Computer-Mediated-Communication (CMC):
A Solution to Protect Indigenous Cultures
Case Study: Dongba Culture of the Naxi

By

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B.Sc. in Industrial Design

A thesis submitted to
the Faculty of Graduate Studies and Research
in partial fulfillment of
the requirements for the degree of

MASTER OF ARCHITECTURE

School of Architecture
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**Computer-Mediated-Communication (CMC): A Solution to Protect Indigenous
Cultures**

Case Study: Dongba Culture of the Naxi

Submitted by

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Abstract

Computer-Mediated-Communication (CMC) has broadened the connotation and scope of human communication, social interaction and culture, fashioning our social behavior in virtual reality. This thesis focuses on the Naxi traditional Dongba culture as a case study of integrating new media technology into a traditional community in order to foster their cultural heritage. By examining the structure of the Dongba culture and building sympathetic connections between computer applications and the cultural system, I propose that an analogical Dongba user experience can be built through new media technologies. That said, CMC is a possible solution to enhance the living Dongba culture.

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Chapter 1 CMC and Indigenous Cultures

1.1 Introduction

A great deal of current research focuses on computer-mediated communication (CMC) as a technical tool for communication. This tool is an integration of current computer technologies to exchange various types of digital media instantly regardless of geographical distance. Since the Internet first made CMC possible and popular in the 1990s, it has come to re-shape how individual and cultural identities are created and maintained.

In his article “Computer Networks As Social Networks,” Barry Wellman argues, “Computer networks are inherently social networks, linking people, organizations, and knowledge”.¹ Because computer networks have become integral to social interaction, Wellman suggests that, “They are social institutions that should not be studied in isolation but as integrated into everyday lives [...] The Internet increases people’s social capital, increasing contact with friends and relatives who live nearby and far away. New tools must be developed to help people navigate and find knowledge in complex, fragmented, networked societies.”² This argument was prefigured by Howard Rheingold in 1993 when he observed that aspects of CMC over bulletin boards and other online network

¹ Barry Wellman, “Computer Networks As Social Networks” Science Vol. 293 14.9 (2001): 2031.

² Wellman 2031.

conferencing were reconstructing communities and cultures.³ The increasing use of this medium as a *communication tool*, rather than as an *information tool*, has changed CMC from an *information space* (information oriented) to a *social space* (communication orientated). This shift has generated an active discourse in the field of cultural studies.

Scholars working in cultural studies have identified the effects of new technologies on emerging CMC groups in the areas of: group purposes, system infrastructure, identity, and participant characteristics.⁴ These groups include native Americans and religious institutions. Most of these studies examine well-established western cultures or subcultures, research has been done on non-Western indigenous communities.

1.2 Impact of the Modern Culture in Traditional Communities

Globally, “indigenous peoples inhabit nearly 20 per cent of the planet, mainly in areas where they have lived for thousands of years. Compared with protected area managers, who control about 6 per cent of the world’s land mass, indigenous peoples are

³ Howard Rheingold, The Virtual Community: Homesteading on the Electronic Frontier, (New York: Addison-Wesley, 1993) 28 Mar.2003
<<http://www.rheingold.com/vc/book/5.html>>

⁴ Nancy K Baym, “The Emergence of Community in Computer-mediated Communication,” Cybersociety: Computer-Mediated Communication and Community, ed. Steven G. Jones (Thousand Oaks / London / New Delhi: Sage Publications 1995) 138-161.

the earth's most important stewards.”⁵ As global culture continues to put pressure on the particular identities of indigenous groups, these groups may need to develop customized tools, including CMC, to maintain their distinct cultural identity and to conserve their heritage.

Accumulated within a group acquired during the course of history, culture is the deposit of knowledge, belief, symbols, identity, religion, art, material objects. According to Wendy Griswold, cultures are necessarily in a state of ongoing transition.⁶ A culture that does not change is dead. If we accept Griswold's theory of cultural transformation, we can speculate on how traditional indigenous communities may integrate CMC into the development of their cultures.

For Griswold, traditional communities are switching from “a territorial concept” to “a community as a relational concept”.⁷ During this process, however, “communities, whether relational or spatial, still collectively represent themselves through patterns of meanings embodied in symbols, meanings that shape attitudes and actions.”⁸ In addition, according to Jessica Lipnack, these webs of human relation are sympathetic to computer

⁵ World Wildlife Fund. 18 Jan. 2003.

<<http://www.panda.org/resources/publications/sustainability/indigenous/foreword.htm>>.

⁶ Wendy Griswold, Cultures and Societies in a Changing World (Pine Forge Press, 1994) 139.

⁷ Griswold 139.

⁸ Griswold 152.

networks.⁹

Indigenous communities are minorities in the modern world. In a world concerned primarily with economic growth, these minority groups rarely find a sympathetic environment for their traditional cultures. Their traditions and communities are diminishing. The protections historically afforded indigenous communities by geographical distance have been eroded by tourism, culturally incompatible economic development, and international media.

1.3 Current Approach and Potential Solution

While globalization is putting pressure on indigenous cultures, CMC and other contemporary media are being used to try and mitigate the damage. Today, we can find websites related to indigenous cultures that help to disseminate traditional knowledge and to protect their cultural heritages. In addition, Intranet and online communities have been set up as important platforms for communication that includes storytelling and religious consultation (see fig. 1-1 to 1-3). Examples can also be found in Australian tribes where radio station and local newspapers help to promote traditions.¹⁰ Data from Bureau of Indian Affairs (BIA), in the United States has shown that advanced technologies are being introduced into various aspects of indigenous communities, such as education, law,

⁹ Jessica Lipnack, and Jeffrey Stamps, Virtual Teams: Reaching Across Space, Time, and Organizations with Technology (John Wiley & Sons, Inc., 1997) 169.

¹⁰ Edmund Carpenter, Oh, What a Blow that Phantom Give Me (Holt, Rinehart and Winston - New York, Chicago, San Francisco, 1972) 134-135.

information share, and telemedicine.¹¹

These websites are uneven in the quality of interface and in the level of interactivity. For example, most of the websites for indigenous people that were studied are plain text and pictures. Most are poorly designed and use popular web design standards, with little or no originality or close links to the specific culture. An appropriate site would use the transparent functions of generic web tools combined with a look and feel that is designed to work within the cultural paradigm of a specific group.

Since culture is a complex notion of horizontal (multi-domain) and vertical (time) layers, design criteria for each culture may be quite different.¹² To retain indigenous traditions, some communities may require historical reconstruction; some may need to promote traditional activities. Whatever the approach is, the first job is to develop thorough research into the client culture and find out what it really needs and wants. This initial

¹¹ 1) Indian Circle <<http://www.indiancircle.com>>

Indian Circle was created and is maintained by the Seminole Tribe of Florida. It is a web ring connecting the Internet web pages of federally recognized American Indian Tribes. (A web ring is a way to group together sites by linking them together in a circle, or ring.) From Indian Circle, one will be able to reach most American Indian Tribes on the Internet.

Currently, there are approximately 100 active links to official tribal Web sites on Indian Circle. (Source: <<http://www.indiancircle.com> and personal interviews>)

2) American Indian Radio on Satellite (AIROS)

The AIROS network is a national distribution system, seven days a week, for Native programming to tribal communities and to general audiences through Native American and other public radio stations. Programs include: "Native America Calling," "Alter*Native Voices," "Different Drums," "Signals," and "Windsongs." (Source: "Native American Public Telecommunications" 5 Sep. 2002 <<http://www.nativetelecom.org/>>)

¹² For example, contemporary Dongba culture connects to its education system, literature, art, religion and traditions; as it evolves, history is always taken as the reference, compared to other site or sites.

research must then be translated into a design that speaks both to and for the client culture.

The Naxi people of southwestern China will be the case study for this research.¹³

In light of China's increasing involvement in the global economy, the Dongba culture is a typical example of the struggle faced by traditional cultures and ethnic groups in dealing with capitalist economics, new technologies, and the erosion of traditional values (see section 2.16). Communication and connection within the community need to be strengthened in order to promote individual identity, collective identity and the cultural structure.

In this research, I will identify the main problems with current projects addressing the conservation of traditional cultures and I will propose alternative solutions. There are some important reasons for choosing the Dongba culture as a case study (first recognized by the author through field research):

- the Dongba community has a rich, internationally recognized, and well documented living culture.
- this culture is losing its older generation who have retained the knowledge of ancient tradition.
- there is strong local and international interest to maintain the vitality of the Dongba culture.

¹³ The term "Dongba community" refers specifically to those Naxi who practice the traditional Dongba culture.

- younger members of the community have acquired the necessary skills to use CMC.

Using principles and techniques developed by Kollock, Wellman, and Griswold, this project will investigate the adaptation of Dongba religious ideology and symbolic systems for culturally relevant use in CMC. Elements of traditional ideology, color preference, and symbolic images, will be considered. As part of the research, a web prototype is designed as a means to explore the interface, interaction and navigational issues of this virtual environment.

Chapter 2 Case Study: the Traditional Dongba Culture

2.1 Introduction

A long, long time ago, humanity and nature became sworn comrades and signed a non-aggression treaty. But soon, the humans who had pledged never to invade their ally realized that without Nature's offerings, they could not survive. Cautiously, they started to clear the land and cut trees, and then began to sow and harvest. Would Nature be angry at their actions and punish them? The Naxi people devised ceremonies to appease Nature. During the ceremonies, the humans apologized to Nature, so as to maintain the initial pact of peace.

--- Naxi folklore, told by a Naxi Dongba¹⁴

2.11 The History

In the Yunnan Province (fig. 2-1), southwest China, many ethnic groups and cultures flourished during thousands of years of Chinese history. The Naxi people (pronounced “Na-shee”), known by their ancient name as Mo-so,¹⁵ are the descendants of the Diqiang (an ancient nomadic tribe in China). The city of Lijiang, which originates from the old town—Dayan Zhen (figs. 2-3, 2-4), was built before AD 1253, and had been the center of the Naxi kingdom before AD1742 when it came under the direct Chinese rule of the Qing Dynasty (AD1616-1911). Gradually the city of Lijiang became an amalgamation of many cultures with the Han (the majority of Chinese) as the predominate culture.

¹⁴ Zhengwen Yang, The last Primitive Worship—Baidi Dongba Culture (Yunnan People's Press, 1999) 178.

¹⁵ Fuquan Yang, and Kangsheng Bai, ed. and trans., A collection of International Research of Dongba Culture (Yunnan People's Press, 1998) 27.

Currently, there are about 280,000 Naxi people who are distributed mainly across the boundary of the Yunnan, Sichuan, and Tibetan provinces. However, most of them reside in *Lijiang Naxi Autonomous County* of Yunnan Province and in the surrounding villages in the valleys and on the mountains. The traditional Naxi people are primarily hunters, farmers and traders.

2.12 Culture Heritage

Dongba culture refers to the legends, art, and religion that are uniquely developed by the Naxi ethnic group. Because it is at the crossroads between three provinces, Tibetan and Han culture are also influential factors.

Dongba religion, originating from an early polytheistic Naxi religion that emerged more than a thousand years ago, is the core of their culture. Incorporating elements of Bon religion,¹⁶ Lamaism, Buddhism, and Daoism, Dongba religion is a form of shamanism.¹⁷ (Fig. 2-5)

Generations of the Naxi have inherited their cultural heritage through the practice of the Dongba religion and social interaction. The Naxi believe that nature and human beings were brothers living in harmony. However, after years of the

¹⁶ Bon religion, the indigenous faith of the Tibetan people, has long been a source of fascination. It is a primitive belief in spirits, demons and ghosts in nature that can bring good and evil. Sorcery and magic were influential instruments of Bon religion.

¹⁷ Yang, and Bai 15.

over-exploitation of nature, this harmony has been broken, and disasters and illness started to prevail in the world. In response to this discord, the Naxi devised different rituals to pay respect to all the deities and to expel evil from their community.

