was shown in local memory with a 360 video player.
  5. I used *Google Cardboard*, which has a button the user can press to start the video.
- I could also add a simple controller for the user.

### 3.3 Prototype with added Animation hand drawn within Equirectangular Space

Because this project has potential possibilities of having animations/hand-drawn elements within it, I decided to explore more about creating such images within 360 environments.

For this process, I did a drawing based on a cubemap grid, then using a *Photoshop* plugin:

*Flexify 2*.

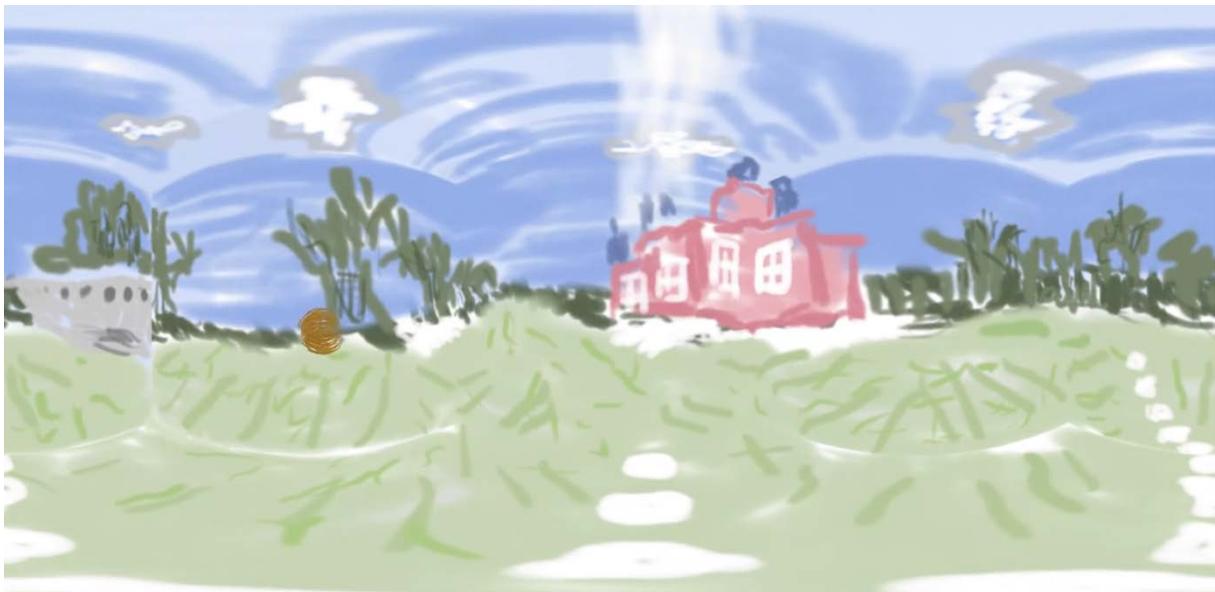


Figure 5 The drawing and animation in Equirectangular Space

To further explore the possibilities for this thesis project, I have also added some very basic level of animation in it with *Adobe After Effects*. Figure 5 has a dynamic smoking movement, the tumbleweed moves from left to right, and the scene also fades in and out of effect.

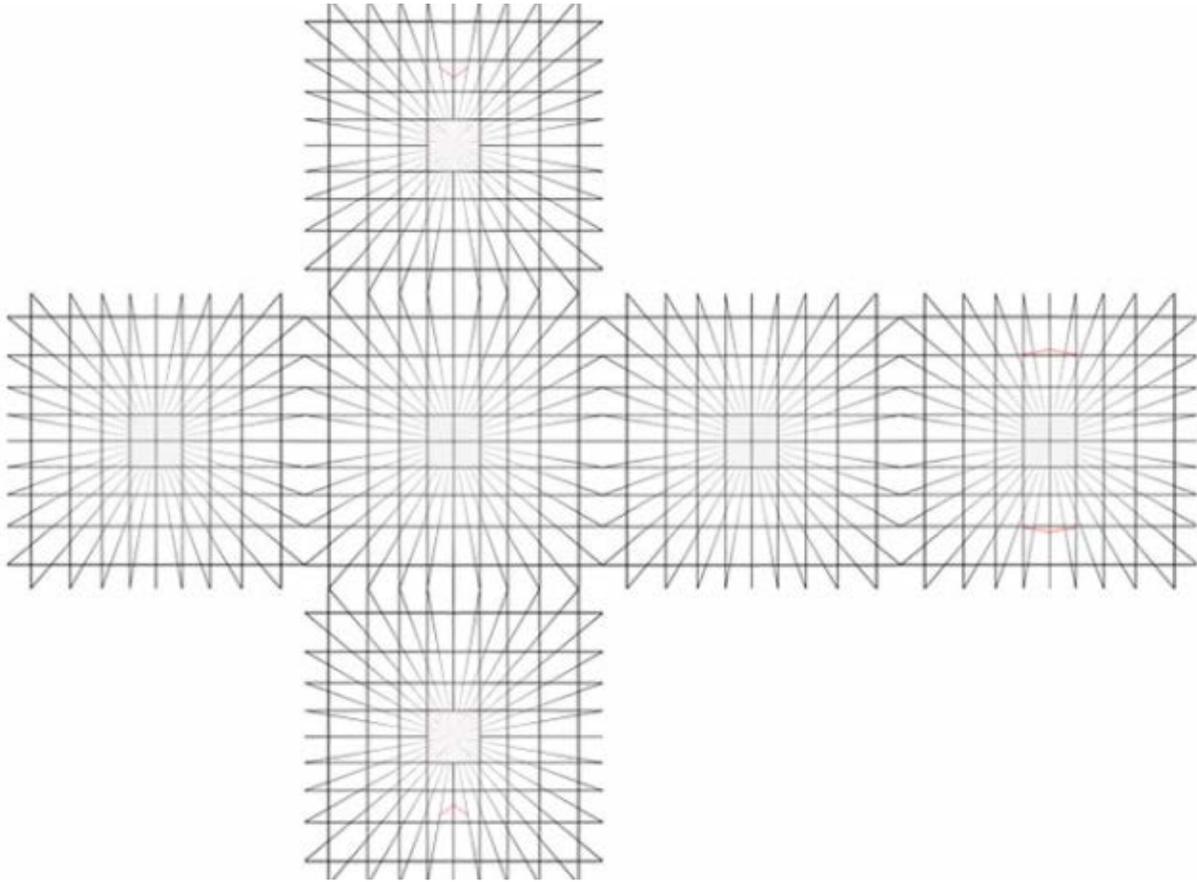


Figure 6 The grid used for drawing

The overall feedback I received was the scene lasts too short (it was total 30 seconds). It would be better if the audience had enough time to actually look around it.

## 3.4 Last Early Prototype: Three Stories

### 3.4.1 Overview

For the final test prototypes for this thesis project, it was important to go through all the interview and documentary steps, and anticipate most of the problems I might have when I meet with the thesis subjects (artisans/ masters/ performer). The goals of this iteration of prototype included:

1. Interviewing someone I do not know.
2. Conducting 360 shooting within a different setting of space. For example, indoor with and without lighting, outdoor with and without lighting, interview with someone and take the audio separately, and dynamic shots.
3. Audio recording with the *H4N Zoom Recorder* and a lavalier microphone, and sync the audio with the video later.
4. Post production with 360 videos (cutting, captions adding, applying a logo to the bottom of the video, rendering with 4K videos).

To start with a concept, I talked with the people near me that have most common with my potential subject: middle-aged Chinese speakers with a skill (or at least an interest) in any form of art or performance practice. At this stage, I found that the person I work with has to both fully cooperate and needs to be a good storyteller.

### 3.4.2 First Story

The first person I approached was a Chinese mom, Ning Ding, who tries very hard to get her son the best education and cultivate enthusiasm towards various fields. In her story, she talks about how she learns and grow up together with her son when painting with him.



Figure 7 Three Stories Prototype

When talking with her, I found that she gets too excited talking about her son, even though I told her I wanted to keep the video duration under 2 minutes. I ended up doing a lot of cuts on her parts. She was also very nervous facing the camera knowing she is being recorded. Therefore I did the same interview for three times, and the tension went away after the second one.

I put a logo of OCAD in the bottom of each video clips to attempt to cover up the legs of the tripod; this could be a possible treatment for future video clips in the final prototype.

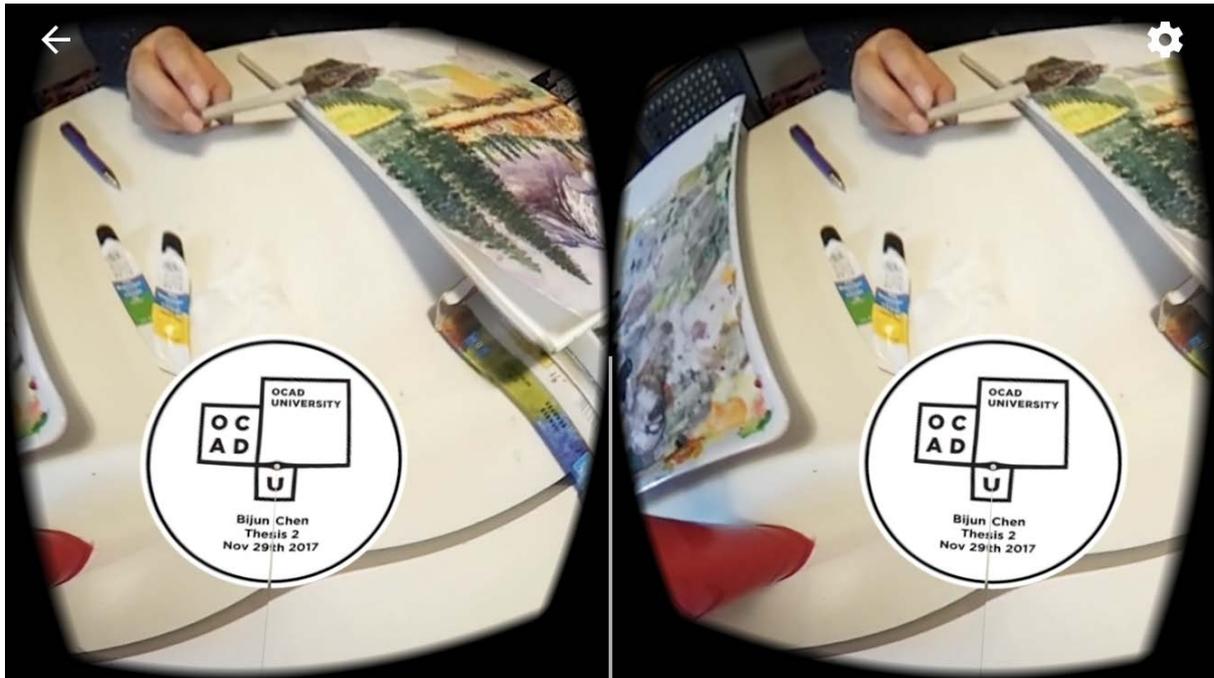


Figure 8 Result when looking down in Three Stories Prototype

### 3.4.3 Second Story

Carmen (Tong Gao), was the second person in the prototype. I went to visit her choir practice in a Chinese church. She was very confident and professional in talking about her stories within the time limit I ask her (2 minutes). Carmen came to Canada for her children's education, but the family's overall lifestyle changed much, and she thought it would be important to find fun activities and direction. She talked about how the audio and video footage was perfectly good on the first shot, and they were directly being used in the video, with some b-roll footage of choir singing.

