Using Interactive Digital Media to Support Transcultural Understanding of Intangible Chinese Cultural Heritage

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ABSTRACT
This paper explores my research interests in the use of interactive digital media as an innovative platform for supporting transcultural understanding of intangible Chinese cultural heritage. Using traditional Chinese puppetry as my research subject, we aim to foster stronger transcultural appreciation of Chinese intangible culture, weakening the transcultural barriers to understanding and by engaging transcultural audiences more deeply in a critical reading of traditional Chinese cultures.

Author Keywords
Design; transcultural crowd; interactive digital media; traditional Chinese cultures.

INTRODUCTION
Most Chinese cultural heritage originated amongst traditional agricultural communities. As China has become urbanized intangible cultural heritage has increasingly suffered the danger of extinction. It has gradually lost connectivity with its audience because of a variety of reasons, one of which is the cultural digitization, with an increasing reliance on online presentation. Techniques of interaction design, have the potential to preserve cultural heritage in China, by sensitively and humanely applying digital technologies, becoming a bridge to link up cultural emotion and understanding with its information delivery.

Traditional Chinese puppetry is a kind of intangible cultural heritage, which mixes music, art, theatrical staging, shadow, movement, performance, etc. Audience on the other side watch the performance of these puppets of characters, which are manipulated by performers who are behind the curtain and forges soul for puppetry figures. Puppetry are performed impromptu according to the mood, idea of the performers and the interaction with audience (Figure 1). There are also familiar traditions of puppetry in other Asian and European countries, knowledge of which could be successfully leveraged to support audiences' understandings of traditional Chinese puppetry. Through analysing both cultural and artistic dimensions of puppetry such as meaning, shape, visual arts, colour, dynamic performance, stories, national music, etc., and combining with different interpretations, attitudes and emotional responses of both Asians and Westerners, it will be possible to explore how interactive digital technologies might support interaction between puppeteers and audiences in transcultural contexts. (Figure 2). This will help to find innovative ways of increasing the longevity and inheritance of intangible cultural heritage.

Figure 1. Artists control the actions of puppets by using sticks fastened to the characters.

Figure 2. Perform for western audiences.

RESEARCH BACKGROUND & RELATED WORK
UNESCO began driving the project of "UNESCO Memory of the World Programme" forward to promote cultural

heritage going digital around the world (UNESCO,1993). So when people look for ways to bring new vitality to the cultural heritage sector, they experience a lot of processes, they reconstruct characters, services, building to simulate the lives of ancient people with 3D technology (Yang, 2006). Equally, Santos et al. (2007) have shown how multimedia communication platforms, which use location-based technologies, can be used to not only recover but also promote cultural heritage – specifically with regards Film Heritage (another important area of cultural heritage). With the advent of the internet era, interaction with cultural heritage is arguably being integrated into the routine consumption of social media (Giaccardi, 2007). As people use ICTs in different activities of their daily life, such as home entertainment, they demand a higher sophistication in cultural heritage applications (Linaza, et al.2014).

There are several interactive digital systems intended to represent traditional cultural heritage in transcultural understanding. Various projects involved in these systems either remain literal without any symbolic transformation e.g. Story mat (Ryokai et al.1999), Augmented Knight's Castle (Farr et al. 2012), video puppetry (Barnes et al. 2008) or over-simplified transcultural understanding e.g. Kinesthetic Interactive Shadow Play (Shi et al. 2013).

There is another interactive system aiming to use complete social pretend play experience to enhance children's emotional expression and understanding about puppetry. (Bai et al. 2015) created 3D role models from 2D and designed six facial expressions including five basic emotions (fear, surprise, happiness, anger and sadness) and a neutral expression. The use of basic emotions seems limited for the system user (i.e. children aged 4-6), more complex expressions could be added to create a richer experience. The interactive system does not include basic introduction to puppetry which could also hinder children's understanding of the art form.

USING INTERACTIVE DIGITAL MEDIA TO SUPPORT TRANSCULTURAL UNDERSTANDING OF INTANGIBLE CHINESE CULTURAL HERITAGE

Understanding the cultural heritage context

My on-going research will aim to develop some novel interactive digital media technologies to allow crowds to engage with puppetry in a cultural heritage context.

In this project, understanding what is traditional Chinese puppetry and the classification of traditional Chinese puppetry is the first stage in this research. Also, exploring the challenges Chinese traditional puppetry is facing in terms of cultural preservation is very necessary. Meanwhile, exploring different techniques for digital interaction to support preservation and performance of traditional cultural heritage will help us to critically examine the implications of designing for and with intercultural crowds.

As a designer I will learn how to practice traditional puppetry by familiarising myself with the operative techniques and conducting observational studies of professional puppeteers. This will help to pinpoint which technologies are more suitable for this research subject. Interviews with traditional Chinese puppeteers to collect different opinions from professional puppeteers will provide interview data that can also then be analysed to suggest a set of design implications for prototyping.

Developing an interactive system

This outline of my research articulates my interests in interactive digital media as a support for transcultural understanding of intangible Chinese cultural heritage. I intend to map out the design space and build a series of low-fidelity prototypes of Chinese puppetry with interaction possibilities. For instance, a digital puppet action library and an interactive storytelling system.

Based on the basic human senses i.e. vision, and hearing, I will research wireless body interactive modes. Meanwhile, I intend to record professional puppeteers' movement through motion capturing and establish a digital puppet action library based on those real movements. This will be followed by a usability test to examine the reliability and validity of the motion capture data.

The storytelling system will be built on the basis of the digital puppet library. By adopting Chinese classic stories (famous novels and historical events) as scripts, a group of users may engage in role-playing and interact with each other via the system. Using data from the digital puppet library, users' natural gestures will serve as input, allowing them to control their character in the stories. Thus the system will offer a rich and immersive space for its participants to experience the different aspects of storytelling.

Finally, through iterations I will produce a high-fidelity prototype which will be tested with three focus groups: traditional puppeteers, Asian(Chinese) end-users and Western end-users. The qualitative interviews will be conducted based on initial literature reviews and field observations. Thematic data analysis on user feedback will then feed into further system iterations. Through these phases I will try to find what are the implications for design in transcultural crowd.

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