Rituals are performed on different occasions and at different levels of complexity, depending on the situation. During rituals, costumed Dongbas will chant hundreds of scriptures and dance in complex patterns. Affiliated to the rituals, visual arts, music and dancing are the vehicles for Dongbas to generate special powers and to communicate with the spirits. Gradually, these art forms, merging and evolving with everyday life, have become a vivid language of the Dongba culture. (Fig. 2-6 to 2-8)

2.13 Pictographs and Dongba Scriptures—the Sacred Language

Dongba pictographs are the most accessible product of the traditional Dongba culture. Believed to be the only living pictographic system in the world, they are used extensively in rituals and scriptures. In the local dialect, the pictographs are called “Sijiulvjiu” (mark on wood and stone) because originally, the writing was done with ink on little books made of hand-made rough paper (similar to the papyrus of ancient Egypt), kept by the Dongbas (shamans/priests).¹⁸ (Fig. 2-9)

As a support for memory and education, the pictographic scripts were invented

¹⁸ Xi Li, and A Yuan, The Dongba culture of the Naxi (Lingnan Fine Art Press, 1998) 8.

to preserve the extensive myths and rituals of the Naxi. Rich in pictures, the writing contains many different kinds of symbols. Those symbols, direct drawings or ciphers in strokes, are put together in a certain way to tell stories. These stories have proven difficult to interpret without the aid of a Dongba master.

The scriptures (called “Dongbatee” in Naxi dialect, fig. 2-9 and 2-10) cover every aspects of the local life: religion, philosophy, history, literature, art, astronomy, geography, medical science, animals, plants, music, dance, and painting. These texts manifest the extensive knowledge and profound scholarship of the Naxi, as well as their centuries-old history. Presently, over 30,000 volumes of Dongba scriptures are preserved in libraries and museums all over the world. The largest collections are in China, the United States, England, Germany, France, Italy, and Holland.¹⁹

2.14 Living Culture of the Dongba Religion

The religious founder of the Dongba religion is Dongbashiluo, also called “Dingbashiluo” in some texts. The Naxi believe that Dongbashiluo is the incarnation of the omnipotent God and protects the Naxi people against evil and disasters. According to historians, he was an historical person who went to Tibet to learn Buddhism.²⁰ After his

¹⁹ Li, and A Yuan 12.

²⁰ Yang 111.

adventurous journey in Tibet, Dongbashiluo lived in Bai Shui Tai (a village now in Diqiang Autonomous County, Yunnan Province) where he began disseminating the Dongba religion. Eventually, his follower apotheosized him as a God.

Dongba religion has no permanent temples. Instead, temporary sites are set up, decorated with scroll paintings, sculptures, woodcarvings and many other art works. Rituals begin indoors, and progress into the wild. Generally, an altar will be set up in the middle of the site where the scriptures and sacred items are placed. People stand around the ground to watch the performance, and act accordingly by following the instructions from the Dongbas. Usually a chicken or pig is sacrificed. The meat is then distributed to all the participants, symbolizing the successful expulsion of evil.

Although there are many kinds of ceremonies with various levels of complexity in each community, three types of worship rituals are commonly performed: “Worshipping Shu” (The deities of the nature, see fig. 2-11), “Worshipping Wind” (the dead), and “Worshipping the Heaven.” “Worshipping Shu” is devised to appease nature by giving “Shu” sacrifices. “Worshipping Wind” recalls the dead and pays the cost needed for the dead s to go to their bright future by burning objects such as clothes and money. The Naxi also believe that this kinship with the dead will bring them good luck and protection. Among the three major rituals, “Worshipping the Heaven” is the most important ceremony for all the Naxi and is performed at the time of harvest. This is the time that the Naxi thank God for all

that they have.²¹

2.15 Cultural Transmitters—the Naxi Dongba

“Dongba” is the title generally given to three types of specialists: the priest, the shaman, and the augur. Communicating with nature and ancestors is their vocation. As the religious practitioners, they possess the power to interact with the divine in a hyper-dimension where only Dongbas can visit and contact.

Although Dongbas have no formal superior standing, they are respected according to their level of knowledge, skill, family hierarchy and reputation. Sometimes, they are named as “Big Dongba” or “Small Dongba.” Dongbas pass on their knowledge to future generations. Every apprentice follows his masters for a period of time (depending on his original knowledge, it could be months or years). In order to be a true Dongba, the apprentice has to be initiated into a sacred rite.²² Once qualified, the young Dongba is blessed by his teacher and given sacred artifacts such as paintings, drums and scriptures.

Dongba scholarship has, through years of history, accumulated a comprehensive literature in astronomy, geography, agriculture, animal husbandry, medicine and etiquette. For most of the community members who are illiterate, Dongbas serve as the sowers of

²¹ Yang 185.

²² Yang 66.

knowledge, so as to be called the medicine man, scholar, and craftsman.

Artistic accomplishment is also one important aspect for Dongbas, in respect that the ceremonial decorations and performance have always to be the responsibilities and showcases of Dongbas. Art forms, dancing, painting, weaving, mud figure making and woodcarving, now prevail in the Naxi's social activities.

2.16 Exposition to the World Since 19th Century

The exposure of the Dongba culture to the modern world dates back to as early as 1867, when French missionary Pere Desgodins came to the Lijiang city and brought back one scripture to Paris.²³ Since the beginning of this century, scholars from China and more than ten other countries have been systematically studying this indigenous culture of the Naxi (fig. 2-12). Dongba scriptures have now been translated into many languages and a considerable body scholarship has developed.²⁴

Joseph France Rock²⁵ managed to stay in Lijiang city from 1921 to 1949 and successfully translated many scriptures with the help of local Dongbas. As an expert and witness of the Dongba culture, however, he predicted that the Dongba culture would soon

²³ Yang, and Bai 1.

²⁴ Yang, and Bai 2.

²⁵ Joseph France Rock (1884-1962) is recognized as a botanist, anthropologist, explorer, linguist and most important, "the father of Naxi study." He is also a collector and contributor of original Dongba scriptures. In his research of Dongba communities, he was able to access Dongba culture and introduced it to European academia.

disappear as a result of social change.

2.17 The Dying Heritage

In early 20th century, at least 1,000 men (Dongbaship is a privileged to men) were trained as Dongba. In the 1960s and 1970s, a national movement of anti-traditional culture in China (called “Destroy the four old”) swept the country. After 15 years of cultural decay, the Dongba culture was in serious condition following the demise of many elderly Dongbas. According to recent statistics, there are less than 100 practicing Dongbas alive today.²⁶

In addition, many ancient manuscripts have been damaged or lost. In the past one hundred years, foreign invasion and domestic war have destroyed countless volumes of scriptures, and many more were removed to other countries. While over 30,000 volumes of Dongba scriptures are preserved in libraries and museums all over the world, a precise catalogue of the pictographs does not exist. So far, according to official statistics from international cooperative research, there are about 1,400 pictographs still in use among the Dongbas.²⁷

²⁶ Chinagate. 26 Jan. 2002 <<http://us.tom.com/Archive/2001/6/19-33753.html>>.

²⁷ Yang 1.

2.18 Tourism and Its Impact

Financial resources and international awareness are very important to protect an indigenous culture. In the early 1980s, the situation seemed to be positive for the survival of the Naxi cultural heritage. The domestic political and economic climate became favorable to the Dongbas and a new local, economic development plan was introduced. Institutions, such as schools and museums, were financed to refurbish the local culture. Economically in Lijiang, Naxi Autonomous County, tourism projects have brought the Naxi many benefits.

After 1997, when Dayan Zhen was registered as a *World Cultural Heritage* site, Dongba culture garnered renewed international attention. However, a large number of tourists can be seen in most of the region and the industry of tourism has impacted greatly on the economy and the local culture.

Statistics shows the fast rate of increase in tourism in the Dongba area. In 1985, only 435 tourists from about twenty-eight countries visited the Lijiang city. After 1992, the number increased dramatically, exceeding more than one million in 1996. According to an official survey of the local industry, about 36.13% of the population in Dayan Zhen are in the tourist industry generating revenues of more than ¥ 1,000,000,000 (about U.S. \$100,000,000) in 1999.²⁸

For example, more than 90% of residential buildings of Dayan Zhen are let out

²⁸ “Dongba Culture to Get Protection.” Chinadaily 18 June 2001: 8.

and renovated as art shops, bars, and hotels. Many outside vendors have moved in and sell folk arts, music, and other cultural products for the tourists. Some of the ancient streets have been turned into shopping and entertainment centers. Even the city's main market square, once stocked with goods brought by caravans plying the ancient Horse Tea Road between India, Tibet and southwestern China, is now almost entirely stocked with trinkets for tourists.

Some local scholars have expressed concern over the impact of excessive tourism. The director of Dongba Institute of Lijiang city, has pointed out that,

“The new cultural tourism in China has offered a good opportunity to preserve ethnic cultures, but if we do not train more young people in their own cultures and if we ignore indigenous knowledge, that tourism won't do much for the future of ethnic cultures of China. [...] by training Naxi young people to learn the Dongba culture [...], we can give the indigenous people not only economic benefits but also spiritual value and happiness.”²⁹

The Naxi people also have noticed the changes in their life. There is a story about two cousins from Shuming, a poor village about eight hours by bus and a four-hour mountain hike from Lijiang. He Xiudong, 22, and Yang Yuhua, 23, are among the first students chosen by *Naxi Dongba Culture School*. The cousins say that they were moved by a strong desire to continue Dongba tradition that had been in their families for centuries. "In the past, whenever someone from the He clan had a funeral, they invited a

²⁹ June Shih, "The Soul of Lijiang." *Ford Foundation Report* Spring 2002.

<http://www.fordfound.org/publications/ff_report/view_ff_report_detail.cfm?report_index=335>.

Dongba to lead it," says Yang Yuhua. " [...] If in the future there are no Dongbas, then our lives will be empty," Yang continues. "The dead will be put in the coffin, with no singing, no chanting, no dancing, nothing to comfort the relatives of the dead. And without a Dongba, you can't hold any of these rituals."³⁰

2.19 Cultural Change to the Tradition

Although the majority of the Naxi live far away from Lijiang city and are less influenced by the new service economy, the impact of modern culture still penetrates into their everyday life. The Dongba community is no longer isolated; a cultural change has beset the Naxi tradition.

In a developed area like Dayan Zhen, new job markets such as tourists' agencies and the trade of artifacts have put the local people into a new social environment where traditions are difficult to transplant. The social structure, individual identity, community and public morals are questioned and redefined according to a new system in which economic development is increasingly the dominate force.

Economic relations tend to re-structure the relationship between people in a community. The younger generation of the Naxi is abandoning tradition in order to fit into

³⁰ Shih

<http://www.fordfound.org/publications/ff_report/view_ff_report_detail.cfm?report_index=335>.

the new world. The older generation, on the other hand, still cherish the traditional values. Conflicts of ideology are commonplace and affect each individual family and kinship. Family identity is fading because people are traveling or moving to other remote areas and, when if they do return, bringing back stories of unfamiliar experiences.

2.2 Methods of Protection

In Chinese and international academic societies, Dongba culture is publicly acknowledged as a precious and rich heritage of the Naxi. Scholars from different disciplines, attracted to research this indigenous culture, are trying to find a way to re-invigorate the traditional culture. From many resources, here are some approaches:

- conserving ancient scriptures and other ancient artifacts
- extensive education of traditions in the Dongba community
- renewing folk arts and performance art
- promoting Dongba teaching and cultivating a new generation with traditional culture.

Academic research centers have been built in Lijiang to provide facilities for the study of Dongba culture. Local Dongbas are encouraged to co-operate with researchers and to share their knowledge. Dongbas are invited to translate numerous scriptures and also encouraged to host rituals. In addition, to protect the natural environment of Naxi, the Lijiang municipal government has legislated protection bylaws regarding the local landscape and residential buildings. As part of the endeavor, traditional Dongba teaching is

also advocated in primary and high schools.³¹ (Fig. 2-13)

2.3 Exposure to the Modern Technologies

In the book Cybersociety: Computer-Mediated Communication and Community, Steven G. Jones has pointed out that technology and culture respond to each other. Technical innovations change culture, and in turn, culture changes the technology itself. Moreover, a “modified” culture emerges with the interaction between users and the technology. Tools become “softened,” meaning that tools are adapted to particular context and unforeseen use.