### 3.4.4 Third Story

The third person in the prototype was Xiaohui (Zack) Zhai. I reached him from his badminton club weekly practices and I thought he could be a good example for the prototype theme of

middle-aged Chinese immigrants living in Canada. He was relatively shy, and I had to be inside the scene to give feedback to him while he talks. This led to further thinking about the final prototype as to whether the interviewer (myself) should be in the video. It differs for users from being directly addressed in first-person perspective, to being a silent spectator watching us talk.

### 3.4.5 Result and Conclusion to Three Stories Prototype

This six minutes prototype ended up with good feedback in terms of length, caption use, the richness of each story, overall video resolution (4K), quality of audio (recorded using *Zoom H4N*), distance with the characters, and also the presenting method of using *Chromecast* to share the audience's experience on a second screen.

## 4. Field Research Process

Throughout the research process section, I document the process of my field research in China. This includes the introduction, observing, interviewing, and data collecting procedure for 1) Beijing opera and its practitioner, Wei Lu, 2) Laoting shadow play and its master practitioner, Shangjie Liu, and 3) Jingyun Dagu and its master performing artist, Mengxiong Li.

### 4.1 Overview

During my field research in China, I went to two different provinces and cities, Beijing for Beijing opera and Jingyun Dagu, and Laoting (in Tang Shang, Hebei province) for Laoting shadow play. I collected over 100 gigabytes of data, 345 items including 360 videos and audio recordings. When meeting with masters I kept asking myself, if this master/art the best suitable one for making this 360 documentary short? Are the stories they tell interesting enough to be in a documentary short? Is the environment they stay in suitable in VR for my audience in Canada to view? Is the art form easy enough for my audience to understand within the runtime (less than 10 minutes)? What might the outcome look like and what kind of footage I should be collecting? What would be the best camera angle and height to bring out the most of the 360 videos?

## 4.2 Beijing Opera

### 4.2.1 Introduction to Beijing Opera

Beijing opera, more frequently known in the western world as Peking opera; is an ancient performance art form originating in China. That said, the performance carries out various styles of vocal skills, dancing and gesturing, ancient music and mild to intense level of acrobatics based on the roles of certain artists. Though, having Anhui opera as the root, Beijing opera arose to an individual art form and fully formed its unique style by 1845 (Mackerras, 1994). To fully understand the art form, one would start with its fundamental structure.



Figure 9 Wei Lu, and friend, they both sing Dan roles

Beijing opera as a traditional art form has previously had its glorious days and is still an eloquent topic for modern filmography (Hsu & Chen, 1993). Although statistically, the viewership of the art form is in decline, it is still notable that there are avid audiences in the millennial generation. It is an art form that requires multiple fundamental skills. Singing is one of the skills that a Beijing opera artist would train to master, to learn, one usually starts with “shouting,” this is to boost one’s vocal range. To demonstrate a certain role or a certain character in Beijing opera, one needs to study certain tones and tempo to their singing, to better shape the emotional and characteristic portrait of their role or character. Reading is another important skill for the artists to master, most artists start reading training at a young age. Frequently, reading is incorporated with singing with its own style and tempo to better define the situation. Being able to blend singing with reading would allow the audiences to understand more precisely of the play. Working is a term to describe how artists posing, gesturing as well as unique costume utilization, this helps the create unique visual statements of the art form, at the same time enhance the visual representation of a character’s mood, characteristic and so forth. Last but not least, hitting is the movement part of the performance, it usually consists the element of Chinese Kungfu and dancing, to amplify the performance. With the four basic skills, the artists would carry out an opera that is unique, elegant and expressive to the audience.

Beijing opera first emerged in Beijing in around 1790, when the famous Anhui opera troupes moved to Beijing to perform. Over the years active, the troupes would eventually bring in the element of Handiao opera as Hunan artists of said performance art moving into Beijing slowly. Beijing opera conclude different features and acts of the two original forms as well as the enunciation and dialect of the people of Beijing, finally formed Beijing opera as its

own art form. Beijing opera had its prosperity for decades and was widespread in other cities and province in China. However, around the time of the cultural revolution, some artists fled to Taiwan, to eventually form a slightly different version of it. Having a big pause during the cultural revolution years, the art form was not destroyed, however, lost its popularity (Huang, 1989). Though, as the ever-evolving property of the art form, it has regained popularity slowly at the modern time. In 2006, it was submitted and passed to UNESCO on the representative list of the Intangible Cultural Heritage of Humanity (UNESCO, 2010).

In today's society, China thrives on modern performance art forms: Beijing opera, on the other hand, has its place. Many films borrow the stories told in Beijing opera, some also directly portrait the life of a Beijing opera artist, some other times it could be included in a cultural parody to enrich the cultural reference and so on. Some modern pop singers also borrow certain singing style and tempos from Beijing opera. Because of the act and the stories always associate with a historical and political aspect of Chinese cultural, it will always be a timeless art form to Chinese history.



Figure 10 360 image: makeup artist putting on headgear on Wei in backstage dressing room



Figure 11 360 image: having lunch with Wei with makeup on



Figure 12 360 image: first interview with Wei in a Chinese art gallery

#### 4.2.2 Introduction Subject 1, Wei Lu

My first subject to my field research is Wei Lu. He is a 26 years old male who sings dan roles (female lead roles). He practices Cheng genre which was founded by master Cheng Yanqiu in the 1920s. This genre specializes in the tone and way of performance. The tone and vocals are vigorous, similar to western opera, with very particular over pronunciation. Master Cheng Yanqiu had the martial art background, and he does amazing traditional Chinese shadow boxing (tai chi chuan), therefore the movement of Cheng genre is influenced. The first persons who taught him Beijing opera were his grandparents; they loved Beijing opera and kept influencing and teaching him about its history and drama content. They were also his very first audience. After that his mom started to teach him, as she was a good singer (his dad was horrible at music). Wei's family is from Anhui, and he lived right by a Beijing opera theatrical troupe. Every day he can hear the singers practice, and he also got to know some Beijing opera teachers by this chance. For middle school, he attended an affiliated secondary school to a drama school, and he officially started Beijing opera learning from

them. There was once an opportunity for him to travel and perform, but his dad stopped him from going, wanting him to stop learning anything about Beijing opera. He believed that because society is changing, it will be too difficult to form a career out of it, and the family cannot support him much. Also, he thinks Wei is too young to start anything, especially Beijing opera, and that it will take a lot of patience that he might not have. Wei's dad works in the military, and his wish to his son is to work for the government in order to have a steady job, and keep Beijing opera as a hobby and not a career. By the end of our first interview, Wei told me that he loves Beijing opera so much, that he can live without his family, but not Beijing opera. Also, he is very thankful for efforts from the government and other individuals like himself trying to protect and preserve this beloved art form.

#### 4.2.3 Research and Interview process

I first met with Wei Lu on December 6th, 2017. I was treated as a friend during my research with him. He heard about this thesis project and invited me to go to his Beijing opera competition (it was the highest level of amateur opera singer in Beijing, which means the highest level to the country because all the best singers are based in, or constantly travel to, Beijing) to conduct an interview with him and do some shooting, including backstage dressing up and making up. It was a very rare opportunity for us because he told me that a Beijing opera singer rarely sings with makeup, because putting it on takes too much effort, too much time, the base makeup is horrible for their skin, and for most of time (for big performances or competitions like this one) they have to hire a makeup professional.

After chatting with him online about his career and his schedule during the time I can conduct research with him, the goal of our first meeting was to get familiar with him, and to collect some initial footage. When I first met him he was not wearing any makeup, and he seemed like a regular young man, even though he was quite famous in the circle to Beijing opera. When I entered the dressing room with him, almost everyone knew him, from very old actors that he respectfully calls “teachers” to other people’s makeup artists.



Figure 13 Wei’s headwears are made from kingfisher’s feather, it’s very rare, expensive, but beautiful

I did not want to ask any of my subjects to do anything they would not normally do for the sake of shooting this 360 film, therefore I told him that I only want to collect footage as his daily routine naturally happens, and he was very happy about it. The first long footage was setting the camera to record the process of him putting on makeup. The entire process roughly took one and half hours. It was fascinating to watch him (and other performers in

the dressing room) putting on makeup, and it transformed him being a man to a doll, to something too beautiful to look at.



Figure 14 Wei being interviewed by Beijing television channel

Wei was very confident on stage, as he performs all the time on many occasions. The competition we did the first recording for means only another trophy for his studio. There is no monetary reward with this, but he has to pay for all the costume and travel costs, and he has to hire the makeup artist. I have overheard many time other competitors (they are also his friends) talking about how when Wei entered some Beijing opera match or show, he will be the first place for sure, and other people can only compete for the second place. I was very curious about why someone so good wasn't considered a Beijing opera professional. After knowing him for a week and familiarized with him, he told me that the only way to be

a real so-called professional is to have a contract within some Beijing opera troupe, and young people like him cannot possibly be the leading singer within troupe no matter how good he is; the best hope for him is to be an understudy of someone and he did not want that. During our interview, he also told me that the tradition of Beijing opera is to pass down from generation to generation. For example, master Mei Lanfang is known for his female lead roles (dan), and he founded Mei genre of female lead roles. His children, therefore, become the successor to the Mei genre. They might not sing as good as some others, but because of their last names and the fact of they belong in such famous Mei family, they will always be able to have a place in Beijing opera, and this kind of families are called "Liyuan Shijia", where Liyuan means the field of Beijing opera, Shijia means the old and well-known family (such as Mei, and Tan family), it is like the royalty to Beijing opera. Wei does not belong in any of those famous families, and his age seems too young (he was only 26 when this research and interview happened) to be considered for starring roles in opera shows.