The integration of computer-mediated communication and modern scholarship has brought about an increase in the exposure of indigenous cultures to new information technologies. For example, in the Amazon jungle, the International Development Research Centre (IDRC) is helping a village of indigenous Marankiari Bajo to establish connection to the Internet by high-powered radio wave. For the Marakiari Bajo village located more than 500 meters above sea level and 400 kilometers from Lima, the Internet enables this remote village to be connected together and linked to the global culture.³²

Technologies from the modern world have also been introduced to the Dongba

³¹ “Dongba Culture to Get Protection,” Chinadaily 18 June. 2001.

³² “Ashaninka: Internet by Radio for Indigenous Communities,” Americascanada. 10 July. 2002.
<<http://www.americascanada.org/politics/connectivity/connectivities/cangovt-e.asp>>.

culture. Joseph France Rock was the first photographer to bring photography to the region in the 1930s and 1940s. In the following decades, filmmakers produced valuable footage of Dongba life and their rituals. Most recently, the newly-founded East-Asia Institute of Visual Anthropology at Yunnan University has initiated a digital video and text archive for ethnographical filmmaking and research by using the latest digital inputting and editing system. This archive facilitates ethnographic and documentary film analysis and cross-cultural modes of perception and representation. Perhaps most telling computer networks are commonly set up in the Dongba cultural center -Dayan Zhen, for Internet users to connect with the world.

This exposure to CMC technologies and the increasing economic connections with the modern world, have transformed, and will continue to transform the Dongba culture. This fact suggests that the absorption of CMC into Naxi and Dongba culture is inevitable. Can a design strategy mitigate the negative affects of this transformation?

Chapter 3 Cyberspace -- New Media Environment and the Social Life

3.1 Understanding Cyberspace

The term “cyberspace” originated from William Gibson’s 1984 science fiction novel- Neuromancer. Gibson visualized cyberspace as,

“A consensual hallucination experienced daily by billions of legitimate operators, in every nation [...] a graphic representation of data abstracted from the banks of every computer in the human system. Unthinkable complexity. Lines of light ranged in the nonspace of the mind, clusters and constellations of data. Like city lights, receding.”³³

According to Gibson, cyberspace is nowhere in our physical reality. Laws of physics, standard limitations on human modes of locomotion, self-representation or capabilities, do not apply in cyberspace. It does not even exist within the computer or data network. It is an illusion, a “consensual hallucination,” created by interface technology that “translates” digital data that can be experienced by the human sensorium. Cyberspace, as a shared “hallucination” via computer connections of the same virtual environment and the same interface, is fully interactive and mutual.³⁴

Recent technological advances have been adding new experiences and meanings to cyberspace. According to Jeff Zaleski, “Cyberspace is where you are when you are on the phone. Cyberspace is not any information space, but it’s interactive information space that is created by media that are shared so that there is the sense of other people being

³³ William Gibson, Neuromancer (New York: Ace, 1984) 51.

³⁴ Gibson 51

present”.³⁵ In this sense, cyberspace refers broadly to the information space “between phones, between computers, between you and me.”³⁶

At the same time, many writers and artists have appropriated the notion of cyberspace and developed various meanings according to their context. In his book Mapping Cyberspace, Martin Dodge regards cyberspace as a navigable, digital space of networked computers accessible from computer consoles; a visual, colorful, electronic, Cartesian datascape known as “The Matrix” where companies and individuals interact with, and trade in, information. It is the *conceptual* space facilitated by computer technologies. Technology-wise, cyberspace is the information space produced by multimedia data and inhabited by human beings. It immerses users through manipulative interfaces and hyper-linked sites. For Dodge, “Cyberspace does not consist of one homogeneous space; it is a myriad of rapidly expanding cyberspaces, each providing a different form of digital interaction and communication.”³⁷

3.2 Seeing Cyberspace

Theorists and visual artists are trying to define and visualize cyberspace in different ways. Nathan Shedroff, a theorist of information design, has given a conceptual

³⁵ Jeff Zaleski, *The soul of Cyberspace: How New Technology Is Changing Our Spiritual Lives* (HarperEdge, 1997) 29.

³⁶ Zaleski 30.

³⁷ Martin Dodge, and Rob Kitchin, Mapping Cyberspace (London / New York: Routledge, 2001) 1.

map of cyberspace (fig. 3-1). He compares the different media of cyberspace with regard to the level of interactivity according to the number of audience and the immediacy of the experience. In his design, two latitude lines and the equator build a coordinating system of the globe and each of them is perpendicular to the other two. The three coordinates are: 1) real-time or time-shifted; 2) reading data or interactive data receiving; 3) prepared data or interactive data. The position of each media is determined by its level of interactivity, time and the number of audience. For example, a chat room is more interactive and real-time than a book and, it involves more people for interaction and sharing. In terms of the quality of data, television and newspapers contain betterwritten data than a meeting or a private chat does.

For filmmakers and visual artists, cyberspace is often illustrated like an information landscape where packets of data travel through computer circuitry. Created by Gunilla Elam, Tomas Stephansson, Niklas Hanberger and Monte Reid, at the Ericsson Media lab, in Sweden. "Warriors of the Net" is a movie short that wonderfully shows how the Internet works from the viewpoint of individual data packets (fig. 3-2 and 3-3). "The Hackers," a film made in 1995, was famous for the representation of the computer dataspace, where the data structure generates a particular visual space within computer networks and the traffic is mediated through different protocols.

According to Marc A. Smith and Peter Kollock, "There is no single unified

representation of cyberspace or even of its major components.”³⁸ Though many scientists, engineers, and new media artists have visualized it, “cyberspace” is still conceptual. From fig. 3-4, cyberspace can be understood as a psychological-space of attention, where people are engaged in electronic communication (even a person who reads email or talks on the telephone is in “cyberspace”). During this communication, a shared perception of space can be visualized by the participants. Increasingly, the notion has become synonymous with Virtual Reality and the immersive experience within computer-generated worlds. This is similar to Gibson’s concept.

For this thesis, “cyberspace” refers to the following concepts:

- an interactive space created by computer technology for human interaction and communication;
- an immersive environment which includes screen-based display and VR interface.
- an imaginative space existing beyond the computer interface. It is shared in both real time interaction and offline communication (fig. 3-4).

3.3 Computer Networks and the Rise of Social Functions

Computer Interface was once a pure technical zone to mediate the relationship

³⁸ Peter Kollock, and Marc A. Smith. “Communities in Cyberspace.” Communities in Cyberspace, ed. Marc A. Smith and Peter Kollock (London and New York: Routledge. 1999) 57.

between people and computers. Nancy K. Baym mentioned “Preexisting Influences on CMC,” which refers to traditional assumptions about computers’ low social presence. There were fewer cues for interactants to exchange their physical cues- no seeing, hearing and feeling of one another.³⁹ Computers were primarily expected to make appropriate outcomes and store data. As Barry Wellman points out, “computers were not social beings.”⁴⁰ Since 1960s, computers have enabled users to send messages to each other. This situation has consequently fostered the use of emails in 1980s and the Internet in the 1990s. In the past 10 years, there has been an explosion in human-to-computer and computer-to-computer interaction.

Lev Manovich, a theorist and artist in new media, has also commented on this shift:

“During the 1990s, the cultural role of a digital computer has changed from a tool to a medium [...] By the end of the decade, a computer's public image has begun to shift to one of a universal machine, used not only to author, but also to store, distribute and access all media. All culture, past and present, is beginning to be filtered through a computer, with its particular human-computer interface [...] we are no longer interfacing to a computer but to culture encoded in digital form.”⁴¹

Judith S. Donath has pointed out that today, when computer users access data, they generally share their findings. Donath goes so far as to suggest that this sharing of

³⁹ Baym 146.

⁴⁰ Wellman 2031.

⁴¹ Lev Manovich, The Language of New Media (Cambridge, Massachusetts / London, England: MIT Press, 2001) 64.

information has become a social convention. Here, the “exchange/share” becomes as prominent as “retrieve information.” This is facilitated by the ability for computer networks to allow for multi-access and delivery. These two factors, the predilection of computer users to share information and the technical capacity afforded by the current generation of computers to facilitate this sharing, have made computer networks a social medium.⁴²

Computer networks share characteristics with social networks. Lipnack portrays this phenomenon as a “Node-Link-Purpose” model: “A network of computers and a network of people share common conceptual elements: People are nodes; links are links; and purposes are applications.”⁴³

3.4 From Person-Computer to Person-Person

The first computer network was developed in the 1960’s for the purpose of weapons research and was named the “Arpanet.”⁴⁴ It allowed users to access remote computer systems from a central location. This technology evolved into the “Internet” and into what we know today as the “World Wide Web.” Perhaps one of the most significant developments in this transformation was the development of the interactive newsgroups.

⁴²Judith S. Donath, and Niel Robertson, “The Sociable Web”
<<http://judith.www.media.mit.edu/SocialWeb/SociableWeb.html>> 26 Jan. 2003.

⁴³ Lipnack, and Stamps 179.

⁴⁴ The linked computer system between U.S. Department of Defense and some universities, developed by DARPA (Defense Advanced Research Program Agency).

When a user sends one email, it is sometimes duplicated to many receivers, and then, particular topics are configured under certain “bulletin board” and “newsgroups.” Different from the mailing list, bulletin board and newsgroups are message sites categorized into “topics” where users connect the computer through a modem.

Barry Wellman notes that, “computer scientists and developers have come to realize that when computer systems connect people and organizations, they are inherently social.”⁴⁵ This notion is extended by Steven Jones, “CMC [...] is not just a tool; it is at once technology, medium, and engine of social relations [...] in essence, socially produced space.”⁴⁶ Elizabeth Reid, who studies MUD as a social environment, has looked at the “culture constructs” of cyberspace and VR. For Reid, virtual reality is not merely technology. It is also an experience.

“Cyberspace—the realm of electronic impulses and high speed data highways—may be figured as a technological construct, but virtual reality is a construct within the mind of a human being.”⁴⁷

3.5 The Interface to Cyberspace

Today, Macintosh and Microsoft Windows are the two competitive OS (operating system) interface standards on most end user computer screens. On top of these OS, web browsers are the most used application to access the World Wide Web. Popular

⁴⁵ Wellman 2031.

⁴⁶ Jones 16.

⁴⁷ Jones 16.

browsers are Internet Explorer 6.0, Netscape 7.0, Mozilla 1.02, and MSN Explorer. With the advent of HTML, VRML and Java networking software, these interfaces are operating rich graphic, dynamic data and three-dimensional settings for social interaction on the World Wide Web.

In the past twenty years, computer graphics have developed into a space in which we can see, navigate and control. Some experiments in the MIT media lab are trying to visualize the social environment built by online people flow and use CMC as a media to link virtual world and the real world. Projects like “TELEACTION,”⁴⁸ “CHITCHATCLUB,”⁴⁹ “TALKING IN CIRCLES,”⁵⁰ etc, visualize a person’s activity and behavior, and collective interactions in a certain site supported by Java programs. These projects address such questions as:

“How do we perceive other people on-line? What does a virtual crowd look like? How do social conventions develop in the networked world? [...] Our emphasis is on design: we build experimental interfaces and installations that explore new forms of social interaction in the mediated world.”⁵¹

For example, the “Sociable Web” project includes a modified server (the WebTalk client) and a web browser. Supported by this server, the web page offers features

⁴⁸ Teleaction. 18 Mar. 2003 <<http://smg.media.mit.edu/projects/TeleAction/>>

⁴⁹ Chit Chat Club. 18 Mar. 2003 <<http://smg.media.mit.edu/projects/ChitChatClub/>>

⁵⁰ Roy Rodenstein and Judith S. Donath, “Talking in Circle: A Spatially-Grounded Multimodal Chat Environment.” 18 Mar. 2003
<http://smg.www.media.mit.edu/papers/Rodenstein/TIC_CHI2000/>.

⁵¹ Judith S. Donath, “Social Media Group.” 26 Jan. 2003 <<http://smg.media.mit.edu/>>.

that replicate the social interaction in physical spaces- an interactive plaza that has social and collaborative features. “Sociable Web” proclaims that, “for those sites with social functions (community, organizational and learning sites), users should see others on the same page and communicate with them. It makes the website into a social environment.”⁵² In the supported site, when on the same page, users will see each other and their current status (distance, interests or emotions).

While CMC has produced social networks, it is important to remember that “Cyberspace” is not simply an analogy that references traditional notions of space. Rather, it is a unique type of space in its own right. Because it has a phenomenal presence, cyberspace has the capacity to change social interaction. In 1968, Licklider and Taylor predicted,

“... We are entering a technological age in which we will be able to interact with the richness of living information—not merely in the passive way that we have become accustomed to using books and libraries, but as active participants in an ongoing process, bringing something to it through our interaction with it, and not simply receiving something from it by our connection to it.”⁵³

This prediction has been realized in post-industrialized societies. Peter Dallow argues, “the mediated world has so invaded the world of everyday life that the two have become indistinguishable, so that “mediated experience” has become imbricated with

⁵²Judith S. Donath, and Niel Robertson, “The Sociable Web.” 26 Jan. 2003
<<http://judith.www.media.mit.edu/SocialWeb/SociableWeb.html>>.

⁵³ Paul A. Mayer, ed. Computer Media and Communication (Oxford University Press, 1999) 97.

“immediate experience.”⁵⁴ We are projected into the flat screen, controlling the textual or graphical avatars of our self and interacting with others. This space, to a certain degree, is quite similar to the real world so that real life experiences are used as metaphorical guidelines for virtual space. (See table 3-1)

Table 3-1

Computers and Cyberspace are a Parallel World

Source Domains	Target Domains
Supraordinate Domains	
The entire physical world	Computers and cyberspace
Subordinate Domains	
A physical office space	An individual computer
The ocean	The internet
A highway system	The internet
The physical world	Computers and applications

Source: <http://www.jqjacobs.net/anthro/metaphor.html> , cited on September 20th, 2002.

3.6 New Media Technologies

Lev Manovich defines “new media” as a notion that involves all medias (print, photograph, radio, video and cinema) in the format of numerical data accessible through

⁵⁴ Sally R. Munt, ed. Technospaces inside the New media (London and New York: Continuum, 2001) 57.

computers. Even though new media always refers back to the old media and shares similar attributes, digital media—the Internet, Web Sites, computer multimedia (hyper-text, digital images, audio, 3D images, streaming videos), Virtual Reality, computer games, CD-ROMs, and DVD – offer richer content and human experience.⁵⁵

Thanks to interfacing technologies, multimedia data (audio, video, graphics and animation) become commonplace for us when we interact online in a virtual community (fig.3-5). Most of us are familiar with the many different technical terms, such GIF, JPEG and QuickTime, which are used to generate web graphics, games and movies to enrich our online experience. New media technology is also at the heart of digital television, HDTV decoders, DVD players, video conferencing, and other applications. Sometimes, new media technologies work as a popular language in our daily life.

Applying analogical research of human social behaviors in physical communication, MIT media lab developed the “Sociable Web” Project (fig. 3-6). Users can “walk” around the site and relevant hyperlinks, through which images and sounds are integrated with words (linked in phrases). One can randomly meet and maintain contact with other people. A user has full control upon his/her private information by setting his/her online status.

3D computer graphics have the potential to create immersive environments where users can navigate through multimedia data and experience simulated sense of space.

⁵⁵ Manovich 25.

Currently, Virtual Reality systems have three major applications:

- desktop 3D worlds like architectural walkthroughs;
- “hybrid hardscape” / “imagescapes”: partially immersive web architectural space supported by imaging technologies;
- fully immersive space facilitated by devices such as Head-Mounted Displays (HMD) and Data gloves.

Many devices are being developed and refined. HMDs are used to block out the user’s peripheral vision. Tracking devices are then attached to the body of the user so that the computer is able to catch his/her movements (in real-time) and displays the movements stereoscopically. Data gloves and body suits provide tactile and kinesthetic feedback for users while headphones with 3D sound systems offer audio feedback.

VRML (Virtual Reality Modeling Language) and Java 3D enable users to create and access interactive 3D space and objects on the World Wide Web without much hardware. Many online communities, such as “Cybertown (fig. 3-7)”⁵⁶ and “Outer worlds.” are constructed with such technology.⁵⁷

Some examples of video conferencing systems have shown possibilities to put users from distant locations into a mutual and virtual environment. For example, in a

⁵⁶ Cybertown. 28 Jan. 2003 <http://www.cybertown.com/main_iframes.html>.

⁵⁷ Outworld. 28 Jan. 2003 <<http://www.outerworlds.com/>>.

tele-presence project-“Metapark,”(fig. 3-8) designed by Nick Dyer and Jerry Bowskill, a ubiquitous communication system is designed to fuse real and virtual spaces. The goal is to build an educational shared space for children to learn about ecology. The interface includes Interactive Video Environments (IVE) and wearable augmented reality information spaces. Physical locations are modeled into a virtual spatial environment and updated by the Wearable Computing equipments carried by the children in the field. The positional data can be transferred through GPS system to update the representation of the remote group within the 3D park model. The group in the classroom will be able to follow the path of the remote by watching the room-based display, and interacting with the remote side by voice chatting applications.

Programming technology for the World Wide Web has two sides: the client side and the server side. The client-side technologies are those that are part of the browser or run on the Web. Some technologies, such as ActiveX controls, run outside of the browser. Server-side technologies are those that run on the server. The following table (table 3-2) presents an overview of Web programming technologies.⁵⁸

Table 3-2

Web Technologies

Client Side	Server Side
HTML	CGI

⁵⁸ Builder. 25 Mar. 2003 <<http://www.builder.com>>.

CSS	Java Servlets
Plug-ins /Helpers	ISAPI/NSAPI Programs
ActiveX Controls	Server-side Scripting
Java Applets	Active Server Pages
Scripting languages	Server-Side JavaScript
JavaScript	Cold Fusion
VBScript	Database Middleware
Dynamic HTML	

Source: the thesis author

3.7 Communicating in Computer networks

Computer networks have generated specialized codes for communication with target group. Using symbols and metaphors has helped to make interfaces more expressive. For example, emotional expressions – a smile ☺ or sadness ☹ sign deliver the mood of one person to another. When computer graphic and multimedia technologies bring rich and realistic images to the screen, the interface itself becomes *transparent*.⁵⁹ The result is that people are able to express their identity, culture, emotions and actions.

Chat rooms on the Internet are public forums. The topic of the chat room defines a specific information space where users log on to interact with other people. Because chat rooms are primarily text based, there is typically very little that is spatial- despite the name.

⁵⁹ Users sense more realistic experience in the virtual spaces so as to see less interface when they merge themselves into that experience.

Instead, graphic techniques are used to identify and locate individual voices. For example, in fig. 3-9, we see different techniques of using color, font and icons to identify individuals. Each user can create “conversation” by choosing to whom and when to “speak.

In the “Chat Circle” project from the MIT media lab (fig. 3-9), abstract graphics (coloured circles) are used to show distance and topics of communication. Its main features are “hearing range” and “graphical history.” The diameter of the circle changes according to the distance and the number of words. The distance of the participants, the volume and the history of the communication are all visualized.

Instant messaging tools like AIM (AOL Instant Messenger, fig. 3-10), MSN messenger and Yahoo messenger, are now widely used for online communication. AIM is now one of the Web's most popular communication applications, with more than 100 million registrations (one person may register any number of different AIM personas).⁶⁰

VRML interfaces are new technologies used for navigating 3D environments. Using direction arrows and moving buttons to wander inside a 3D space, the user is able to jump to the pre-designed viewpoint; or they can control a 3D avatar to walk through the space. Lev Manovich compares VRML interface to cinema interface,

“The world is designed to be viewed from particular points of view. The designer of a virtual world is thus a cinematographer as well as an architect. The user can wander around the world, or she can save time by assuming the familiar position of a cinema viewer for whom the cinematographer has already chosen the best viewpoints.”⁶¹

⁶⁰ ZD net. 17 Jan. 2003 <<http://www.zdnet.com/>>.

⁶¹ Manovich 82.

In some VRML browsers, 2D and 3D are designed alternatively: 2D graphics help to construct a navigational map, while 3D images create realistic environments. For example, selecting a spot on a map can change the viewpoint during navigation. In some graphical interfaces, “avatars” are used to provide an image of the interacting persons. These avatars can be abstract, cartoon-like, or realistic. Some are animated and interactive. There are also 3D avatars that give more physical features of that person and his or her movement. Technologies have made the 3D avatars (fig. 3-11 and 3-12) with facial and body movements. Moreover, the dialogue between two participants can be vocalized (Although in most cases, text messaging prevails). With the latest VR technology (head mounted display, data gloves, etc.), avatars are being replaced by direct sensory experience. However, due to the high cost of such equipment and the required bandwidth, access to this kind of experience is still limited.

Similar to role-playing games, social MUDs allow players to create their own persona and interact with each other. Although more and more graphic and three dimensional technologies are bringing rich content and realities for social interaction, most MUDs (few of them are visual) are still text-based environments, where physical information and actions are described by text.

3.8 Community in Change

For Griswold, “a community may be bound by geography, or it may be bound by

network links, but members of either type of community are united, at least to some extent, by culture.”⁶²

In a traditional context, a community is a group of people who are connected by geographical places and sharing common characteristics like race, ethnicity, friendship, culture and customs. Most of these connections fall into two major certioraris: “territorial” and “relational.”⁶³

“In the first sense, a community is something we can locate on a map. It has spatial properties: borders, a center, outskirts. It also has a name and a set of symbols associated with it [...] Community in its second sense is relational: Communities are people who are tied together by webs of communication, friendship, association, or mutual support.”⁶⁴

The proportion of the two aspects varies between communities and it I this variety that shapes different traditional communities. For example, in the past, sharing the same homeland and ancestors were prominent features in defining Chinese identity. In Chinese literature, “hometown” is often the metaphor of the inner definition of self. Although the Chinese have become increasingly mobile since 1980s, the relationship between home and self is very much intact.

There are also examples of communities, such as the Jewish community, that depends primarily upon cultural connectivity. The culture has survived centuries of

⁶² Griswold 139.

⁶³ Griswold 139.

⁶⁴ Griswold 139.

separation and they have succeeded in keeping a collective identity. Their support of traditional culture maintains their identity and makes them a distinct group.

Marshall McLuhan (1964) said that the global media information networking is turning our planet as a “global village.”⁶⁵ First of all, advances in communication technology have compressed the distance between different cultures and communities so that more people are able to share their different points of view. Second, human relations have become multi-layered and cross-layered, transforming cultures that are bound by ethnicity and geography.

In the 1960s, Melvin M. Webber raised the notion of “nonplace community.”⁶⁶ It exists beyond any geographical boundaries. According to Webber, the traditional concept of “community” should be replaced by the concept of “community of accessibility,” in the information age. Due to the speed of communication, communities can now survive regardless of the geographical locations. These online communities fall in two categories: those who have met face-to-face and those who meet online.

3.9 Virtual Community

Steve G. Jones argues that, the importance of CMC is to offer “mobility” in social

⁶⁵ Marshall McLuhan, Understanding Media: The Extensions of Man (New York: Penguin Books. 1964) 8.

⁶⁶ Kumiko Aoki, “Virtual Communities in Japan. Pacific.” Telecommunications Council 1994 Conference 15 Jan.2001
<<http://www.ibiblio.org/pub/academic/communications/papers/Virtual-Communities-in-Japan>>.

space, where we compress time and space and rebuild “our status, class, social role and character.”⁶⁷ The “attraction” of cyberspace, in essence, is not only the speed at which we can retrieve information and the increase this may have in workplace efficiency (we can not deny that technologies promote productivity and economy), but we also invite the possible transformation of social relationships afforded by CMC.⁶⁸

If we search “community” in major search engines, the results are about 63,600,000 items and cover a great range of types. These communities are often termed as “online communities,” “electronic communities,” or “virtual communities.”

Howard Rheingold first discussed the notion of an online community in the 1980s. “Virtual communities are a cultural collection that emerge when enough people bump into each other often enough in cyberspace.”⁶⁹ He regards these virtual communities as “the social aggregations that emerge from the Net when enough people carry on those public discussions long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace.”⁷⁰

Creating an online community is commonly done by offering the possibility of engaging in community activities. Community building is about sharing opinions, being

⁶⁷ Steven G. Jones Cybersociety: Computer-Mediated Communication and Community (Thousand Oaks / London / New Delhi: Sage Publications, 1995) 17.

⁶⁸ Jones 11.

⁶⁹ Howard Rheingold, The Virtual Community: Homesteading on the Electronic Frontier (New York: Addison-Wesley, 1993) 431.