Figure 15 Wei teaches the children about pantaloone role, and walking on stage in his studio

Wei was a random find as my subject, but a lucky one for me. I did not know about the studio he had started, in which he hopes to carry on the goal of sharing and passing down this beloved but ancient art form, Beijing opera. During our second interview, he told me that at the end of the year 2016 he founded his WeiWei Beijing opera and Art studio. He had the idea since he attended college, but he laughed about how the ideas were naive at that time. After college, he accumulated connections and relationships with other professionals, and he kept learning as well. Now his dream is becoming more realistic and he is actually earning a profit and doing what he loves. His studio organizes activities such as Experience Beijing Opera for little kids and their family. For this event, he would normally have 15-20 families to his studio, and they are taught some fundamental theories, the performance skills of Beijing opera, and the goal is to understand and recognize more to Beijing opera. The hope is that someone becomes interested one aspect of Beijing opera, and this might lead them to deeper understand it, and might even lead them to fall in love with this traditional Chinese art. Wei admitted this studio ran into many problems such as funding, personnel, resource issues are some limitations. He tried his best to utilize the resources to disseminate and publicize what he loves the most, Beijing opera, starting with little children and their families.



Figure 16 Children took interests in the gear 360 camera

As a performer practicing Cheng genre (founded by master Cheng Yanqiu in the 1920s), Wei also researches and studies the ancient and more obscure songs and scripts by master Cheng Yanqiu, he believes that those are also core and traditions of Beijing opera that he can preserve and protect with his effort. For some songs, he can even revise to have more appeal for modern appetites, as a way to continue those very precious old songs.

The third objective of his studio is that it could be an opportunity for amateur Beijing opera lovers. Most of them have never been on stage, or worn real Beijing opera makeups and dress before: for them it would be a stage dream come true. Wei hopes to keep learning, performing, disseminating, succeeding, teaching traditional art of Beijing opera, to influence more people, no matter how difficult it is (it takes a lot of love, patience, and enough knowledge background to support).



Figure 17 Children in Wei's studio

I was fortunate to visit his studio once during the time I spent in China to get to know him better and also to collect some more footage. On December 8th, 2017, he welcomed a group of children from the same school to his studio. One of the parents from this group found Wei and asked him for a Beijing opera experience day. It was enjoyable for me to watch those children for one morning of activities. Due to time limitation, the children were divided into three groups. Wei hired two of his friends (that I've met before for the first competition) to help him organize his event, and also help him with the activities. One group (that Wei taught) learned the very basic form, structure, and movement of Beijing opera, just like how he learned from his teacher before. They have also learned how to walk on stage for a dan role. Wei said it is like walking as a peacock. The second group of children went to experience dressing up as little Beijing opera singers. This includes putting on makeup, and wearing traditional headwear, and taking pictures. Some children particularly

asked for the monkey king makeup, and some other children did not want their make up to be done. The third group went on learning about the traditional instrument used in Beijing opera. In Wei's studio, he had a Jinghu and ceremonial drum, very commonly used in Beijing opera performances.



Figure 18 360 image: Wei teaches the children opera postures on stage

#### 4.2.4 Result and Conclusion to Beijing Opera

Beijing opera is a very rich and fascinating traditional performance art with deep culture and history. Many aspects of Beijing opera could be used in filming a 360 video and that includes the process of preparing the show (costume dress making, headwear making), the rich oral history passed down from generation to generation of teaching opera, the rough teaching process, the develop history over the past 200 years (including what has changed and remained unchanged), the musical aspect (such as the instruments) and the tones, the facial mask, and the make ups and the indications, the variety of stage property uses, and the stage performance, among other subjects. The environment footage I have collected are

generally ideal for 360 videos, and the knowledge could well transfer from my perspective to the audience's within the video length. However during my studies and observations, with the government's involvement and protection, and with the extremely rich and cultural content, Beijing opera as an ancient art form is still fairly vibrant, and not just with the older generations. Young people such as my subject Wei Lu still would like to carry on Beijing opera as a career, out of interest or potential benefit. With the fact that only one kind of art form will be made into the prototype, I decided to choose something less active and in more danger of extinction.

## 4.3 Jingyun Dagū

### 4.3.1 Introduction to Jingyun Dagū

Jingyun Dagū (drum songs of Beijing) belongs to the Quyi traditional performing arts ("Singing and Telling arts"). It originated in Hebei province, Cangzhou and Hejian area, then was formatted in the city of Beijing and Tianjin. Later on, master Baoqian Liu developed Jingyun Dagū with the Beijing tone and accent, and it changed name to "Drum songs of Beijing" in the year of 1946 (Børdahl, 1996). The folk art of Jingyun Dagū is popular in the east of China. It has reached high achievement for northern China singing and telling arts, and is also an important traditional performing art throughout China. In 2008, Jingyun Dagū received the second level of China Intangible Cultural Heritage (Xu, 2004).

### 4.3.2 Research and Interview process

When I first met Mengxiong Li on December 9th, I went to his performance at a Beijing style restaurant. Carmen from my earlier three stories prototype introduced him to me; he was her teacher when she learned Beijing opera. When I met with Mengxiong, I realized that not only is he a professional in Beijing opera and drum songs of Beijing, but also Kunqu opera and singing. He was very glad to meet with someone who is interested in his skills and stories. I told him I want only footage and stories in the area of drum songs of Beijing (because I already have Wei Lu as a Beijing opera subject), and he was still very glad to help me. From the moment we met, he kept teaching me about histories, origins, and also about *his* teacher of drum songs of Beijing, I felt so much like a student to him. It was amazing to first hear him singing on stage; his voice is so much more powerful than any opera or performing I have ever been and heard. It might be the role he sings (Laosheng role in Beijing opera), or for drum songs of Beijing requires that much power. On stage, he first said to the audience something along the lines of, "I am so happy today to meet with new friends coming from across the world for me, and I will sing one extra opera for her," which felt very warming for me. After obtained his permission, I recorded footage from him on the day we first met, both singing on stage, and informal interviews.



Figure 19 360 image, Mengxiong performing Jingyun Dagu on stage

Mengxiong and his wife, Yun, liked me very much, therefore Mengxiong invited me to a teaching session at his home to better familiarize myself with him and Jingyun Dagu, and so I could learn a lesson together with his student and see what a one-on-one private class is like for Beijing opera. He thought it would also be a good idea to meet with his student, Shuyue, and we could have all hot pot together. Shuyue learns Beijing opera from Mengxiong, but he sings Kunqu opera for The Northern Kunqu Opera Theatre, just because he is not the top of the best in Beijing opera, and it is much more competitive than Kunqu opera. From chatting with him, I realized I have been to his performance before knowing him, and he is quite a star for the Northern Kunqu Opera Theatre.

The teaching process is quite different than I imagined; there are no books, no lectures. They discussed Shuyue's last performance, and where he did good, where he needs improvement, both in singing and acting (facial expression and physical movement). It felt incredible for me when Mengxiong went from talking to singing during the teaching session:

it was like he transformed from a regular old man to a powerful giant, his voice level going suddenly from low to extremely high.

In addition to teaching his student singing and performing skills, Mengxiong also treated me as his child and student. When I was in contact with him, he kept calling “Gui Nyu” (means daughter, also could mean little girl). Trying to understand Mengxiong’s lessons to me about Jingyun Dagu is not easy, and it is not the same way as trying to understand Shangjie talking about shadow play. Although Mengxiong speaks perfect Mandarin Chinese, it is the deep cultural content about the history of Beijing, and Quyi that I do not have enough background education in to fully understand him. Sometimes he would try three times to explain something to me in different words, and I still might not understand.



Figure 20 360 image, Mengxiong’s home street view



Figure 21 360 image, Mengxiong's home, showing 360 camera to Shuyue, left to right: Mengxiong, Shuyue, Bijun, Yun

Mengxiong and his wife, Yun, fed me too much food when we had hot pot at his home. I said many times “Teacher Li, I am really full, and I cannot have any more food.” He laughed at me and replied: “Daughter (Gui Nyu), if I let you eat regular amount of food, this would only be another regular hot pot meal for you. But if I make you eat too much, you will never forget about us. When you get old you and look back, you will remind us like ‘remember last time I went to teacher Li’s home, and they made me eat so much I almost exploded.’ Isn’t this nice?”

I collected a great amount of audio and 360 video footage when I visited Mengxiong’s home. We had a very long interview, and I did not ask too many questions; he had so many stories to share with me, and he can keep talking by himself. Before I had to head out, he borrowed me a book - an autobiography by his teacher, Luo Yusheng. She was one of the greatest singers and performers for Jingyun Dagou. This book is extra precious not only because this

book is old and hard to find, but also because on the head page, master Luo Yusheng wrote:  
*to commemorate today I take my dear new student Mengxiong, in Autumn, 2000, at age 89.*

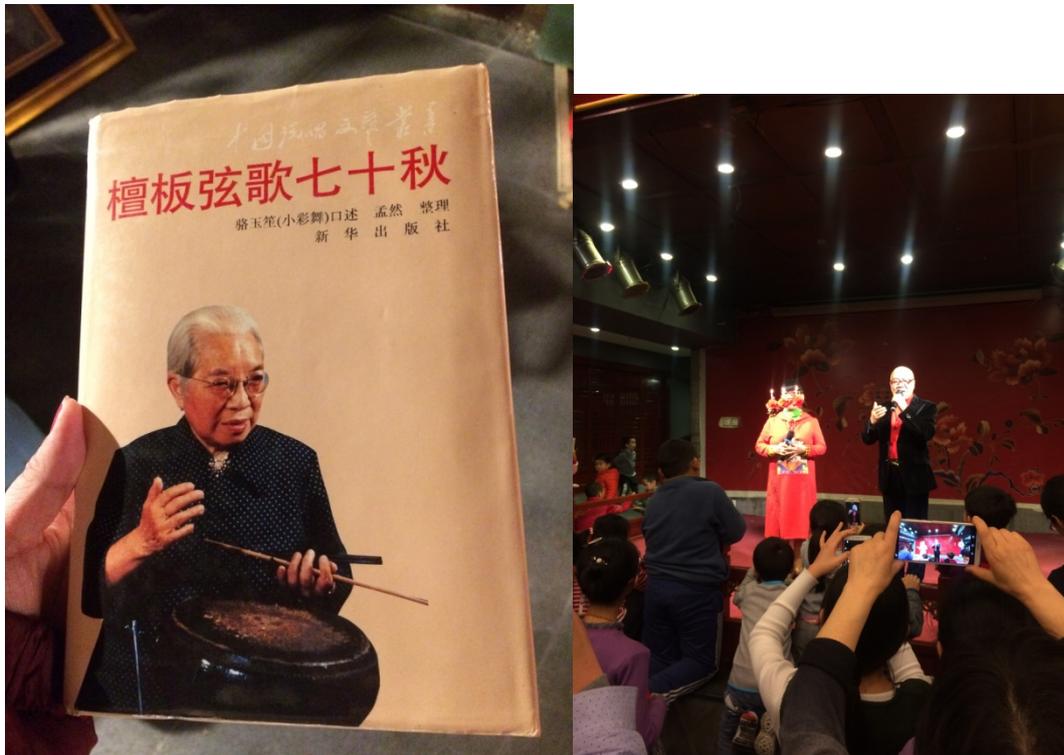


Figure 22 The book Mengxiong lent me, and Mengxiong and his wife singing on stage with audience

#### 4.3.3 Result and Conclusion to Jingyun Dagū

It was such an honor and an amazing experience meeting with Mengxiong through this thesis project. Mengxiong and his family kindly took me as their true friend, child, and student. I am truly thankful for them for the knowledge sharing, and the full cooperation. From my observations and newly received knowledge, Jingyun Dagū itself is not very active compared to Beijing opera; it has fewer practitioners and enthusiasts. However the inside information of Jingyun Dagū is steeped in Chinese history and cultural traditions, and it requires a huge amount of knowledge for the viewer to understand the content. It might not be the most suitable topic for a western audience.