⁷⁰ Rheingold 5.

heard, helping others, creating and sharing objects. All of these activities must be carried out in an atmosphere that is consistent with the rules established by the group.

3.10 Categorizing Virtual Community

As social networks develop in cyberspace, the patterns of online communication are affecting traditional social definitions. For example, the distinction between sexes in cyberspace is blurred and human characteristics (psychological and physical) can be modified at will.

Online communities emerge for different purposes and for different occasions.

Generally, five types can be identified:

- existing geographical communities based on physical proximity.
- communities based on religion, philosophy or political outlook.
- communities driven by particular social or economic issues.
- conventional formal organizations, particularly companies and partnerships (supported by “Intranets”).
- clusters of companies operating within strategic relationships (supported by “Extranets”).

Kumiko Aoki further defines these different types as falling into three

categories:⁷¹

- those which totally overlap with physical communities
- those that overlap with these “real-life” communities to some degree
- ones those are totally separated from physical communities.

In the first category, online and traditional communities overlap in four types; in the second, two types. This result shows that, although new types of communities emerge, traditional connections are still prominent in cyberspace. Indeed, as Wellman contends, “Traditional, place-oriented, community can stretch well beyond the neighborhood.”⁷²

3.11 Connecting Local Communities

Terry Grunwald identifies twelve key functions for the process of enabling non-profit organizations or indigenous groups to make effective use of the Internet. They are summarized and adapted here:⁷³

- Access in the home, at work, and within organizations.

⁷¹ Aoki <<http://www.ibiblio.org/pub/academic/communications/papers/Virtual-Communities-in-Japan>>.

⁷² Barry Wellman, and Milena Guila, “Virtual Communities as Communities: Net Surfer don’t ride alone.” Communities in Cyberspace. ed. Marc A. Smith and Peter Kollock. (London and New York: Routledge. 1999) 168.

⁷³ Terry Grunwald, “Creating Online Networks” Making the Net Work. 30 Mar. 2003 <<http://www.makingthenetwork.org/>>.

- Public access points.
- Training and technical assistance for people.
- Training and technical assistance for organizations.
- Information brokering (e.g. helping people find and use information in libraries etc.).
- Creating and monitoring local content and a good interface which organizes content online.
- Electronic democracy and problem-solving forums.
- Connecting local communities and communities of interest.
- Providing/recycling hardware and software.
- Promoting online collaboration networks.
- Supporting entrepreneurship in cyberspace.
- Supporting online learning.

Following Grunwald, we can clarify our objectives when dealing with traditional communities. As a result of different historical, cultural and economic situation, we always need to identify the prominent problems and apply specific approaches accordingly.

Chapter 4 Enlivening Traditional Dongba Culture

4.1 Why Should We Conserve Dongba Culture?

“The growth of the preservation movement is one of the major social phenomena of our time. It has brought together all manner of people in a common purpose—the recording and saving of their heritage.”⁷⁴

For David Lowenthal, the conservation of cultural traditions in contemporary society demonstrates a desire to strengthen our memories and identity. “As we save what is good from the past, we realize we need not be passive passers-by, but can be active participants both in securing and in remaking the world we have inherited.”⁷⁵ The principal reason why we seek to preserve our heritage is to preserve our own identity, to give us a point of reference from which we can measure ourselves. This is also true of the Naxi.

Over the past century, the Naxi people have gone from a thriving culture with a heavy emphasis on sacred rituals, to one in an increasingly precarious position as the practice of traditions fall victim to modernization. A culture that is not living and changing is merely a collection of remains in the museum and library. That said, if traditional practices are not maintained and integrated into new contexts, cultural continuity is lost. The first act of conservation is to assure the transmission of culture between generations. If this is not done, the old generation, in our case the Dongba, and their traditional knowledge

⁷⁴ David Lowenthal, and Marcus Binney, ed. Our Past Before Us: Why Do We Save It? (London: Temple Smith, 1981) 9.

⁷⁵ Lowenthal, and Binney 14.

will die out, making continuity impossible. Added to this is the increasing pressure of an homogenous global culture.

In response to this, many communities in the world have realized this danger and are attempting to preserve traditions by all means possible. For example, Charles Kyriacou describes the conservation movements in Greece. Both regional and national organizations preserve their ethnic identity and focus on different elements, in his case, folk dance. Since the majority of the Greeks have recognized it as an accessible and easy means, many folk dance classes are sponsored across the region. So folk dance becomes “the social cohesion for the common Greek.”⁷⁶

Conserving a culture must begin with that culture’s own desire to keep its identity. In the case of the Naxi, an awareness of the qualities that are unique to Dongba culture does exist. What needs to be done is to develop a strategy for the continuation of those traditions within a contemporary context and to spread this awareness to the public.

4.2 Active Conservation

The young generation of the Naxi, born after the 1980s, is fascinated by the new world. They move to other cities for education or merge into the national economic movement. Conversely, the new economy enters into their mountain region as a result of tourism and foreign investment. The Naxi community now faces profound changes. As

⁷⁶ Charles Kyriacou, “Greek Folk Dance Resource Manual.” Greek Folk Dance Resource Manual Page. 27 Mar.2003 <<http://www.filetron.com/grkmanual/iofa95.html>>.

their economy grows, the geographical boundaries can no longer define the community and its culture as it once did. A transformation is inevitable for those traditional communities who are involved in global activities.

Dongbas carry with them a comprehensive knowledge of traditional culture. They perform different rituals for their communities to relieve suffering and ward off disasters. They also show people how to live a happy life. Dongbas are largely responsible for maintaining the distinct identity of the Naxi among numerous ethnic groups in China's Yunnan province.

The Naxi pictographs are believed to be the only semiotic system of this type still actively used in the world.⁷⁷ Currently in this region, the ancient literature is almost dead (very little is produced within the community), although some scholars do still produce manuscripts in their old language. Without the active involvement of Dongbas in the community, this literature will become just *images/memories* with no active connection with the present or the future.

The transmission of Dongba culture relies on the pictographs, rituals, and story telling. However, these means of communication are being challenged by new medias such as telephone, modern transportation, and even computers in some areas. The introduction of these new communication technologies has not only affected how communication occurs but also what is being communicated.

⁷⁷ Yang and Bai 2.

In response to these problems, many advocates are promoting real life practice—*living the culture*, rather than objective *reading the culture*. Some institutes have employed the old-generation Dongbas to help translate and teach, as well as funding some rituals for the community.

4.3 Defining Active Conservation for Dongba Culture

For Kyriacou, the conservation of artifacts and documents is “passive conservation,” because it preserves material culture but does not consider the condition of the group who makes or users the object. On the other hand, “active conservation” motivates and helps the group to continue a natural process of growth and change.⁷⁸

There are several reasons to consider “active conservation” for Dongba culture:

- Dongbas, who transmit the religion in a special format (writing and chanting scriptures) are a living group
- culture is always presented in a social environment, such as rituals and healing
- the pictographs are meant to assist memory; in other words, the communication through the pictographs depends on a knowledgeable interpreter.

For traditional cultures that are extinct, cataloging documents in local archives, museums, and libraries and archeological preservation of physical remains – buildings,

⁷⁸ Kyriacou, <<http://www.filetron.com/grkmanual/iofa95.html>>.

artifacts, landscapes – are the only options. However, for a living culture, the endeavor of conservation should aim at the social dimension where the culture has been created.

4.4 What to Conserve?

Dongba culture refers specifically to the Dongba religion and the traditions developed in the area of Lijiang Naxi Autonomous County. As Griswold points out, religion is “the most fundamental bond among people of earlier times.”⁷⁹ Being a living culture, its value resides in both the historical remains (language, art, religion and traditions) and the ongoing cultural practice.

There were tribes originating from nomadic Diqiang people along the border of ancient Tibet. They migrated to the Lijiang area and then gradually became the Naxi people. Over years, the Naxi have developed a large area around Lijiang and they have made Dongba religion one of their most distinctive attributes. Traces of Dongba religion can be found in many aspects of community life from everyday routines to rituals. In all of these activities, the relationship between nature and the people are always considered.

To illustrate what sustains the cultural system, figure 4-1 to 4-3 shows how the Dongba culture evolves from its basic elements to a comprehensive structure. There are three circles that stand for Dongba cultural activities, Dongba scholarship and religious study, and education. These circles overlap and generate three “spaces” in figure 4-3.

⁷⁹ Griswold 47.

Within the top-left “space” (colored circle), religious ritual and community gatherings advance and explain the culture, making it understandable to everyone in the community. This can be seen as the “soil” of the culture. Dongbas typically officiate these activities. In the top-right “space”, Dongbas write manuscripts in “Sijiulvjiu” (Dongba pictographs) to record people’s mental state and activities. They teach students how to pass on their knowledge. All these lead to a process of “sedimentation.”⁸⁰ The bottom “space”, education, links the present and the future of the Dongba culture. New Dongbas get involved in community life and become stronger with the guidance from senior Dongbas. This also involves educating laypersons about their culture.

4.4.1 Learning Dongba Skills

The Dongbas, who are the main carriers of Dongba culture, are the central figures of community life. Families go to their local Dongba to consult on important decisions, such as marriage and funeral. Ceremonies need to be validated and organized by “big Dongbas.” Moreover, the Dongbas are responsible to pass knowledge to the new generation and train students as future Dongbas.

Traditionally, the selection of Dongba students was very strict. Not only is raw talent taken into consideration, but also kinship and reputation. Once selected by a Dongba

⁸⁰ After stirring a glass of water, the water gets more and more clear, and the soil solidifies at the bottom

master (authorized by the Dongba establishment), students learn rituals and reading and writing of pictographs. Sometimes, they also do housework for the master as tuition. After years of hard work and practice with his master, a ceremony initiates the young Dongba's career. Such traditional learning requires great effort and endurance from the students. It also requires economic resources.

Since the 1980s, recognition of the importance of the Dongba culture by the government and international scholars has helped to build some Dongba schools for the local people. In 1995 the first *Naxi Dongba Culture School* in Lijiang was established and the *Museum of Lijiang County* was expanded into the *Museum of Dongba Culture*. Now Dongba students have more exposure to the few remaining Dongba masters. One Dongba can teach more than one student at the same time in the classroom. However, if a student is outside the town, there is no chance to continue his study because all the materials from the Dongba need to be taught face-to-face.

4.4.2 Dongba Rituals

Charles F. McKhann⁸¹ has noted that religious rituals are microcosms of the

⁸¹ Charles F. McKhann, "Naxi Zongjiao Zong Lun." A collection of International Research of Dongba Culture, ed. and trans. Yang, Fuquan, and Kangsheng Bai, (Yunnan People's Press, 1998) 91-113.

He is an anthropologist from Whitman College whose specializes in Symbolic Anthropology; Anthropology and History; Kinship and Social Organization; Ethnicity; Myth, Ritual and Cosmology; Chinese Culture and Society; Religion in China; Tibeto-Burman Peoples; Naxi.

society and create a guideline for social behavior.⁸² Since every member of the community is involved to perform a ritual, the cultural memory is renewed and strengthened. The ritual system in the Dongba culture is very complex and comprehensive. Rituals occur almost every month of each lunar year. No matter how big or small the ritual, Dongbas are always the hosts of the event.

Aside from funerals, marriage and naming rites, “worshipping” rituals are major events. These kinds of rituals include three major categories: “Worshipping the Heaven”; “Worshipping Wind” (the dead and ghosts); and “Worshipping ‘Shu’”(all the deities in nature). Although details of the ritual may change from place to place, there is relative consistency in structure throughout the region.⁸³

“Worshipping the Heaven” is the most important ritual in the Dongba culture. This ritual is so central to the Naxi people that they sometimes call themselves “the Nationality of Worshipping the Heaven,” because they believe their God comes from Heaven to protect them from evil and illness. It reinforces the connection with God and nature.

The “Worshipping the Heaven” (fig. 4-4) ritual consists of three phases each of which are performed in three consecutive days. The first day is the “Initial worshipping,” the second day is the “Grand worshipping” and; on the third day is the “Ending worshipping.”

⁸² Yang, and Bai 95.

⁸³ Yang 193.

To perform the ceremony, a committee of priests⁸⁴ is elected from every clan (families with same surname). Then, the priests will choose a chief priest (called “Kashee-Gong” in Naxi dialect) to host the ceremony. Every priest will have an assistant to hold the sacred objects.

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In the morning of “Grand worshipping,” the committee of priests gets up early and arranges the ritual site in the fields. They will clean the site with water and chant the “KaiJuang Sutra” and the “Chuhui Sutra.” Name labels of every priest are placed in front of table. After the arrangement, priests go home to have breakfast with their family. Dressed in their traditional costume, the participating community members march to the ritual site. When everyone arrives, they sit in a circle around the altar. Selected as a sacrifice, a male pig⁸⁶ is placed in front of the divine trees. Every family performs prayer and worship before the sacrificial pig by following the priests.

During the ritual, the chief priest, burning joss sticks, will chant the “Chongbu Sha Sutra.” The pig is then slaughtered and dismembered. The participants then cook the meat while the chief priest chants the “Zhuang Zhi Pu Sutra.” When the meat is ready, the men dedicate the meat and “kowitz.”⁸⁷ After the ceremony, all the participants share the

⁸⁴ In a ritual, some Dongbas’ will serve as priests.

⁸⁵ Yang 193-197.

⁸⁶ Male pig symbolizes the masculine dominance in their society.

⁸⁷ Means to kneel down and head to earth, in Chinese mandarin.

offerings. The whole process involves decorations, music, dance, and chanting.⁸⁸

4.4.3 Community Interactions

Daily social interaction is also very important for Naxi families in retaining their traditions. People are closely connected to the Dongbas and other families in the community, because of their close kinship and religious beliefs. Identities are defined by their familial and social connections, just like the general Chinese culture. For example, when people introduce somebody, they will refer him/her to some kind of relations with the people they already know, such as “Mr. Zhang’s daughter” or “Ms. Wang’s husband.” These traditional interactions and connections help to retain and enrich the “soil” of the indigenous culture. Since social changes make it more and more difficult to have face-to-face interactions, there is a need to bridge the distance between people in order to maintain cultural dialogue.

4.5 Dongba Culture and Cyberspace

4.5.1 Virtuality, Reality and Spirituality

According to Martin Dodge and Rob Kitchin, new media technologies present us with “the copy of the original” or sometimes, “more real or authentic than the original

⁸⁸ Yang 195.

copy.”⁸⁹ This copy reinterprets our relationship and interaction with the real world. Sometimes, the boundary of the real and virtual is blurred.

Enhanced by media presentation, the “virtual world” involves more than a representation, it can be a reconstruction of our memory and experiences. Within the regime of this “reconstructing,” we eventually yield to or get used to the “new reality.” As Edmund Carpenter explains, for example, older people try to translate the images or other medias into “objective reality”; however, the young generation, who grew up in the new media, turn to the images directly with less validation.

“Today's images are often self-sufficient. We now have ads that give more satisfaction than their products. Conceivably there doesn't even have to be a product. Sometimes when we try to purchase a product advertised on TV, we're told, ‘It's not yet in distribution,’ which probably means not yet in existence since consumer interest is often tested prior to production.”⁹⁰

Visual information dominates our perception and experience. What we see constructs our memory and beliefs. I had such experience when I met a friend, Reiko, through a chat room two years ago. We exchanged our photos and sometimes voice-chatted through the Internet. Gradually, in the process of getting acquainted, there was the sense of “knowing” the person. When comparing the development of this friendship with that of more traditional friendships, there is very little difference.

Griswold believes that some primitive people often blur the distinction between

⁸⁹ Dodge, and Kitchin 21.

⁹⁰ Carpenter 6-7.

their images and the real world. They hold strong spiritual beliefs and usually perceive their religious symbols as reality. In some primitive tribes of Africa, South America, and South-west Asia, graphical symbols are commonly merged with objective experience and spirituality.⁹¹ For the Dongba culture, acknowledging “image reality” as “reality” is quite common.⁹²

As with many traditional cultures, the Naxi’s reality is informed by community memory and belief. According to Griswold, in oral cultures, “myth and history merge into one [...] the boundary between reality and unreality are fluid, easily crossed.”⁹³ This is evidenced in the Naxi by the belief that inanimate objects and living things are simultaneously what they appear to be and the dwelling place of deities. For example, ritual images are understood as a living embodiment of the deity that they portray.

In many preliterate societies, according to Edmund, mind and body are often understood as separate from each other.⁹⁴ He notes that intense sensate experience are seen to “imprison” the spirit in the body because the spirit has to respond to the body constantly:

“In preliterate societies, the separation of spirit from flesh is thought to occur in the surrealist realm of dream, art, ritual, and myth. Daily life, in the field or on the hunt, is intensely sensate, with all senses alert & the spirit imprisoned in the body.”⁹⁵

⁹¹ Yang, and Bai 21.

⁹² Yang, and Bai 293.

⁹³ Griswold 141.

⁹⁴ Carpenter 43-47.

⁹⁵ Carpenter 42.

Carpenter notes that the spirit can be set free in the “surrealist realm of dream, art, ritual.” A similar situation happens in shamanic rituals of the Dongba culture. A Dongba shaman can travel to a “hyper-dimension” to communicate with the spirits and bring back the cure for an illness or find some lost item.⁹⁶ This is analogous to CMC where interaction is not dependent on the bodily presence of the participants. Instead, clicking hyperlinks and communication via hypermedia, visual and audio data simulate the actions that took place in the physical world.

4.5.2 Oral Culture and Digital Communication

Through CMC, a message can be sent and received instantly. For Griswold, “they (CMCs) allow raw expression of ideas and emotions, making possible an immediacy and intimacy that had previously occurred only in face-to-face communication.”⁹⁷ Different from writing a letter on paper, an online chat allows instant reply and needs less thorough thinking.

Since the availability of personal computers in the 1980s, the interface has changed greatly, from command input to a metaphoric work-environment accessible by

⁹⁶ Yang, and Bai 78.

⁹⁷ Griswold 145.

manipulating icons in virtual space. Conceptualized as a human finger, the cursor extends our hand to the digital display. Today, new types of “synthetic world” are devised with “intelligent” computers, 3D virtual space, and sense simulation.

In 1996, 26,532 (out of 280,000, about 9.4% of the population) Naxi citizens installed telephones into their homes; and in 1999, 9,673 (about 3.4% of the population) people registered international telephone service. To a certain degree, telephone communication has enhanced oral interaction between community members in different locations. Today, in some developed areas of *Lijiang Naxi Autonomous County*, computers are also a common communication tools for the Naxi.

4.6 Mapping Dongba Religious System to Cyberspace

As previously mentioned, Dongba religion is the center of the Dongba culture. After centuries of development, social functions of the Dongbas are categorized very clearly.⁹⁸ These functions can be seen as basic models for systematic analysis. According to Jessica Lipnack, these models can be viewed as applications that are similar to computer programs.⁹⁹

Following Lipnack’s theory, social functions can be mapped onto computer applications that consist of a similar structure and functional system (see fig.4-3). In the

⁹⁸ Yang 254.

⁹⁹ Lipnack 179.

diagram, “Circle 1” contains the public culture zone where the Dongba culture formulates and re-generates itself. It enriches Circle 2 from practice, and educates the public. “Circle 2” is the spiritual core and its symbolism strengthens the connection between community members and tradition. In order to accomplish continuity, “Circle 3” is the transmission of the culture from the spiritual core to the new generation. This three-point circle helps us to understand how Dongba culture continues to grow.

Based on this three-point circle, figure 4-3 illustrates the five major elements of Dongba culture as “computer applications.” These five elements are:

- ritual
- events
- religious consulting
- Dongba teaching and learning
- communication.

For Jessica Lipnack, “ a network of computers and a network of people share some common conceptual elements: People are nodes; links are links; and purposes are applications.”¹⁰⁰ The five applications from Dongba community, identified as the five elements above, enable the revolving circle to accomplish itself, generating the “soil” of the Dongba cultural heritage for the Naxi and their descendants. In addition, community members are very familiar with these elements. This helps to bridge different groups in a

¹⁰⁰ Lipnack 179.

community and to promote their culture through the traditional system of symbols. As I mentioned in Chapter 1, each point of the “revolving circle” is deteriorating in the current climate and needs to be reinforced. By designing a CMC environment as the Naxi’s alternative space, we may be able to reunite the Naxi people by creating a means through which they can communicate despite geographical distance.

The feeling of “space” is basically achieved via “popup windows” and navigating through hyper-link/media. As seen in the five “windows,” each individual space is opened sequentially or simultaneously relative to the user’s activities. (See fig. 5-4 and 5-5)

From an individual perspective, user experiences are enriched by free access to different events at the same time (fig. 4-5). For example, a “popup” window will represent a ritual space where traditional ceremonies are performed, allowing cross-event transitions, such as chatting between the participants, looking for literature, etc. Participants could switch their activities or participate in new activities by popping up new windows. Here, the mouse becomes one’s “eye” and “leg,” leading him/her to walk to his/her goal.

4.7 Personal Identity Versus Social Connection

Creating the link between personal identification and social relations is the challenge in the creation of the Dongba virtual community. Because of the close kinship of the Naxi’s traditional community, each person’s identity is closely tied to a group, either familial or geographical.

Similar to the general Chinese community, Naxi's social structure protects its culture and enhances inner coherence and regulation via a strong "social web" which integrates collective and personal identification. Within this "web," access to every member of the community could be in a structure similar to the "Container Navigation" which is commonly used in Microsoft Windows systems where every single object and details can be easily located. Fig. 4-6, 4-7 and 4-8 show how to map the whole community into a perceptive view of the "social web and how to communicate with others."

As discussed in section 4.3, designing a virtual space for Dongba community is not only for personal access to the cultural resources, but also for rebuilding the social web of traditional connections. Therefore, to represent this unique feature, fig. 4-7 and 4-8 outlines the whole community membership and their relationships that generate the social web. Each person belongs to certain group and each group has certain links to each other. By doing so, every member in that community has a sense of the "web."

Chapter 5 Designing a Prototype

5.1 Introduction

We are already familiar with various virtual communities and models online. As an informative and communicative platform, the World Wide Web is one of the most popular places for “getting together.”

Designing an online community needs to take into account its social setting, interaction and organization. More than just a technical issue, the interface is an exploration of a space where the cultural specifics are promoted. To design an appropriate and functional website, interface designers and information architects need to work together with computer programmers to construct modules from available/practical technologies, and also to consider cultural, and financial limitations. Considering the cultural environment as the foundation of the virtual community, elements from traditional life and coherency to the cultural context need to be followed. We will not discuss here the technical side of developing such community sites.¹⁰¹ Instead, we will look at the issues of user experience, visual design, and information architecture.

5.2 Defining the Purpose

The purpose of the “Dongba virtual community” is to build up a public space for

¹⁰¹ Relative information can be found at following URL:

<<http://www.fullcirc.com/community/desingingonlineevents.htm>>

<<http://www.builder.com/>>

<<http://dc-mrg.english.ucsb.edu/conference.asp>>

community members in order to support living traditions. As a convenient discussion space for members to exchange their opinions, it binds the community as a coherent entity. Offering the lay Naxi a consulting service, a Dongba is available online to answer questions. It offers information for the young by presenting Dongba resources to refresh their knowledge of the traditions and achievements. As an interface between Dongba masters and students, it provides a distance education program for new students.

5.3 Community Architecture an User Experience

Site architecture is designed by an Information Architect,¹⁰² and presents information in an efficient and visually stimulating way. User interaction are anticipated by the architecture. Fig. 5-1 illustrates the organization and structure of virtual Dongba community.

As the Dongba cultural environment is transformed into a virtual environment, factors such as visual elements, actions, collective activities and cultural identification, have to be considered. Here, the experience in virtual space can be understood as an “interactive experience” where the user is performing “scenarios.” Scenarios are stories, which tell the tales of user experiencing in the site and help designers to visualize the site and its users. Scenarios are also useful in validating the site's design once it is finished. If

¹⁰² In 1976, an architect, Richard Saul Wurman, coined the term “information Architecture” as he believes that architecture is the science and art of creating instruction of organized space. Such design focuses on how information is laid out within the WebPages.

the scenarios match up with the actual design of the site, the goal is achieved.