## 4.4 Laoting Shadow Play

### 4.4.1 Introduction to Laoting Shadow Play

Laoting shadow play, also called Laoting shadow or donkey skin shadow play, is a traditional performance opera mixed with art, performance, and integrating music. It is on a sole singing system that other kinds of operas do not have. The tune and rhythm sound gentle and smooth. The art of shadow puppets normally is exaggerated shapes, flamboyant in colors, and delicate in cutwork. They are extremely decorative, with thousands of figures and environment setting to choose from. Laoting shadow play is also known as “the treasure of Chinese folk culture” (Museum of Laoting County, 2013).

The origin of Laoting shadow play can be traced from 800 years ago; back to the Southern Song dynasty. It was popularized in the early Qing dynasty and reached its peak in the Republic period. During this period, about 80 shadow play troupes were founded and developed within Laoting County. Many talented masters also came out from that period.

In July 1953, when the *Laoting County Shadow Play* troupe was officially founded, it created a wider platform for shadow play artist to communicate, improve, and exchange culture. In the year 2010, the *Intangible Cultural Heritage Inheritance Center* was founded in Laoting County. Folk art training class are organized, some middle and elementary schools are influenced by it and start teaching folk art in class. In 2008, Laoting County received the name of “China’s Shadow Play Town”, and the research center was named “Shadow Play Art Research Center by Federation of Literature” (Museum of Laoting County, 2013). Laoting

shadow play is an intangible culture resource to China, and it will benefit our present and future generations to inherit and to protect it.

#### 4.4.2 Research and Interview process

On December 11th, 2017, I traveled to Laoting, in Hebei province, to conduct field research on shadow play. I contacted them one month before that, and they invited me there for a shadow play rehearsal. We got there at 9 am, and they gave me a very warm welcome.

Shangjie's office/studio/showroom is inside a small room in the *Cultural Center of Laoting county*. Winter is a rather off season, therefore, they are not as busy, and not performing as much. When I get there, they first introduced themselves; Shangjie is the successor and also the master of Laoting shadow play, and the other performer is her helper. People in Laoting county speak Mandarin Chinese with a very heavy accent, and as a result, most of the time it was very hard for me to understand, and I had to listen extra carefully. I was very attracted to her studio; inside there is a huge shadow play screen for them to practice, some tables in the backstage for them to work on puppets, and a lot of folding chairs for all kinds of purposes. Shangjie kept pulling out colorful shadow puppets and other performing tools out from her boxes, and there was a huge speaker in the room (for the sound). Some of the puppets are famous characters that I can easily recognize, such as the monkey king, and the monkey king's friend the pig, and the white horse. Some others are classic shadow play characters.



**Figure 23** During interview with camera setting

During the time I spent with her, I felt fully supportive and cooperative; for example, when I asked them to re-perform a show so I can shoot one from both front and back, they were very happy, and they were also glad that I could share their stories and the shadow puppets culture. It feels completely different from when I interviewed with Wei Lu. He was always very confident, and it is obvious he is on stage all the time and being interviewed a lot. When interviewing Wei, I did not have to ask too many questions, and he can keep on talking about his stories. However, when I interviewed Shangjie, she only gave brief answers to my questions, and it became more challenging for me to think of questions quickly.

Shangjie told me she was 60 years old when I asked her to introduce herself, and she has been practicing shadow play for 43 years (she started when she was 17). Like many other art practice masters, she started the career as an accident when she was in high school, and her profession was changed from singing dan role to manipulating the shadow puppets. When

we talked about performances, she seemed proud that she had performed shadow play in 8 other countries, and she told me that her audiences overseas were more interested and passionate in shadow play than her viewers in China. During our interview, she taught me the process of making one shadow puppet; it takes 15 steps from a raw donkey skin to a finished puppet, and it may take weeks. Because of the tough process of making and manipulating the puppets, with little profit in return, fewer people choose to take over the role of the “shadow play master successor”. For example, I asked her: will your students practice shadow play as a career in the future? She said no, they will all work in other fields. Shangjie has a son and a granddaughter, her son and son-in-law work for railway and a school. She told me she would never expect her children to learn or to practice shadow play. “It was too bitter,” she said.

Shangjie is very passionate when talking about shadow play, her performances, her research and development. She can easily remember which exact day she did her performances. I feel that shadow puppets are like her children, and she had put so much love, time, passion, and expectation on them.



Figure 24 360 image - Shangjie Liu after the interview, in her performing studio

Because of their heavy accent speaking Mandarin Chinese, extra background research and understanding toward Laoting shadow play was necessary to understand them, and there were still some professional wording I could not understand when talking with them. Especially when mixing both accent and specialized knowledge; for some sentences, I listened to the recorded audio repeatedly, and asked local Laoting friends to help me understand what she was saying.

There is a little government supported shadow play making studio just across the street of the cultural center. Shangjie recommended I take a look, to be able to see part of the process of making shadow puppets. About three artists were there, some of them were carving on the donkey skin and passing to the next person to color.



Figure 25 360 image - Government supported shadow play making studio

To better understand the cultural background of Laoting shadow play, and to collect more comprehensive 360 footage, I went for a tour to the Laoting County museum. They have an exhibition hall for traditional Laoting folk art, Laoting shadow play and Laoting Dagu (drum songs of Laoting). Perhaps because it was off season, nobody was visiting the museum. It took us some time to find the exhibition room for folk art even with a local guide. We found someone in charge of the space, and she unlocked the door and turned the light on for us. She happily gifted me a book introducing Laoting shadow play, and gave us a very professional guided tour to the exhibition after hearing that I came from Toronto for a research to protect and promote Laoting shadow play. There is an interactive shadow play screen in the room for visitors to experience with shadow puppets.



Figure 26 An interactive shadow play screen in the exhibition

With the help of the new people I met in Laoting County, I visited a shadow puppet master maker. Jianxin Yuan's studio is also his home. He is the Vice Chairman of the *Laoting shadow Carving Association*, and also student to a very famous shadow puppet master, Jiawen Liu. Jianxin had won all kinds of prizes and award for shadow puppet carving. Visiting his home

was the most shocking experience I had during my entire field research trip, and I had a hard time believing that an art master with traditional skills, making such beautiful artwork, has such a poor living conditions. His home is far away from the city center, and the building seemed old and long neglected and in disrepair, their house is shared with another family.



Figure 27 360 image, outside of Jianxin's home

Inside of his home, I met with the master and his wife. They kept pulling out shadow puppet parts and process materials from places. They even have some raw donkey skins to start with. They asked me to color on one piece of a shadow puppet, and I was asked to be extra careful when coloring it. I did not formally interview them, but we chatted a lot about how they are making a living out of making shadow puppets, their making process, and their child. Their shadow puppets are much better made than the government supported place, in design, color, and material. Therefore they sell their puppets to other organizations and stores, and even other countries (United States, Japan, Korea, Australia, Portugal and Italy) to live, they also attend some activities such as showings and performances. Their shadow

puppet making process starts from treated donkey skin, and they can focus on work with designing and carving. They kept some of the examples of their design work to show me.



Figure 28 Process of making a shadow play puppets- designing



Figure 29 360 image - At a shadow puppet master's home/studio



Figure 30 Camera setting for studio/home environment, and informal interview with artist

Jianxin and his wife gifted me a lot of shadow puppets they made as a good wish for me. They were also thankful for bringing their culture outside of their town and even country, and I sincerely wish to share their stories.



Figure 31 Little female monkey and especially effect shadow puppet (the black man shadow puppet)

#### 4.4.3 Result and Conclusion to Laoting Shadow Play

Laoting shadow play is truly a treasure in the field of traditional art and performing. It combines a meaningful form and physical object, an exciting making process, and meaningful performing techniques providing considerable content for a 360 video. The content itself is understandable enough for a western audience, and it is visually striking and suitable for making an immersive 360 video experience.

## 5. Prototype

This section illustrates my creation process, some techniques being used, and the outcome of the thesis prototype. It also explains the equipment I selected for the thesis prototype, and reasoning for choosing shadow play as the focus for this first 360 video.

### 5.1 Equipment Selection

I chose a *Samsung Gear 360* (2017) for video files collecting and purchased the first one in July 2017. It offers adequate video resolution (4k) for viewing in *Google Cardboard*. The mobile app (*Gear 360*) works well with it, the camera is light weighted, small, and relatively inexpensive compared to other 360 cameras on the market.

For audio recording, I chose to use *Zoom H4N Handy Recorder*. *Zoom H4N* was priced within my budget; it offers X/Y mic configuration, a four-channel digital recording, and the sound quality at the 24-bit/96kHz rate. The audio turned out to be excellent for the interviews with my subjects.

### 5.2 Artisan Selection

This section will discuss the evaluation process I undertook in order to identify my subject for the final prototype.

For the collected 360 video footage:

	Beijing Opera	Shadow Play	Jingyun Dagu
Amount of 360 Video Data Collect	Very high	High	High
Variety of 360 Video Data Collect	Medium	Very High	Medium
Quality of 360 Video Data Collect	High	High	Low
Difficulty to collect (how impossible for anyone to access?)	Medium	Very High	Very High
Audio Quality	Very High	Very High	High
Richness of stories (depth of interview)	Very High	Medium	Very High
Personal Engagement	Medium	Very High	High

Table 2 Artisan selection. Each item in this table is listed from very low to very high

Shadow play was selected for this thesis prototype because of the higher quality of the footage I have collected, also because of the higher personal engagement I felt when interacting with the masters.

## 5.3 Development Process

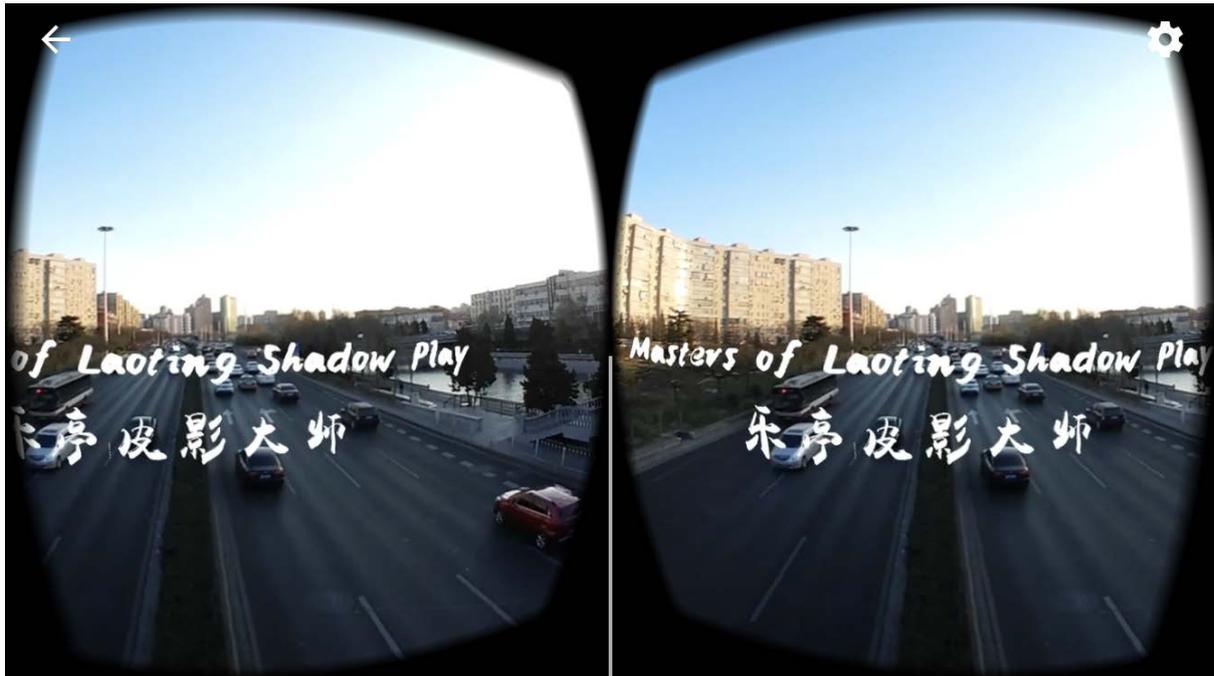


Figure 32 Title scene

This final prototype is a seven-minutes long 4K 360 video, which I believe, is a reasonable length for the audience experiencing it. It has sufficient time to tell the master's story, to show a clip of shadow play from both frontstage and backstage, and also to show a little process of making the puppet, without users getting motion sick or bored of looking around.



Figure 33 A screenshot of the 360 video playing through Youtube Application

Within the video, the shadow play master, Shangjie, introduced herself, her job and career at Laoting Culture Center as a shadow play master, the process of making one shadow play puppet, her students from elementary school, and also her children. At the end of the video, she giggled that all her life was dedicated to shadow play.



Figure 34 A scene when she talks about using special knives to cut the puppets

Similar to the three stories prototype, I covered the bottom of the video with a logo which gives some information about the project, and it also covers the legs of the tripod, especially in some scenes they are very obvious—I want the audience to feel transported and immersed, and not distracted by the equipment.



Figure 35 The logo, when looking down in the video

When editing the video, I kept in mind that to connect the key elements that the user likely to focus on to the next scene, to prevent users confused on where to look. This can achieve by using the offset, shift center to function in *Adobe Premiere Pro*.

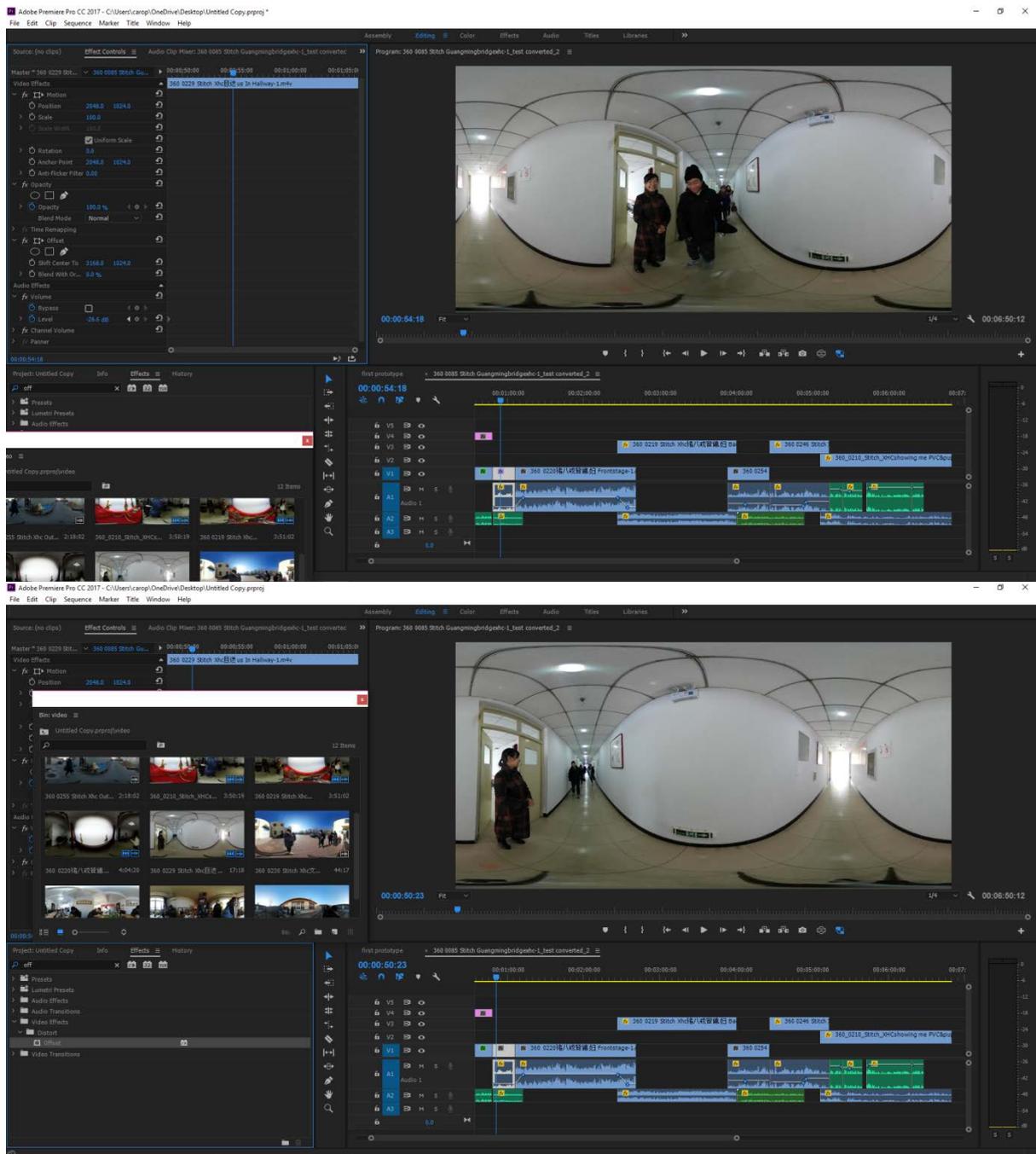


Figure 36 Before and after adjusting the offset

I used *GoPro VR Player*, an Adobe plugin, to preview the impression of the 360 video while editing in *Adobe Premiere Pro*. It offers split-screen preview, as well as other output display methods such as little planet, fisheye, and standard viewing; user can move the video using a mouse when not connected to a VR headset such as *Oculus Rift* and *HTC Vive*. I found this plugin very convenient and useful.

To display the final prototype, I chose the *YouTube* mobile app as a platform to show the 360 video. From the early prototypes, I learned that *YouTube* app has the features of easy to share, head truck captions with personalized colors and sizes, and compatible of playing split screen 4K 360 videos, which are important aspects I particularly look for in showing the video.

## 6. User Testing

### 6.1 Overview

This section discusses the user testing conducted as part of the iterative process of developing the prototypes, including some feedback received from the audience including user experience before playing the 360 video, and during it. The screen of where the users look at inside the 360 video will be observed and recorded to analyze the emphasis and focal point to each user. Questions are separated into two sections, the first one asks for techniques issues and potentials for further iterations of the prototype itself, and the second part relates back to the thesis and research objectives.

## 6.2 Data Collection



**Figure 37** The set up for user testing

To collect users' response and feedback, an online survey page was set up for questions and answers. The survey was available on a provided laptop to facilitate the user's process. Users are given brief introductions about the project, and the procedures for them to complete the user test. Each user expected 15 minutes of their time for the entire process (approximately 1 minute of introduction, 7 minutes of watching the prototype, and 7 minutes for filling out surveys and sharing comments). For this prototype user test, I used a *Samsung S6* smartphone, a pair of *Google Cardboards*, and a headset to play the 360 video,

and a monitor linked to the user's view with a *Chromecast*.