From the analysis of the structure of Dongba culture, eleven basic scenarios from the traditional Naxi community can be identified:

*Gateway*¹⁰³— a place that displays and introduces the Dongba culture, gives access to the community and screens unwanted people. It provides information of what is happening inside the community, links to other relative resources, and validates the user's identity.

Sign in— an authorized member can login from the Gateway and access to his/her personal space.

Channel— the space between *Gateway* and one's personal space. The channel allows a user to “fly” into his/her cultural dimension- the spiritual space of the Dongba culture.

Personal space— after a user travels through the *Channel*, he/she will come to his/her personal space where one defines oneself, shares information and interacts with other online users. There are links to access other spaces such as *Social Events*.

Communication— a panel that enables the user to see others and interact via text,

¹⁰³ Explanation: From previous discussion (Section 4.1), we know that a community needs to be distinguished somehow so that its members can define themselves. In virtual spaces where physical links are hard to retrieve, people often use context and visual cues to define “space”, in other words, “boundary.” Here in *Gateway*, visitors are categorized and identified as *insiders* or *outsiders*. It highlights the culture difference and the value of this culture, providing a sense of going “home.”

audio or real-time video. This function is accessible in every virtual space.

Social Events— a space where the community organizes activities, such as festivals and community meetings.

Rituals— a space where Dongbas host religious events at the time of special dates or important occasions, such as “Worshipping the Heaven,” expelling sickness, weddings and funerals.

Dongba Education— an educational space where a student can train with his/her masters.

Teaching —a Dongba master can use this space to communicate with his students.

Consult a Dongba — a space for members to find a Dongba consultant to answer religious and personal questions.

Log out—to leave the virtual space and return to the *Gateway*.

5.4 Defining the Users

The community boundary has a screening process managed by an administration committee. Each Naxi will have a specific ID to access the virtual community, which is set to protect the cultural environment of the space. New members apply to the administration committee to obtain a valid ID. The authorized participants will be Naxi, students of Dongba, and the Dongba themselves. Each participant holds an updated profile and is given a visual iconic symbol within the community.

5.5 Main Functions

Prototype functions can be categorized into the following:

- Information Presentation
- Identification
- Presentation of self
- Discussion in a group
- Communications
- Education
- Virtualization of cultural elements
- Global search within the virtual community

5.6 Virtual Actions and Usability

Users' actions are grouped into the following: talk (type or audio) to another person, talk (type or audio) to a group, see another person through real-time video, search for a person, search a topic/resources, study, teach, share files, and present (draw a picture or show a video). These actions can be realized through current web-based multimedia/interactive technologies, such as Dynamic HTML, JavaScript, and Apple QuickTime, etc.

Also important, usability issues define the quality of expected actions. Designers have to see from the users' perspective and to understand how an action can work in a certain context. The following factors may affect the interface usability:

- illustrations and icons as suitable metaphors;

- layout of information—font size, color, the attractiveness of graphics;
- animations;
- layout of user's input, such as forms;
- dynamic data display;
- perception of a person;
- freedom of communicating with others;
- sense of spaces and the transitions;
- sequence of navigational links;
- downloading/waiting time (this involves system environment, media compression, debugging, and connection speed)

5.7 User Interface Design and Cultural Metaphors

In the process of constructing CMC environments, theories and practices are based upon real life experience and on metaphors. Human experience, social structures, and spatial navigation are important factors when comparing “the virtual” and “the real.” These factors play important roles in designing interfaces.

The graphic user interface (GUI) addresses the interaction of metaphors; 1) the images and concepts that are used to convey function and meaning on the computer screen; 2) the detailed visual characteristics; 3) and the functional sequence of interactions that produce the characteristic “look and feel” of the graphic interface. The interface design is certainly a major aspect of the design phase.

Design for screen is usually 72 dots per inch. The effective region available on the screen varies greatly from 640×480 resolution to 1024×768 resolution system. Considering the tool bar and borders in the Internet browsers, the region will be reduced to 570×260 for a 640×480 resolution system. All the color tones and graphics are set according to the context. Fonts and graphics are reformatted by Casting Style Sheet (CSS) in HTML coded websites.¹⁰⁴

Inspired by the story of Dongbas' spiritual travel, Dongba user experience is translated as different "spaces" by embedding different "tasks" into "Windows." Offering the power to fly into multiple spaces, a "window" is an alternative virtual working space where actions are performed. In such a window, users act "move," listen," "see," and "talk."

Based on the definition of "spaces," I am able to define the following tasks:

The Gateway (fig. 5-2)

- The login
- Event alert
- Recourses for visitors

Personal Space (fig. 5-3)

- Identifying self
- Community and personal messages

¹⁰⁴ Useful resource of technical aspects of visual design such as color use, transparency, margins, and font use, can be found at <<http://www.pring.com/design>>

- Sense of connection with other community members
- Access to other “spaces”

Collective Identification and communication - defining self in a social web (fig. 5-4)

- Communication tools: text, audio, shared working space, real-time video, etc.
- Communication: “tree-structured” overview of the whole community
- Overview of the community people
- One to one communication
- Sharing recourses
- One-to-many communication
- Contacts list

Online Ritual

- Register
- Preparation for the ritual and management
- Real time broadcasting

Education (fig.5-5)

- Scriptures
- Drawing pictographs
- Audio teaching
- Real-time videoconference
- Progress meter
- Test and graduation

Social Events

- One-to-many communication
- Events archives
- Real time broadcasting
- Voting and comments

Personal Consulting

- Find a consultant
- Booking
- Online and offline communication
- Healing ceremony

Chapter 6 Conclusion

6.1 New Framework: the Adaptation of Technology for Cultural Conservation

In some developed industrial areas, such as North America, modern technologies are intertwining with people's daily life, influencing ideology and human behaviors. I believe that technology is a double-edge sword. We should not overlook or emphasize either side. Around the world, many indigenous communities are disadvantaged groups that are being supported by international institutions. Generally speaking, most of the international community believes a global society needs diverse and indigenous cultures .

Many scholars and researchers have been working with different cases to help traditional cultures. In this thesis, I employ two perspectives: the global view and the local view. Firstly, I have examined "online culture" and "online communities." Based on the studies by scholars like Steven Jones and Barry Wellman, I have argued that CMC is a cultural space. Technological platforms, such as computer networks, offer social spaces for communication. Online surfers are making new (sub) cultures in the cyberspace. Moreover, real-time online interaction and multimedia data has converted the text-based screen into a *real* or *surreal* environment. Many physical actions can now be simulated on the screen and reflected back to us, reconstructing our understanding of time and space.

Secondly, the traditional Dongba community, by adopting new technologies, is effected in three aspects: physical boundaries are broken; the financial status support new technologies (most of them are costly); the exposition to the modern knowledge prepares the local people for computer technologies.

Bridging the Dongba culture and virtual culture, I have illustrated that the composition and internal mechanism that drive the Dongba culture and allow for the translation into a CMC architecture. It is my position that new media technologies possess the potential to enliven the traditional Dongba culture.

There were bad and good results (see Chapter 1) in this domain. Indigenous people are loosing their traditional spiritual ground and physical boundaries. Although cyberspace has helped many communities to rebuild their connection and identity, the physical connections (kinship, neighborhood and race) and social and historical links remain important to traditional communities and cannot be totally replaced by the virtual contact. Physical relationships and communication secures the ties between community members.

To sum up, these considerations form the position of this thesis as an exploration of an alternative solution, rather than a replacement. Furthermore, the design prototype focuses on the connectivity and community between the real and the virtual.

6.2 From Theory to Practice

Inspired from Jessica Lipnack and Barry Wellman's theory of "sympathetic" structure of computer and social networks, I have extracted eleven "scenarios" from the Dongba cultural system and applied them to a virtual community space. To design a "full-manner" user experience, I refer to other important issues from the Dongba culture, such as "social identity and activities," "self-identity," heritage succession, and traditional

communication. Cross-domain issues like “Graphic User Interface” design, interaction, information architecture, user case study, and usability, are also considered.

6.3 Implications for Other Culture Studies

This research is a new field of integrating technology with cultural applications. Through my study, I have not found direct resources and have to setup a certain methodology to explore the issues raised in this case study. Perhaps, this thesis may be useful as a reference in the future for other researchers to study similar cases.

A web-based prototype, included with this thesis, helps to explore the potential adaptation of new technologies to other conservation plans. We need to address the following questions:

From this study and its design solutions, we can see its potential applications to other cases around the indigenous world. Conservation plans need to be adjusted according to specific context, in order to address the following questions:

- what is the purpose of conserving traditions?
- what are the “soul” and “soil” of the culture as defined by the culture itself?
- who are the targeted audience?
- what are the key elements of the culture?
- what are the problems and how do they affect traditional culture?
- how do the local community access technology and what do they expect?
- what are the technical and financial limitations?

- what are the links between technology and the local culture system?
- do they suit each other or not?
- what are the technology applications in conserving traditional culture?
- what other issues have been taken into consideration, such as information, personal identity, and communication?
- what standard should be used to design and test the applications?

Is it universal or cultural?

6.4 Future Study

This thesis is derived from a combination of field trip, online experience and extensive literature review in its relative domains. However, due to the limitation of my research and scope of knowledge, this paper cannot cover the issues completely on this topic. In my opinion, the subject of conserving indigenous culture needs cross-domain collaboration; in other words, more participants will generate more input and details.

Also, technical limitations impede real testing and validation from the local community. Although the technological aspect of the prototype is feasible to apply in the near future, now the Dongba computer network is still crude and unable to handle the high volume data transfer. Secondly, education and acceptance of CMC will take a long period of time. Thirdly, current conservation teams are focused on the adoption of technology as a solution to enliven the material culture. Therefore, it is still early to communicate with Dongba community and their scholars regarding this prototype. In the future, I would

refine the prototype with scholars from Dongba.

Illustrations

Fig.1-1: Ohlone/Costanoan Esselen Nation, Monterey Bay Area, California, USA
Source: 29 Sept. 2002
<<http://www.esselelnation.com/>>.

Fig.1-3: Mohegan Tribe, Montville, Connecticut, USA
Source: 29 Sept. 2002
<<http://www.mohegan.nsn.us/tribe/home.html>>.

Fig.1-2: Kawanyama, an aboriginal community North Queens land, Australia.
Source: 29 Sept. 2002
<<http://cwpp.slq.qld.gov.au/kowanyama/>>.

Fig. 2-1: Diagram by the thesis author, showing the geographical location of the Naxi Dongba culture.

Fig.2-2. Landscape of the suburb, the Lijiang city. Photograph by the thesis author. 2001.

Fig. 2-3: Dayan Zhen-the old town of Lijiang city.

Source: 29 July. 2002

<<http://www.cic.sfu.ca/lijiang/Project.html>>.

Fig.2-4: The Naxi people in the street of Dayan Zhen (old town)

Source: 29 July. 2002

<<http://www.cic.sfu.ca/lijiang/Project.html>>.

Fig.2-5: Diagram of the Dongba culture. Illustrated by the thesis author.

Fig.2-6 (left): Ba Ge-the augury symbol of the Dongba culture.

Source: Li and A Yuan 59.

Fig.2-7 (right): Totem of the Dongba culture-eagle and snake.

Source: Li and A Yuan 42.

Fig. 2-8: Dongba chanting the scripture in a ritual.

Source: Li and A Yuan 5.

Fig. 2-9: Dongba Pictographs. Source: Li and A Yuan 8.

Fig. 2-10: Ancient Dongba scriptures. Source: Li and A Yuan 13.

Fig. 2-11 Worshipping "Shu." Source: Li and A Yuan 29.

Fig. 2-12. Diagram of the Dongba culture research. Illustrated by the thesis author.

Fig. 2-13. Students from the *Naxi Dongba Culture School* are learning a ceremonial Dongba dance and Dongba scripts.

Source: 29 Sept. 2002

<http://www.fordfound.org/publications/ff_report/view_ff_report_detail.cfm?report_index=335> Cited on September 29, 2002>.

Fig. 3-1: A conceptual map of communication and interaction in cyberspace created by designer Nathan Shedroff.

Source: 12 May. 2002 <<http://www.cybergeography.org/atlas/conceptual.html>>.

Fig. 3-2 (left): Data packets traveling at high speed through a LAN.