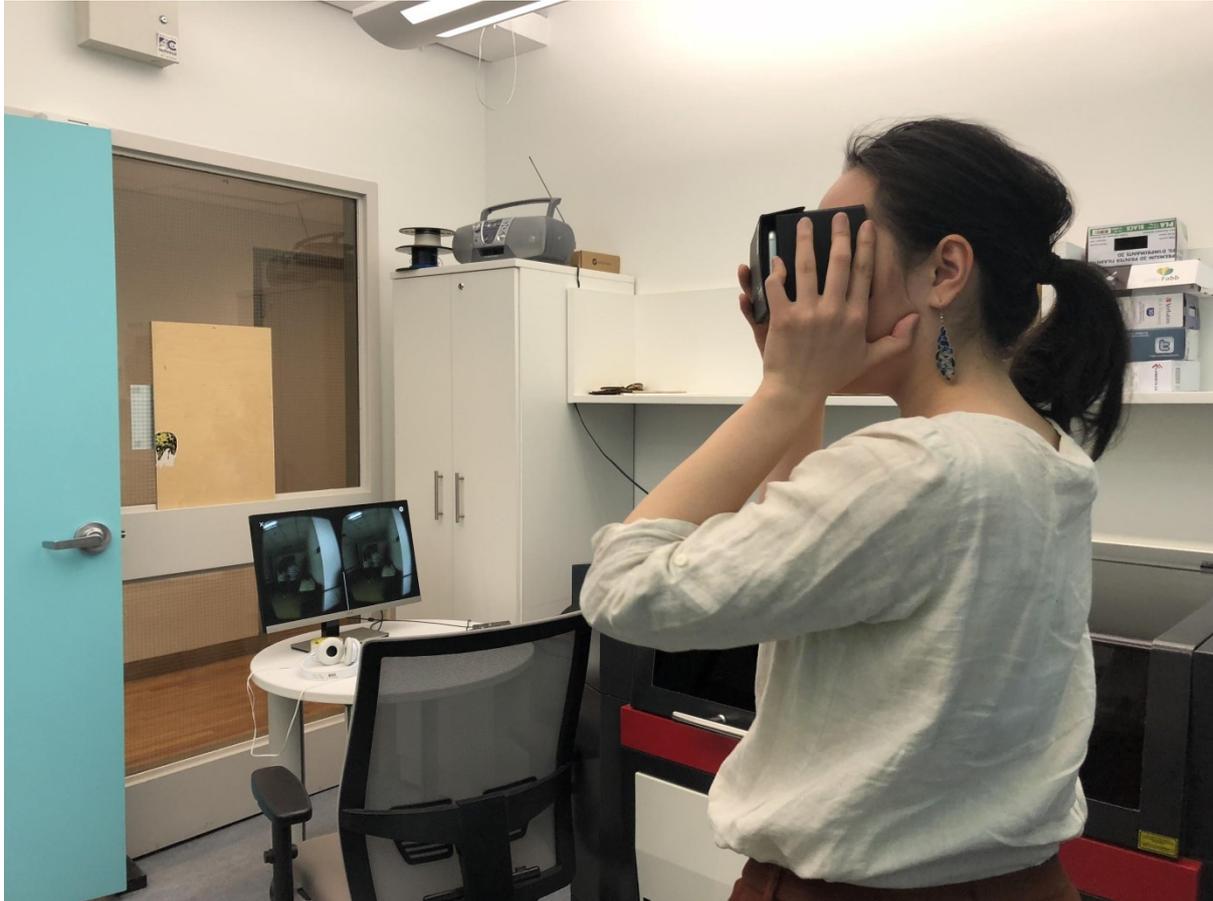
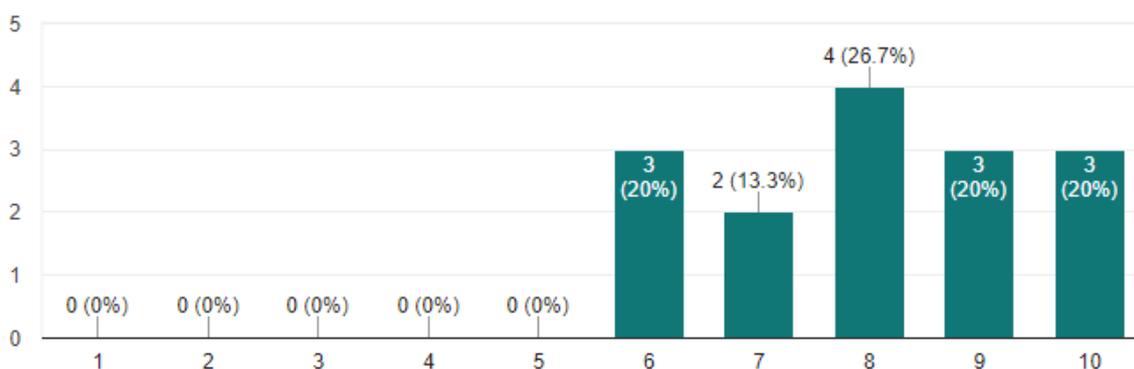


Figure 38 During user test

## 6.3 Feedback

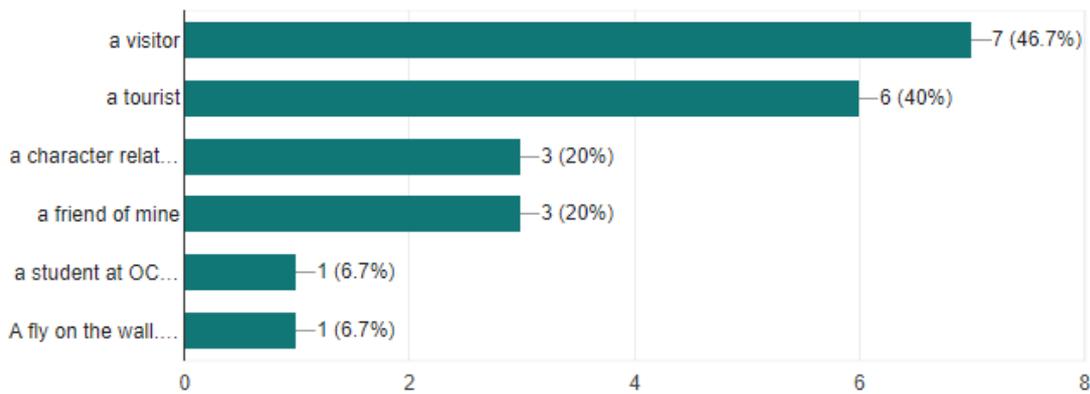
I had 15 users test out the prototype and fill out the survey. I received a lot of constructive feedback for part one of the survey (focused on further iterative development). For this part, 93.3% users believed that the caption in the video was very helpful, and half of the users (7 users) said the video could be better with a shorter length. The users had very different reactions and various methods of searching around inside the 360 video. From my observation and their responses, users were able to find quickly where the important elements are inside the scene, none of the users responded that they missed anything significant.

On the second part of the survey, I asked users for feedback relating to the thesis topic and research question. The overall feedback was positive and useful in terms of relating back to the central questions and goals for this thesis project. All 15 users reported that they felt they immersed into the environment at a score 6 (on a scale from 1 to 10) and larger; 3 of the users answered: “felt like being present in China”.



**Table 3** User test feedback on question “How immersed did you feel in the experiences shared in the video? 0 = not particularly immersed, 10 = felt like being present in China”

Most users selected felt as if they were present as a visitor or a tourist during their experience (13 answers with multiple choice). Three users selected being “like a friend of mine,” and three other users believed that they were “a character relating to the content (i.e., a shadow play practitioner in the story).” The other two users thought themselves outsiders of the story. This user test indicates that the prototype gave most of the users the feeling of immersion I was hoping to achieve within the 360 video environment.



**Table 4** User test feedback on question “Do you feel yourself a... while watching the video”

One user brought up seeing the artist (me) in the video as a character was interesting and appropriate. It helped them to perceive the story as a guest or a visitor brought from my invitation. Some users reflected that they would like to hear me introducing some background information at the beginning of the video when the title scene appears to remind the users why they are here. They suggested it would also be wonderful to have shorter cuts which allow possible more “sightseeing” within the same duration of the video. It is interesting that more than one users believed that this piece should belong in a museum.

For the next iteration of the project, I shortened the duration of the 360 video. From the responses, 46.7% of users stated that the video was too long for them. I will also add more narrative story by the master for the audio, more sightseeing, and more effective editing to be further cinematic. Some users reported that they feel motion sick from wearing the *Google Cardboard*. I plan to explore more with the headset opinions for the next design iteration, which I hope will help address this issue.

# 7. Conclusion and Future Work

## 7.1 Conclusion

The objective of this thesis project was to preserve the memory and experience of endangered Chinese art forms such as shadow play by using 360 videos as a tool. Social Presence theory and Transportation theory suggest that 360 videos are the suitable medium for implementing such a goal. The 360 video prototype allows the users to utilize visual, hearing, and sensual perception to feel better immersed in the art environment. It was made clear by the user feedback that the spatial awareness brought to them by the platform heightened their sense of immersion. They found that their attention was drawn into the art without having the deal with environmental disturbance, or rather, they felt they were immersed into the environment as a bystander and a part of the experience.

The prototype, as a new media platform, demonstrated a number of affordances for showcasing endangered Chinese shadow play to new audiences across cultural and language barriers. Prototype users mentioned that they were able to be brought into and immersed in a space that was foreign, yet still gave them a sense of reality and presence at the same time. The prototype demonstrated the potential of 360 video to grasp users attention and interests tightly and quickly while presenting cultural content.

Throughout the process of making the prototype, I realized it is essential to user test the experience, because different users may have a different experiential response and feedback. The testing process is essential to ensure the experience is generalized for

someone (that has never been to the real environment) to step in to. This might not be obvious to the creator/editor of the 360 video, because they have already experienced it in real life. Some design decisions I have made, such as not trying to hide myself as a character, differentiate this project as a personal experience from a government official's promotion (which likely to include more facts, histories, and less affective factors), could potentially be important because I came from the perspective of a native artist without commercialization. This thesis project also illustrates that the effectiveness of using native language (Chinese) with closed captions, fading in and out between cutscenes, and placing the emphasis of the scene on the direction where users started. For the next iteration, I hope to gather more visual and interview audio footage, and be more selective among them.

Traditional art forms such as shadow play and Beijing opera are just a few examples of endangered art forms around the world facing decline and possible extinction. For those experiential and performance-based intangible art forms which appear to be difficult to preserve by the traditional methods, 360 videos can be a promising platform for audience engagement and preserving experiential qualities of the art. Using 360 video, one could deepen audience appreciation for cultural heritage, raise awareness of endangered, treasured art forms, and eventually cultivate a knowledge and passion for these arts in order to disseminate these forms of cultural heritage to larger groups or even other countries and cultures.

## 7.2 Future work

During my research trip to China, I conducted shoots for Beijing opera, Laoting shadow play, and Jingyun Dagou. However, I could only have the time and effort to make one art form into the actual 360 video, Laoting shadow play. Whenever I go through all the collected footage of the other two performing art forms, I feel a great treasure is going to waste on my hard drive, as this knowledge and content did not come easy. Therefore, in the near future, I wish to use the precious footage from my research trip to make another two 360 videos or documentaries, and perhaps a combined documentary about all three art forms.

Beijing opera, shadow play, and Jingyun Dagou are all quite well-known art forms in China (Beijing opera was created for the royalty), especially in the northern part of the country.

But even the most famous traditional art forms are endangered and in decline; not to mention lesser known and rural-area based art forms such as Shanxi Fengxiang Country woodcut New Year pictures, Daqiang Drama, Gaoyou folk song, Fengyang flower drum, the legend of Mengjiangnv and more (“The Intangible Cultural Heritage in China”, 2007). Due to the time restrictions on my research trip, I was only able to meet three subjects in the areas of Beijing opera, shadow play, and Jingyun Dagou. From them, I have not only collected information and footage to be used in videos, skills and techniques for shooting 360 videos, but I also obtained contact information for people who dedicate themselves into traditional Chinese art and cultural preservation. I understood there are many more places to travel to and many more art forms and subjects to explore and research, therefore in the future, I wish to travel to more rural areas in China, and to create 360 videos on lesser-known and endangered traditional art forms.

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# Appendix A: Research Ethics Approval and Consent Forms



December 06, 2017

Dr. Cindy Poremba  
Faculty of Liberal Arts & Sciences & School of Interdisciplinary Studies  
OCAD University

File No: 101147  
Approval Date: December 06, 2017  
Expiry Date: December 05, 2018

Dear Dr. Cindy Poremba, Ms. Bijun Chen,

The Research Ethics Board has reviewed your application titled 'Experience Traditional Art Practice in Virtual Space: Using 360 Cinema as Tool for Cultural Preservation'. Your application has been approved. You may begin the proposed research. This REB approval, dated December 06, 2017, is valid for one year less a day: December 05, 2018. Your REB number is: 2017-58.

Throughout the duration of this REB approval, all requests for modifications, renewals and serious adverse event reports are submitted via the Research Portal.

Any changes to the research that deviate from the approved application must be reported to the REB using the amendment form available on the Research Portal. REB approval must be issued before the changes can be implemented.

To continue your proposed research beyond December 05, 2018, you must submit a Renewal Form before November 28, 2018. REB approval must be issued before research is continued.

If your research ends on or before December 05, 2018, please submit a Final Report Form to close out REB approval monitoring efforts.

If you have any questions about the REB review & approval process, please contact the Christine Crisol Pineda, Manager, REB secretariat at [REDACTED] or [REDACTED]

If you encounter any issues when working in the Research Portal, please contact our system administrator via [REDACTED]

Sincerely,

Nancy Snow  
Acting Chair, Research Ethics Board



## Invitation / Consent Form Template

Date: **October 19, 2017**

Project Title: **Experience Traditional Art Practice in Virtual Space: Using 360 Cinema as Tool for Cultural Preservation**

**Principal Investigator:**

**Bijun Chen**

**OCAD University**

**Faculty Supervisor:**

**Cindy Poremba**

**Faculty of Digital Futures**

**OCAD University**

### **INVITATION**

You are invited to participate in a study that involves research. The purpose of this study is to understand how 360 cinema can act as a tool for preserving the memory and experiences of an endangered Chinese art forms.

### **WHAT'S INVOLVED**

As a participant, you will be asked to conduct some face to face interviews with me (Bijun Chen) with audio recording, and being video and audio captured when performing art practice. Participation will take approximately 2-3 weeks while continuing your daily routine.

### **POTENTIAL BENEFITS AND RISKS**

Possible benefits of participation include 1) Creating a record for vanishing art practices for future generations, and for educational purposes 2) the immersive experience could provide you as a way to promote yourself (as an artist), your institute/studio/family.

### **CONFIDENTIALITY**

Due to the nature of user testing and documentation involving image and voice, confidentiality will not be provided. Data (voice / image / video) collected during this study will be stored on a password protected mac computer in a reasonably secure location. Data (voice / image / video) will be kept for a year after which time images and documentation not used for display, or project archiving will be deleted. Access to this data will be restricted to Bijun Chen, and Cindy Poremba.

### **VOLUNTARY PARTICIPATION**

Participation in this study is voluntary. If you wish, you may decline to answer any questions or participate in any component of the study. You may decline to have your image taken, or used for documentation, or may limit the degree to which your image is taken. Further, you may decide to withdraw from this study at any time, or to request withdrawal of your representation anytime up to 4 weeks after May 11th 2018, and you may do so without any penalty or loss of benefits to which you are entitled.

### **PUBLICATION OF RESULTS**

Project documentation, archival and promotional material will be used at conferences, be used on the internet in the context of a promotional video, and portfolio images, and be used

at a student thesis project, support document and thesis defense at OCADU in April 2018. Feedback about this study will be available after June 2018, and you can contact Bijun Chen.

### **CONTACT INFORMATION AND ETHICS CLEARANCE**

If you have any questions about this study or require further information, please contact the Principal Investigator (Bijun Chen) or the Faculty Supervisor (Cindy Poremba) using the contact information provided above. This study has been reviewed and received ethics clearance through the Research Ethics Board at OCAD University [File #: 1893]. If you have any comments or concerns, please contact the Research Ethics Office.

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Ver. 1 301008

### **CONSENT FORM**

I agree to participate in this study described above. I have made this decision based on the information I have read in the Information-Consent Letter. I have had the opportunity to receive any additional details I wanted about the study and understand that I may ask questions in the future. I understand that I may withdraw this consent at any time.

Name: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Thank you for your assistance in this project. Please keep a copy of this form for your records.

## Appendix B: Interview with Shadow Play master

Shadow Play Interview Translate, C= Bijun Chen, L= Shangjie Liu

2:48 L

My name is Liu Shangjie, and I work for Shadow Play troupe in Laoting county (in Hebei province). I am 60 years old. I came here since I was 17, now it is renamed intangible cultural heritage continuity center.

3:23 C

How did you start this shadow play career?

3:29 L

It started before the cultural revolution, it was Xiaoyingren(?) that is about 23 centimeters tall, after that it reformed in 1973.

3:37 C

I meant how did YOU start the career as Shadow Play? Like why starting shadow play, what brings you to learn this

3:47 L

I started in my high school, Yangezhuang High school, in Laoting County, the cultural center went there to pick actors, and I got hired over there. This was when I was 17, and I started as a singer in Xiaodan aria. Then they wanted their actors to develop in other detractions as well. Then I started to learn to manipulate the puppet. There were 12 girls in the group, and we were put into A and B group. After that, I stopped singing and was all about manipulating the puppets. We did mostly modern operas such as HaiDaoNvMinBing, HongDengJi, ShajiaBang, DuJuanShan, TieDaoYouJiDui, HongSao. Afterward, we developed the first show is the Monkey King, then the second one we developed was Madame White Snake, and also Flaming Mountains.

4:58 C

Who was your teacher to shadow puppets?

5:00 L

Teacher Gao Zhengqiao taught me to manipulate them, he/she was very famous. After that, I developed carving, that I learned from teacher Liu Jiawen. He is national (intangible cultural heritage) inheritance people, especially in special effect shadow play. Something I learned from him like opening the mouse (of the puppets), blinking the eyes, moving the

mouse, and such joint movement. Later I developed “black shadow man” is a kind of special effect shadow puppet, all the joints can move, this belongs to special effects (or acrobatics).

5:44 C

When you learned it do you feel it was too tough (or exhausting)? Have you ever felt regret?

5:53 L

Speaking of regret I have never really felt that. But yes it was too tough to learn to manipulate it. When I learned it I raised so many big blisters on my hands. We started with 3 months of apprentice, 61 people applied for it, then gradually decreased to 30 people, and in the end, there were only 2 left, it was extremely tough to learn.

6:27 C

You then must have a good relationship with the other person left?

6:30 L

Yes, he was my senior apprentice. He was the son of my teacher Gao Zhengqiao, his name is Gao Huancai.

6:42 C

When did you start learning it was at here too?

6:44 L

Yes, the Cultural Center of Laoting county, I never left, it's been over 40 years.

6:49 C

I heard from you that earlier that you occasionally perform overseas?

6:55 L

Yes overseas, I have been to overseas to perform.

6:55 C

Who invited you to go?

6:57 L

They were all cultural exchange.

7:01 C

Which countries have you been to (to perform shadow play)?

7:04 L

I have been to 6 countries: Korea, Korea I've been to 3 times, Switzerland, Italy, Spain, Czech Republic, Benin, and India. (That is actually 8 countries. -Bijun) Benin is in Africa, we went there last year, 2016, on November 16th.

7:40 C

For the rest of the countries, when did you go? Within 10 years or before 10 years ago?

7:44 L

They are all within 10 years.

7: 49 C

The couture exchange event did we originate or did them (other countries)?

7:54 L

They invited, other countries all have our embassy, when they organize events they like to invite us.

8:03 C

How did they like it in your opinion?

8:04 L

It was good I guess, it is usually more popular than (when I performed it) in our country. It was very popular! Especially in Spain, there was a 60 years old lady, she had a translator, and she came to talk with us. She said it was amazing, "it was like magical!! I did not live my 60 years of life in vain (now I see this shadow play)!!!" She was like that, seemed very surprised when she watched it, also super happy. In Spain, we only did two shows, but the audience in the room was super crowded. There were big screens on the streets (there were also so many people on the street watching), and it made the traffic jammed, and cars could not even pass anymore. They all went to see the shadow plays, and they loved watching it so much! We originally booked two shows, we wanted to add more shows, but we cannot add any more because our air tickets and dates were booked. It was so popular!!

9:11 C

When you travel and perform abroad you have to pack all the stage properties? And you have to bring them by yourself? Including all the curtains and screens?

9:19 L

Yes, we packed for all the stuff when traveling. In Switzerland, they prepared those for us. We spent the most time in Switzerland (than other countries). We performed for 17 days, we performed every single day, sometimes we do two shows a day. For other countries, we

looped our shows, but in Switzerland, we played their show, it was based on a local story there. Compiling the show took two and half years.

9:51 C

Could you please explain to me how you make shadow puppets?

10:00 L

For sure! To make shadow puppets you need donkey skins, they need to be scrapped. They need to be smothered into a vat. After smothering you burn them with sulfuric acid, after burning to particular days you need to shave them, after shaving is to air-cure them, and after that is to planish them. After planishing we make designs and patterns, with that we can make cravings accordingly. With a wax made cutting board and a special knife. After carving it becomes something like the one I showed you. After carving we color them, after coloring they need to be planished again, then apply boiled oil and irradiate them. After a bit we planish them again, then we assemble and install the pieces, then we attach bamboo poles to the puppets. Bamboo poles are originally bent, we make them straight by pulling and roasting. After roasting we polish them with sandpaper, the process takes a lot of trouble (at least two days). From the donkey skins raw material to a fished shadow puppets it takes 15 steps.