Source: 29 Sept. 2002

<<http://www.cybergeography.org/atlas/artistic.html>>.

Fig. 3-3 (right): Image of the computer data structure from the movie *Hackers*.

Source: 29 Sept. 2002

<<http://www.cybergeography.org/atlas/artistic.html>>.

Fig. 3-4 Diagram by the author to illustrate the mental composition of cyberspace.

Fig. 3-5: The Palace, a graphical chat room environment
Source: 10 Mar. 2002 <<http://www.thepalace.com>>.

Fig. 3-6: Text and graphical interface of the “Web Talk”- Sociable Web Project.
Source: 20 Mar. 2002
<<http://judith.www.media.mit.edu/SocialWeb/SociableWeb.html>>.

Fig. 3-7. 3D avatars in social interaction.

Source: 20 Sept. 2002 <<http://www.cybertown.com>>.

Fig. 3-8: Video conferencing system model of Meta-Park.

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Fig. 3-9. Screen captures of Chat Circles project.

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Fig. 3-10. The interface of AIM®.
Source: screen capture.

Fig. 3-11. Screen capture from ICITY, a 3D interactive community.
Source: 20 Sept. 2002 <<http://www.icity.co.il/>>.

Fig. 3-12. VRML 3D environment for social interaction.

Source: 20 Sept. 2002 <http://www.cybertown.com/main_iframes.html>.

Fig. 4-1. The Development Model of the Dongba culture.

Source: Illustrated by the thesis author.

Fig. 4-2. Five applications derived from Dongba cultural Development.
Source: Illustrated by the thesis author.

Dongba Virtual Community-system analysis

Three circles:

1. Cultural activities;
2. Religion, tradition, and scholarship;
3. Teaching; consulting; research.

Five major elements:

- I. Social events;
- II. Religious rituals;
- III. Teaching, learning Dongba culture;
- IV. Communication;
- V. Religious Consulting.

Fig. 4-3. System analysis of Dongba Virtual Community.
Source: Illustrated by the thesis author.

Fig. 4-4. Worshipping the Heaven. Rituals in the fields.
Source: Li and A Yuan 20.

Fig. 4-5. Multiple accesses to different events.
Source: Illustrated by the thesis author.

Fig.4-6. Proposed: Naxi "social web" in the virtual community.
Source: Illustrated by the thesis author.

This is Netscape's Mail/News viewer. In the left pane the set of containers (in this case newsgroups) is displayed. The other panes show the list of messages in the selected group and the selected message.

This would be a overview of all the Dongba community members and communication connection. A user can select another user to see details and communicate with him/her by clicking internal links.

Fig. 4-7. "Container Navigation" VS a "Tree-Structured" overview of the Dongba community. Proposed by the thesis author.

Fig. 4-8. Comparison of social relationship in different modes.
Source: Illustrated by the thesis author.

Site Architecture of Dongba Virtual Community

Fig. 5-1. Site architecture of Dongba Virtual Community.
Source: Illustrated by the thesis author.

Fig. 5-2. Screen capture- Gateway

Fig. 5-3. Screen capture-personal space

Fig. 5-4. Screen capture-defining self in a social web

Fig. 5-5. Screen capture-learning Dongbashi in a virtual environment

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Appendix 1: User Interface Design Patterns

Windows

The most pervasive element used in GUIs is the window. It could be considered to be a metaphor for a "window" into the computer, but it is dependent on idioms for its operation. The video screen itself can be considered to be a window into the computer. In character-based interfaces it was the only window into the computer and was not really thought of as such. The GUI paradigm, however, allowed for the user to see into multiple areas within the computer, and the window metaphor was born.

Events

An "event," with respect to user interfaces, is any function initiated by the user. Selecting something from a pull-down menu, clicking a button or a checkbox, and closing a window are all examples of events.

It is a common misconception that events were born of the GUI age. In fact character-based interfaces accommodated myriad events, but they were generally

performed by complex keystrokes such as control-shift-F6. An application such as WordPerfect would usually provide a so-called "quick reference card" to aid the users in remembering which keystroke combination initiated which event.

By visually presenting all of the possible events to the user, the need for a quick reference card vanished. Also, the advent of pointing devices such as the mouse allowed entirely new kinds of events to be implemented, such as "drag and drop."

Pull-down Menus / Drop-down Menus

Pull-down menus are menus that the user can "pull down" from the menu bar that traverses the top of the screen. On some platforms these are called "drop down" menus because the user does not need to hold the mouse button down in order for the menu to remain visible.

Push Buttons

A push button is simply a rectangle that appears on a panel with some sort of label or icon inside it. The metaphor is to any button you'd find in the physical world, such as on a calculator or telephone. Clicking on a push button will cause some sort of action will occur. Sometimes a panel will have a "default" button, which appears with an enhanced border. This button will be activated when the Enter key is pressed.

Icons

Icons are small pictures that are generally represent objects in the physical world or are used as metaphors for functions or actions. Icons can be "clickable" and used to initiate an event. These are sometimes referred to as "buttcons," as they become hybrids of buttons and icons.

Checkboxes

A checkbox is a small square with some sort of label beside it. Clicking on a checkbox will cause a 'X' to appear in the box. Clicking it again will cause the 'X' to disappear.

Radio Buttons

A radio button is small circle with some sort of label beside it. A black dot inside the circle indicates that the button is selected. The absence of a dot indicates that the button is unselected. The metaphor with radio buttons is to old-fashioned car radios that used mechanical buttons to change the radio station. When one button is pushed in, whatever other button had been pushed in will pop out. In this way, only one button can be pushed in at a time. Similarly, with the radio button form object, clicking on one option will cause

whatever other option that had been selected to become unselected.

When applicable, radio buttons should be placed in a logical order.

Don't use radio buttons for binary choices (e.g. Yes/No). Use check boxes for this.

Scrolling Lists

Scrolling lists are lists of elements that appear in a box with a scroll bar on the side, allowing the user to scroll through the elements in the list. In this way the list can contain more elements than can be displayed at any one time. Clicking on an element in the list will cause that element to become selected, as shown below.

Optionally, a list can allow multiple selections. These can either be contiguous or discontinuous, as shown below (respectively).

Text Field

A text field is simply a space in which the user can type text. Text fields are usually contained within a rectangle, but it could just be space on a panel that can accept

text.

If a text field is contained within a rectangle, it can optionally have a scroll bar to allow it to contain more information than can be displayed at any one time.

Popup List

A popup list appears initially as a box containing some sort of label. When the user clicks on the box, a larger box containing a variety of choices will "pop up." By moving the mouse, the user can cause another choice to become selected. When the user releases the mouse, the popup menu will disappear leaving currently selected choice to appear in the box.

Spin Boxes

A spin box is a box containing some value, with up and down arrows on one side and generally a label on the other. By clicking the up or down arrow, different values will appear in the box. The entire range of choices can be cycled through if the up or down arrows are clicked enough times. Whatever value appears in the box is the value that is selected at that time.

Sliders

A slider is a long box with a control that the user is able to slide one way or the other. Often a slider will have an arrow button at either end to allow the user to adjust the slider one unit at a time. Also there is often a text field to the side of the slider that will indicate the value that the slider is currently set on and allow the user to enter a specific value.

Appendix 2: Test and Validation of the Web Prototype

Based on usability concerns and the questions we raised through the thesis, the prototype design meets the requirement and delivers a message: cultural conservation can be done through virtual community and communication. The interface of the prototype provides users free access to most of their traditional resources, as well as limiting abusing technology to distract cultural attention. The goal of conserving the living Dongba culture through a virtual community is achieved, and validated by the following elements:

- *GUI*: Graphical Interface builds a proper environment for Dongba culture and recalls users' cultural links to their community. Animations offer a clear sense of space shift.
- *User Experience*: User can successfully accomplish tasks, such as find a friend and communicate, learn Dongba skills, and participate a traditional ritual.
- *Interaction*: a user can get what he/her expect from the interface.
- *Information Design*: a user can access the data easily.
- *Communication*: users can interact through text, audio, graphic, or real-time videoconference.
- *Personal Identity*: Personal profile is identical to one's physical identical, which secures the social credit through interaction, defines oneself as a traditional Naxi, and rebuilds cultural connection with other community members.
- *Dongba Religion*: Religious belief is strengthened through traditions and social activities, as well as access to authentic resources. Cultural products, such as fine

art, literature and music, are respected as part of the daily language and expressions.

Appendix 3: Glossary of Internet Terms

Computer-mediated communication (CMC)

Computer-mediated communication is any person-to-person communication that is conducted over large physical and/or perceptual distances using computer and telecommunications technology and limited to the exchange of alphanumeric words and images.

Internet.

The Internet is a concatenation of many individual campus, state, regional and national networks (such as the National Science Foundation's NSFnet, the U.S. Defense Department's ARPAnet, and the U.S. Army's Milnet) into one single logical network, all sharing a common addressing scheme.

Lurking. Refers to the act of viewing other peoples' conversations in a usenet room (for example) but not participating yourself.

MUDs.

This stands for Multi-User Dungeons, which are text-based technologies that allow users from different locations to participate in a common game or text-based world (through CMC), where they can interact with other users who are logged onto the host computer. Generally the environments are game oriented.

Surfing. Browsing through different sites and pages on the World Wide Web.

Usenet.

Usenet is an international network of machines that exchange articles categorized into a number of different topic areas known as news groups.

Virtual community.

A virtual community is a social aggregation that emerges in a CMC environment when enough people carry on public discussions for long periods of time with significant amounts of human feeling, thus forming webs of personal relationships that exist in cyberspace.

Appendix 4: Glossary of Online Community

Asynchronous Interaction

Online discussions occurring independent of time or location. Participants send messages to a central location (discussion forum) where they are archived for later retrieval from other participants. Examples of asynchronous interaction are web based bulletin boards and email.

Bookmark

To mark a document or a specific place in a document for later retrieval. Most Web browsers support a bookmarking feature that lets you save the address (URL) of a Web page so that you can easily re-visit the page at a later time. (n) A marker or address that identifies a document or a specific place in a document.

Bulletin Board

A name for web-based online conferencing spaces. Bulletin boards are asynchronous tools and can be organized in linear or threaded formats.

Chat

Same time (synchronous) web-based text interaction. Typically fast moving, chat can be used for large "auditorium" events where there are presenters and audience, smaller

group work meetings or social interactions, or small, one-on-one sessions. Some chat applications are now integrating voice as well as text chat.

Computer Mediated Communications (CMC)

Communication done via online tools such as email, web pages, online interaction or conferencing.

Emoticon

Also known as smilies, they are keyboard characters used in combination to produce whimsical symbols representing a range of emotions. Examples are happy :-) and sad :-(. Emoticons are used in electronic communication to show humor and express emotions that are difficult to communicate in a text-based environment. For a comprehensive list of emoticons, follow this link: <http://www.chatlist.com/faces.html>

Instant Message

A synchronous personal message sent between two users. Examples of instant messaging tools include ICQ, AOL Instant Messenger, Microsoft Messenger and Jabber.

Log-in

The process of going to a web site which requires the user to input a user name and password to get access to that space. Most online conference spaces require logging in.

This allows posts to be attributed to unique users and to track user progress through the discussion space.

Presence Indicators

A software tool built into an online interaction space which show who is online in the space at any given time. These are useful to help build a sense of "group" and are often bundled with instant messenger tools enabling users who are online at the same time to send quick messages to each other.

Satellite Conference

Broadcast one way and two-way conferences that use audio and video for real time meetings linking diverse locations.

Synchronous Interaction - (Real Time)

Online discussions occurring independent of location, but at the same time. Participants must agree on a time to log into the discussion forum and messages are received at the moment they are sent. This form of electronic communication is also called "chatting," and can include audio and/or video.

Videoconferencing

It refers to a conference or interaction between two or more participants at

different sites by using computer networks to transmit audio and video data. Some times the audio is done via separate telebridge. A *point-to-point* (two-person) video conferencing system works like a video telephone. Each participant has a video camera, microphone, and speakers mounted on his or her computer. As the two participants speak to one another, their voices are carried over the network and delivered to the other's speakers, and whatever images appear in front of the video camera appear in a window on the other participant's monitor. Multipoint videoconferencing allows three or more participants to sit in a virtual conference room and communicate as if they were sitting right next to each other.