11:16 C

How long will it take to make one complete shadow puppet?

11:18 L

Hmm, this modern puppet is so complicated, you cannot finish a head within a day.

11:50 C

It takes 15 steps to make a puppet right? Sounds like they cannot coherently be made. How long will the entire process take to have one shadow puppet ready?

11:54 L

Yes! After air-cure them you have to planish for two days, then carve. For the body, it takes at least a week, and that is from someone very fast and proficient, only carving will take a week. Then to air-cure again. For a 63 centimeter (transform from Chinese measure unit - Bijun) puppet, it takes at least 10 days. If it is smaller, you could possibly do one week. If it is for handicraft article purpose you can carve up to 6 puppets at a time, because they are thin. If we make the ones for shadow play show purpose it carves with a different way. Handicraft articles are subtle, refined, beautiful, but thin, you can make up to 6 layers at a time. But the ones like these, they are for performing purpose, they can only carve maximum 2 layers at a time. They need to go through the shadow play screen, and they need to be thick to manipulate. If they are too thin then they are not durable.

13:18 C

Sounds like carving is so difficult, also manipulate is very tough. Do you have students? Do you teach anyone?

13:30 L

I do have some students. Employees at here (Cultural Center of Laoting county) usually come here every morning to learn to manipulate. I teach them. Every school winter and summer holidays, students (from schools) apply to train here.

13:59 C

When you train them, will them become anywhere close to proficient at manipulating shadow play like you?

14:05 L

In (Laoting) third elementary school there is a small class I teach and train. They now can do 4 shows, all compiled by me just for them, I taught them.

14:21 C

Do the children learn shadow play because they are really interested in it? Or there are other reasons for them to learn?

14:35 L

Yes, they signed up for it, and they should at least be fans. Otherwise, there is no use when you try to teach them.

14:40 C

Besides from shadow plays, do you have any other jobs?

14:48 L

If the students don't come to me, every day I come to work is to make puppets. All my life I have it dedicated to shadow plays.

15:05 C

Then will you student contribute as much to the art of Shadow play like you do in the future? Both making and manipulating?

15:10 L

They do learn, and they are young now, in the futures they will have different jobs. Employees (at here Cultural Center of Laoting county) sometimes we compile and perform shows, throughout the country they are sometimes invited to teach there. Such as Beijing,

such as Longshan School in Lan county, I taught them. But I am too old now and do not want to travel around anymore. People from Shanghai also called them to compile shows.

15:43 C

Besides from shadow plays from Laoting, where else has great shadow play from your opinion?

15:50 L

The city of Tangshan, there are only two professional shadow play groups in Hebei province, Laoting, and Tangshan. Other places have some too, but they are all personal groups

16:10 C

Personally, shadow play groups do they only make shadow puppets, or they also do others like shows?

16:17 L

They do have other stuff to do. If they have some performing shows, they will search for actors (to manipulate the puppets) and the shows from all over the place.

16:27 C

Will they find you and ask you to perform?

16:28 L

Yes, yes. And I do go sometimes. I don't usually go because working here is very busy.

16:36 C

What would you usually do here for work? Can you briefly describe?

16:42 L

We are now writing a "Huaguo Mountain" show (it is a very famous scene from Journey to the West -Bijun\*), we are compiling it next. Writing a play we need to make changes and alterations over and over again, and we need to record music. Where the shadow puppets move, when it happens, how many puppets it should show it is very complicated. That big box of stuff is all the properties I used in designing "Huaguo Mountain".

17:07 C

Like the little female monkey (you showed me)?

17:09 L

Yes! That one is a little funny (the plot). I prepared for this show for half a year. It includes carving the puppets, designing the movement. It is extremely difficult to create a shadow

play show. Look at this one, because the shadow play window (screen) do not have such big space the puppets can do we human cannot do in daily life, you make them do whatever you want to; like you cannot magically disappear or change to another person in normal life. But sometimes it is limited to space, such as they cannot dance, and it is too hard to dances around (make a circle). As a real human it is super easy to make a circle, but on this flat screen it is impossible to make a circle, it is too hard because it is flat. In the year of 2014 we are also created a fluorescence shadow play puppets, and for that, we do not have to use the flat screen, the puppets are self-luminescent. During the show all the light will be turned off, the audience can only see the puppets, they are fluorescence shadow play puppets.

18:48 C

Are they made from donkey skins as well?

18:49 L

No, not donkey skins. They are made from a fluorescence material, it uses special lighting, must use that light in order to glisten. You cannot see anything special from the puppets during daylight, only in dark rooms, they can autoluminescence. The effect is excellent! In 2014 the show was super popular.

(...)

20:06 C

What else do you do other than teaching student, creating new shows, and performs shadow play?

20:18 L

My work is to research this, I make special effect shadow puppets. Yesterday I research on the bamboo poles (?) used on shadow puppets. I made two with wires, it was good and successful. My job is to research and develop on this. The little female monkey you said, I research it for many times and ended up going back at the beginning. Like this high heels, I made it successful on the third time, the puppets I made before it all ended up in the trash.

21:18 C

I like this little female monkey very much, it is my favorite.

21:21 L

Yes, I only research on shadow plays (giggles). I do not do anything else, (giggles), all my life spend, I gave it to shadow play. If you ask me to do something else, I don't know how.

21:35 C

Do you have any children?

21:38 L

My granddaughter is 6 years old already.

21:40 C

Do your children learn shadow play?

21:42 L

He doesn't do it.

21:44 C

Do you ever expect him to learn (shadow play)?

21:48 L

No, not really. They have other jobs, and they are very busy. My daughter-in-law teaches in a school, and my son works for the railway. I only have this one son, and he is very busy. He likes to draw, sometimes when I am at home and making shadow puppets, he helps me with coloring them. Sometimes we research and develop shadow play together. He learned painting, and sometimes when I cannot draw well, he will draw for me. We research at home too.

# Appendix C: User Testing Surveys

## Part 1:

1. Do you understand the language spoken in the video? yes/no
2. Do the captions help your understanding of the video content? yes/no, if no, why?
3. Do you think the length of the video works well? It's good/too short/too long
4. Name one thing you will remember the most after watching?
5. Do you feel like you missed important elements in the video?
6. Who would you say was the audience for this video?
7. If you were to watch the video again, would you prefer standing or sitting on a spinning chair?
8. What else you would like to see on the next iteration of this video?

## Part 2:

1. On a scale of 1-10, how immersed did you feel in the experiences shared in the video?  
1 not particularly immersed, 10 felt like being present in China
2. Based on your previous question, do you think the same experience could be captured using a regular video format? absolutely/ probably/ not sure/ probably not/ never
3. Do you feel yourself.. a visitor/a tourist/ a character relating to the content/ a friend of mine/ a student at OCAD (someone completely outside the story) while watching the video?
4. Any other comments?

## Appendix D: Exhibition Documentation

This section documented the exhibition of this research. The exhibition started at April 12th, 2018 and ended at April 16th, 2018. The exhibition location is 49 McCaul Street, Toronto, ON. The title of my exhibition is Masters of Laoting Shadow Play. Following are pictures taken from the exhibit.

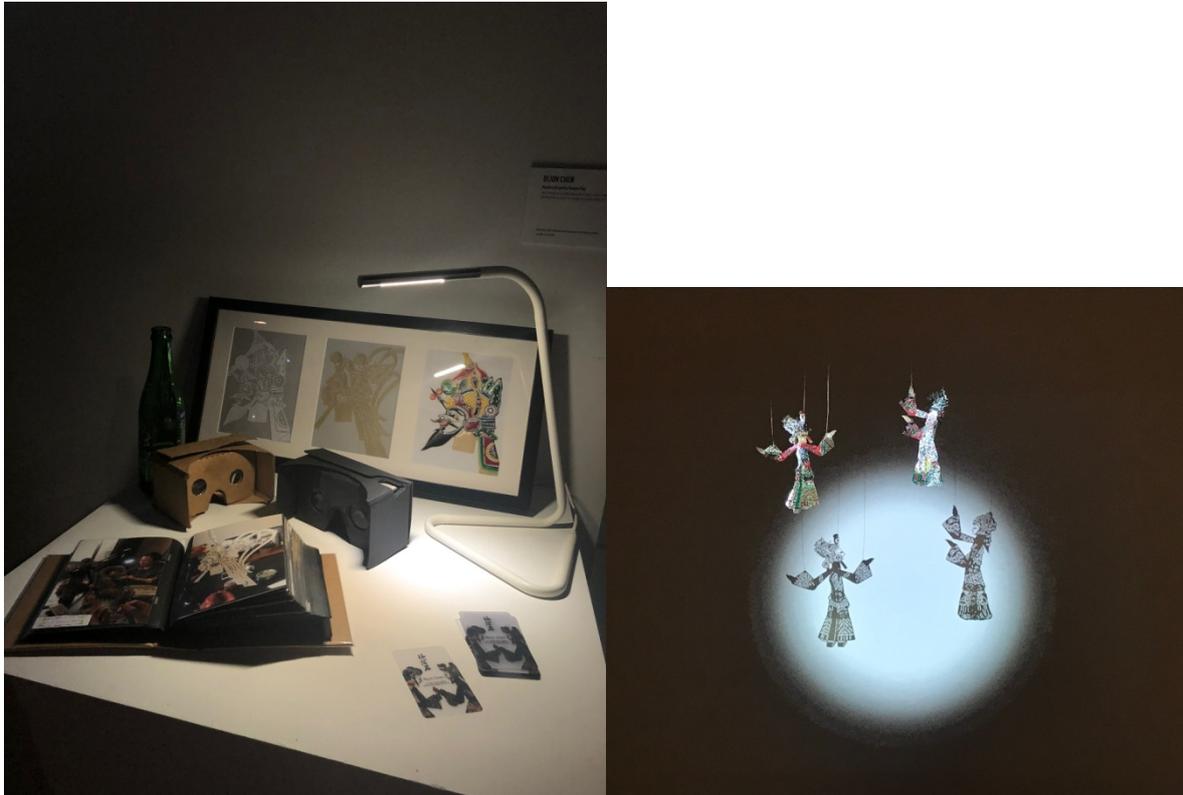


Figure 39 Exhibition Setup